Rural and Remote Clinical Support Unit
Torres and Cape Hospital and Health Service

Chronic Conditions Manual
Chronic disease prevention, early intervention and management
information and guidelines

Pathways to Access Rural and Remote
Orientation and Training
Orientation, training and professional development supporting rural
remote practice

Primary Clinical Care Manual
Primary clinical care guidelines and health management protocols for
rural remote practice

Child and adult health check activity summary
Lifestyle modification recommendations summary

Prevention & Management of Chronic Conditions in Australia
Chronic Conditions Manual
1st edition 2015

Primary Clinical Care Manual
Primary clinical care guidelines and health management protocols for
acute presentations

PARROT
Pathways to Access Rural and Remote
Orientation and Training
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Comments and feedback
Comments and contributions to this 1st edition are welcome. Please write or email

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Chronic conditions, or chronic diseases, are characterised by prolonged illnesses causing functional impairment or disability due to multiple and (mostly) preventable risk factors. Occurring insidiously over time with little chance of cure or spontaneous resolution, these conditions often affect the most vulnerable in our society.

Chronic conditions make the largest contribution to premature death in western societies and the fiscal and social burden of chronic health conditions is widely known and reported. It is estimated that if current trends continue over the next two decades, the burden of chronic conditions will account for 80% of our nation’s ill health and represent more than 70% of all health care expenditure, leaving an indelible socioeconomic and personal impact on the fabric of the nation, straining national health infrastructure and valuable resources.

State and national strategies have been devised to address these trends, but few documents provide a comprehensive collection of practical guidelines to clinically screen for and manage them.

This collection of guides has been produced from contemporary evidenced literature and has been developed using best practice frameworks with their use by clinicians as a core aim. We believe having access to concise nationally accepted management guidelines to address chronic conditions in a clear, consistent and evidenced manner is a vital part of journeying with the client to improve their health.

By using tools to check the health status of individuals from birth at designated and evidenced intervals, the **Chronic Conditions Manual** provides all clinicians with a platform for early intervention to stem the growing trend of acquiring preventable conditions throughout a person’s life.

The tools and guidelines are supported with evidenced lifestyle behaviour recommendations so clinicians can support client health literacy to proactively plan, manage and optimise their health, wellbeing and quality of life while living with one or more chronic health conditions.

The guidelines and health checks are not definitive statements or procedures; rather, they constitute a general guide to be followed, subject to the context in which they are used as well as the scope of the clinician’s practice.

It is our privilege to continue in the tradition of **Chronic Disease Guidelines** development and present to you the 1st edition of the *Chronic Conditions Manual: Prevention and Management of Chronic Conditions in Australia*.

---

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Royal Flying Doctor Service (Queensland Section)
Rural and Remote Clinical Support Unit

The Rural and Remote Clinical Support Unit (RRCSU) is a unit within the Torres and Cape Hospital and Health Service. It is a leader in providing evidenced and quality clinical health support tools for clinicians in rural, remote and regional Queensland facilities. The unit develops contemporary reference tools and education platforms in partnership with principal service providers in rural and remote health care; the Royal Flying Doctor Service and Apunipima Cape York Health Council. A number of other jurisdictions have acknowledged the quality and usefulness of these tools by adopting them for their own use.

The linked suite of tools for rural, remote and regional practitioners include the Chronic Conditions Manual, the Primary Clinical Care Manual (PCCM) and the Pathways to Access Rural and Remote Orientation and Training (PARROT) program.

The PCCM is the principal clinical reference and policy document for health professionals practising in rural, remote and regional Queensland, and by health professionals in a variety of jurisdictions across Australia where it is supported by state legislation and nationally accredited training and support for designated clinicians. It provides evidence based clinical care protocols for health professionals who may be working in isolation from immediate medical support. The PCCM provides the authority for nationally endorsed rural and remote health professionals to engage in advanced practice under the Health (Drugs & Poisons) Regulation 1996 by administering and supplying medications independent of a doctor’s order.

The freely accessible PARROT program has been developed to support the rural and remote health care workforce with orientation, education and training in rural and remote primary health care settings. This flexibly delivered program is applicable from the pre-recruitment stage through to ongoing professional development for staff to provide contemporary and evidence based care in chronic condition prevention, detection and management within a comprehensive primary health care framework.

The RRCSU takes pride in the work invested in, and the standards maintained by, these three initiatives to address the diverse clinical requirements of rural, remote and regional practitioners.
Acknowledgements

The Rural and Remote Clinical Support Unit would like to particularly acknowledge the Apunipima Cape York Health Council and the Royal Flying Doctor Service (Queensland Section) for their substantial support in the development of this manual. The unit would also like to acknowledge the following people and organisations for their expert input and contributions

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Disclaimer


Queensland Health does not accept liability to any person for loss or damage incurred as a result of reliance upon the material contained in this manual.

The information within this manual represents standardised best practice and does not replace sound clinical judgement or professional duty of care necessary for each specific client case.

Clinical care carried out in accordance with this guideline should be provided within the context of locally available resources and expertise.

Guidelines within this manual do not address all elements of standard practice and assumes individual clinicians are responsible to

- Discuss care with clients in an environment that is culturally appropriate and which enables respectful confidential discussion
- Employ the use of interpreter services where necessary
- Advise clients of their choice and ensure informed consent is obtained
- Provide sound clinical interventions within their scope of practice
- Meet all their legislative requirements to practice
- Maintain standards of professional conduct
- Apply standard precautions and additional precautions as necessary
- Document all interventions in accordance with mandatory and local requirements
How to use this manual

The contents of the *Chronic Conditions Manual* is broken into 5 distinct sections

- Lifestyle modifications
- Management of diagnosed conditions
- Child health checks
- Adult health checks
- Appendices

**Section 1. Lifestyle modifications**

This section aims to support clinical practice with 5 concise areas containing best practice information for a healthy life. These are:

- Smoking cessation
- Alcohol reduction
- Physical activity
- Reproductive health
- Diet and nutrition

This information can be copied and disseminated to clients to support improving healthy lifestyle behaviours

**Section 2. Management of diagnosed conditions**

This section is intended for all clinicians who work directly with clients with a chronic condition in a community setting. It provides 22 separate guides for the most common chronic conditions in Australia. These guides follow the same format and include the sections

1. **What is?** - provides a brief background and explanation of the condition
2. **Diagnosis** - briefly outlines elements taken into consideration when diagnosing the condition
3. **Management** - details the specific elements required to successfully manage the diagnosed condition in a community setting including providing strategies around client engagement and continuity of care
4. **Medications** - provides options on various treatment modalities considered appropriate for the diagnosed condition, including a list of suggested PBS approved medications
5. **Care plan** - provides a structured carepath for the clinician to monitor progress and assist with follow up and ongoing management
6. **References** - each guide has its own reference section listing the relevant information sources
7. **Resources** - provides the clinician with the most up to date on-line resources to assist with and provide further information on management and education of the client to improve health outcomes
Section 3. Child Health Check

This section provides best practice recommendations to routinely check for and/or identify chronic conditions from birth to < 15 years of age

They provide a systematic guide to perform health check assessments via direct questioning, clinical procedure, and referral if concerns are identified

With an aim being prevention, these Health Check sections should be complemented by both the Lifestyle modification and Management of diagnosed conditions sections of the guide

Section 4. Adult Health Check

As per the Child Health Checks section except this section provides best practice recommendations to routinely check for and/or identify chronic conditions from 15 years to old age

Section 5. Appendices

This section contains a range of supporting information in risk assessment, referral and Medicare claiming

The Health Check Forms

The Rural and Remote Clinical Support Unit has developed comprehensive standardised Medicare compliant Child and Adult Health Check forms that align with the requirements for Medicare claiming

These forms are freely available for use and can be download and used in conjunction with the manual
# Acronyms and glossary

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
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<tbody>
<tr>
<td>ACR</td>
<td>Albumin-creatinine ratio</td>
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<tr>
<td>ADLs</td>
<td>Activities of daily living</td>
</tr>
<tr>
<td>AF</td>
<td>Atrial fibrillation</td>
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<tr>
<td>ARF</td>
<td>Acute rheumatic fever</td>
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<tr>
<td>ATODs</td>
<td>Alcohol tobacco &amp; other drugs</td>
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<tr>
<td>APSGN</td>
<td>Acute post streptococcal glomerular nephritis</td>
</tr>
<tr>
<td>ASQ</td>
<td>Ages and Stages Questionnaire</td>
</tr>
<tr>
<td>BBV</td>
<td>Blood borne viruses</td>
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<tr>
<td>BGL</td>
<td>Blood glucose level</td>
</tr>
<tr>
<td>BMI</td>
<td>Body mass index</td>
</tr>
<tr>
<td>BP</td>
<td>Blood pressure</td>
</tr>
<tr>
<td>BRCA₁ or BRCA₂</td>
<td>A gene for breast cancer, early onset</td>
</tr>
<tr>
<td>BSA</td>
<td>Body surface area</td>
</tr>
<tr>
<td>CALD</td>
<td>Culturally and linguistically diverse</td>
</tr>
<tr>
<td>CAM</td>
<td>Confusion Assessment Method</td>
</tr>
<tr>
<td>CAT</td>
<td>Chronic obstructive pulmonary disease assessment test</td>
</tr>
<tr>
<td>CBT</td>
<td>Cognitive behaviour therapy</td>
</tr>
<tr>
<td>CDC</td>
<td>Centre for Disease Control</td>
</tr>
<tr>
<td>CHADS₂</td>
<td>Acronym of the questions which assess the atrial fibrillation stroke risk</td>
</tr>
<tr>
<td>CHN</td>
<td>Child health nurse</td>
</tr>
<tr>
<td>CKD</td>
<td>Chronic kidney disease</td>
</tr>
<tr>
<td>cm</td>
<td>Centimetres (cm³ - centimetre cubed in volume, cm² - centimetre squared in area)</td>
</tr>
<tr>
<td>COPD</td>
<td>Chronic obstructive pulmonary disease</td>
</tr>
<tr>
<td>CPAP</td>
<td>Continuous positive airway pressure</td>
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<tr>
<td>CPSP</td>
<td>Central post stroke pain</td>
</tr>
<tr>
<td>CQI</td>
<td>Continuous quality improvement</td>
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<tr>
<td>CrCl</td>
<td>Creatinine Clearance</td>
</tr>
<tr>
<td>CR</td>
<td>Controlled release</td>
</tr>
<tr>
<td>CS</td>
<td>Caesarian section</td>
</tr>
<tr>
<td>CSDD</td>
<td>Cornell Scale for Depression in Dementia</td>
</tr>
<tr>
<td>CSOM</td>
<td>Chronic suppurative otitis media</td>
</tr>
<tr>
<td>CT</td>
<td>Computerised tomography scan</td>
</tr>
<tr>
<td>CVA</td>
<td>Cerebrovascular accident</td>
</tr>
<tr>
<td>CVD</td>
<td>Cardiovascular disease</td>
</tr>
<tr>
<td>daPa</td>
<td>Dekapascal - a measure of pressure</td>
</tr>
<tr>
<td>dB</td>
<td>Decibel</td>
</tr>
<tr>
<td>DBP</td>
<td>Diastolic blood pressure</td>
</tr>
<tr>
<td>Dietitian</td>
<td>An accredited practicing dietitian</td>
</tr>
<tr>
<td>Abbreviation</td>
<td>Full Form</td>
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</tr>
<tr>
<td>DM</td>
<td>Diabetes mellitus</td>
</tr>
<tr>
<td>DPI</td>
<td>Dry powder inhaler</td>
</tr>
<tr>
<td>DV</td>
<td>Domestic violence</td>
</tr>
<tr>
<td>DVT</td>
<td>Deep vein thrombosis</td>
</tr>
<tr>
<td>EC</td>
<td>Editorial Committee</td>
</tr>
<tr>
<td>ECG</td>
<td>Electrocardiogram/graph</td>
</tr>
<tr>
<td>ECV</td>
<td>Ear canal volume</td>
</tr>
<tr>
<td>ED</td>
<td>Erectile dysfunction</td>
</tr>
<tr>
<td>eGFR</td>
<td>Glomerular filtration rate (estimated)</td>
</tr>
<tr>
<td>EPDS</td>
<td>Edinburgh Postnatal Depression Scale</td>
</tr>
<tr>
<td>FASD</td>
<td>Fetal alcohol spectrum disorder</td>
</tr>
<tr>
<td>FAQ</td>
<td>Functional Activities Questionnaire</td>
</tr>
<tr>
<td>FCU</td>
<td>First catch urine</td>
</tr>
<tr>
<td>FIFO</td>
<td>Fly in fly out</td>
</tr>
<tr>
<td>FiT</td>
<td>Faecal immunochemical test</td>
</tr>
<tr>
<td>FOBT</td>
<td>Faecal occult blood test</td>
</tr>
<tr>
<td>GAD</td>
<td>General anxiety disorder</td>
</tr>
<tr>
<td>GDM</td>
<td>Gestational diabetes mellitus</td>
</tr>
<tr>
<td>GDS</td>
<td>Geriatric Depression Scale</td>
</tr>
<tr>
<td>GPCOG</td>
<td>General practitioner assessment of cognition</td>
</tr>
<tr>
<td>gm</td>
<td>Gram</td>
</tr>
<tr>
<td>HACC</td>
<td>Home And Community Care</td>
</tr>
<tr>
<td>HAS-BLED</td>
<td>Acronym of the questions which assess for risk of major bleeding with anticoagulation in atrial fibrillation</td>
</tr>
<tr>
<td>Hb</td>
<td>Haemoglobin</td>
</tr>
<tr>
<td>HDL-C</td>
<td>High-density lipoproteins cholesterol</td>
</tr>
<tr>
<td>HFPEF</td>
<td>Heart failure with preserved ejection fraction</td>
</tr>
<tr>
<td>HREF</td>
<td>Heart failure with reduced ejection fraction</td>
</tr>
<tr>
<td>HIE</td>
<td>Hypoxic ischaemic encephalopathy</td>
</tr>
<tr>
<td>HPV</td>
<td>Human papillomavirus</td>
</tr>
<tr>
<td>HTN</td>
<td>Hypertension</td>
</tr>
<tr>
<td>HW</td>
<td>Health Worker</td>
</tr>
<tr>
<td>Hx</td>
<td>History (MHx - Medical history, PHx - Past history, PMHx - Past medical history)</td>
</tr>
<tr>
<td>Hz</td>
<td>Hertz</td>
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<tr>
<td>IADLS</td>
<td>Instrumental activities of daily living</td>
</tr>
<tr>
<td>ICS</td>
<td>Inhaled corticosteroids</td>
</tr>
<tr>
<td>IGT</td>
<td>Impaired glucose tolerance</td>
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<tr>
<td>IFG</td>
<td>Impaired fasting glucose</td>
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<tr>
<td>IPT</td>
<td>Interpersonal psychotherapy</td>
</tr>
<tr>
<td>kg</td>
<td>Kilogram</td>
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<tr>
<td>KICA</td>
<td>Kimberley Indigenous Cognitive Assessment</td>
</tr>
<tr>
<td>Abbreviation</td>
<td>Description</td>
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<td>--------------</td>
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<tr>
<td>L</td>
<td>Litre</td>
</tr>
<tr>
<td>LABA</td>
<td>Long acting ( \beta _2 ) agonist</td>
</tr>
<tr>
<td>LDL</td>
<td>Low density lipids</td>
</tr>
<tr>
<td>LTRA</td>
<td>Leukotriene receptor antagonist</td>
</tr>
<tr>
<td>LV</td>
<td>Left ventricle (ventricular)</td>
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<tr>
<td>MASS</td>
<td>Medical Aid Subsidy Scheme</td>
</tr>
<tr>
<td>MDI</td>
<td>Metered dose inhaler</td>
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<tr>
<td>MI</td>
<td>Myocardial Infarction (heart attack)</td>
</tr>
<tr>
<td>MBS</td>
<td>Medicare benefits schedule</td>
</tr>
<tr>
<td>Medicare item</td>
<td>Item number refers to the service provided for which revenue can be claimed</td>
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<tr>
<td>mg</td>
<td>Milligram</td>
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<tr>
<td>mL</td>
<td>Millilitre</td>
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<tr>
<td>mm</td>
<td>Millimetre</td>
</tr>
<tr>
<td>mmol</td>
<td>Millimole</td>
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<tr>
<td>MMSE</td>
<td>Mini Mental State Examination</td>
</tr>
<tr>
<td>MO</td>
<td>Medical Officer</td>
</tr>
<tr>
<td>MRI</td>
<td>Magnetic resonance imaging</td>
</tr>
<tr>
<td>NHMRC</td>
<td>National Health And Medical Research Council</td>
</tr>
<tr>
<td>nmol</td>
<td>Nanomole</td>
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<tr>
<td>NP</td>
<td>Nurse Practitioner</td>
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<tr>
<td>NVD</td>
<td>Normal vaginal delivery</td>
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<tr>
<td>OCP</td>
<td>Ova, cysts and parasites</td>
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<tr>
<td>OCS</td>
<td>Oral glucocorticosteroids</td>
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<tr>
<td>OGTT</td>
<td>Oral glucose tolerance test</td>
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<tr>
<td>OM</td>
<td>Otitis media</td>
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<tr>
<td>OSA</td>
<td>Obstructive sleep apnoea</td>
</tr>
<tr>
<td>Parent</td>
<td>A parent refers to a biological parent, a primary carer, provider or caregiver of a child</td>
</tr>
<tr>
<td>PARROT</td>
<td>Pathways to Access Rural and Remote Orientation and Training</td>
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<td>PBS</td>
<td>Pharmaceutical Benefits Scheme</td>
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<td>PCCM</td>
<td>Primary Clinical Care Manual</td>
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<td>PCR</td>
<td>Polymerase chain reaction</td>
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<tr>
<td>PE</td>
<td>Pulmonary embolism</td>
</tr>
<tr>
<td>PEDS</td>
<td>Parent Evaluation Of Developmental Status</td>
</tr>
<tr>
<td>Pharmacist</td>
<td>An experienced registered pharmacist who has knowledge, skills and competencies to provide medication management review services to an agreed standard</td>
</tr>
<tr>
<td>PHC</td>
<td>Primary health care</td>
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<tr>
<td>PHR</td>
<td>Personal health record booklet (baby book)</td>
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<td>PID</td>
<td>Pelvic inflammatory disease</td>
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<td>PTSD</td>
<td>Post traumatic stress disorder</td>
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<tr>
<td>Abbreviation</td>
<td>Full Form</td>
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<td>QH</td>
<td>Queensland Health</td>
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<td>RFDS</td>
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<td>RHD</td>
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<td>RN</td>
<td>Registered Nurse</td>
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<td>ROM</td>
<td>Range of motion</td>
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<td>RUDAS</td>
<td>Rowland Universal Dementia Assessment Scale</td>
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<td>SABA</td>
<td>Short acting β₂ agonist</td>
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<td>SBP</td>
<td>Systolic blood pressure</td>
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<td>SOB</td>
<td>Shortness of breath</td>
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<tr>
<td>STI</td>
<td>Sexually transmitted infection</td>
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<tr>
<td>SIDS</td>
<td>Sudden infant death syndrome</td>
</tr>
<tr>
<td>SIDS</td>
<td>Sudden infant death syndrome</td>
</tr>
<tr>
<td>SNHL</td>
<td>Sensory neurological hearing loss</td>
</tr>
<tr>
<td>SUDI</td>
<td>Sudden unexpected death in infancy</td>
</tr>
<tr>
<td>TC</td>
<td>Total cholesterol</td>
</tr>
<tr>
<td>TG</td>
<td>Triglyceride</td>
</tr>
<tr>
<td>TIA</td>
<td>Transient ischaemic attack</td>
</tr>
<tr>
<td>TPPA</td>
<td>Treponema pallidum particle agglutination</td>
</tr>
<tr>
<td>UEC</td>
<td>Urea, electrolytes, creatinine</td>
</tr>
<tr>
<td>µg</td>
<td>Micrograms</td>
</tr>
<tr>
<td>ULN</td>
<td>Upper limit of normal</td>
</tr>
<tr>
<td>UTI</td>
<td>Urinary tract infection</td>
</tr>
<tr>
<td>VA</td>
<td>Visual acuity</td>
</tr>
<tr>
<td>WHO</td>
<td>World Health Organization</td>
</tr>
<tr>
<td>&gt;</td>
<td>Greater than</td>
</tr>
<tr>
<td>&lt;</td>
<td>Less than</td>
</tr>
<tr>
<td>≥</td>
<td>Greater than or equal to</td>
</tr>
<tr>
<td>≤</td>
<td>Less than or equal to</td>
</tr>
</tbody>
</table>
Section 1

Lifestyle modifications
Notes
Section 1: Lifestyle modifications

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Sexual and reproductive health 32
Smoking cessation 44
Alcohol reduction

Recommendations

1. Reducing the risk of alcohol related harm over a lifetime
   • For healthy men and women, drinking no more than 2 standard drinks on any day reduces the lifetime risk of harm from alcohol related disease or injury
   • The lifetime risk of harm from drinking alcohol increases with the amount consumed

2. Reducing the risk of injury on a single occasion of drinking
   • For healthy men and women, drinking no more than 4 standard drinks on a single occasion reduces the risk of alcohol related injury arising from that occasion
   • On a single occasion of drinking, the risk of alcohol related injury increases with the amount consumed

3. Children and young people under 18 years of age
   • For children and young people under 18 years of age, not drinking alcohol is the safest option
   • Parents and carers should be advised that children under 15 years of age are at the greatest risk of harm from consuming alcohol

4. Pregnancy and breastfeeding
   • Maternal alcohol consumption can harm the developing fetus or breastfeeding baby
   • For women who are pregnant or planning a pregnancy, not drinking is the safest option
   • For women who are breastfeeding, not drinking is the safest option

1. The facts

   • Alcohol consumption accounts for 3.3% of the total burden of disease and injury in Australia including: motor vehicle and bicycle accidents, incidents involving pedestrians, falls, fires, drowning, sports and recreational injuries, alcohol poisoning, overdose, suffocation, inhalation of vomit, assault, violence and intentional self-harm
   • In Australia, alcohol is second only to tobacco as a preventable cause of drug-related death and hospitalisation
   • Alcohol accounts for 13% of all deaths among 14 - 17 year old Australians
   • Alcohol is twice as likely to cause injury, disease and death in Aboriginal and Torres Strait Islander populations
   • There is a strong association between alcohol use and suicide among some Aboriginal and Torres Strait Islander peoples
   • Alcohol related community concerns include: noise, litter, offensive behaviour, vandalism, aggression, petty crime, assault and road safety issues
   • Alcohol is associated with up to 50% of all violent crimes (including domestic violence) to family members (including children) and to friends and workmates, as well as to
bystanders and strangers

2. **Response to alcohol**

- Individual response to alcohol is determined by gender, body size and composition, age, experience of drinking, genetics, nutrition and general health (see Table 1)
- There is no amount of alcohol that can be said to be safe for everyone
- A person’s perception of how much alcohol they can ‘handle’ can lead them to believe that they are able to drink more without harm

### Table 1. Factors relating to response to alcohol

<table>
<thead>
<tr>
<th>Factor</th>
<th>Response</th>
</tr>
</thead>
</table>
| Gender                  | - The same amount of alcohol affects women more than men as women tend to have a smaller body size, a lower proportion of lean tissue and smaller livers than men  
                       | - The higher level of risk-taking behaviour among men means male alcohol related risks exceed those of female                                                                                           |
| Age                     | - Younger people are less tolerant to alcohol and have less experience of drinking and its effects  
                       | - Puberty is often accompanied by risk-taking behaviours  
                       | - As people age, their tolerance for alcohol decreases and the risk of falls, driving accidents and adverse interactions with medications increases         |
| Mental health           | - People who have, or are prone to, mental health conditions (e.g. anxiety, depression and schizophrenia) can have worse symptoms after drinking  
                       | - Alcohol can trigger a variety of mental health conditions in people who are already prone to these conditions                                      |
| Medication and drug use | - Alcohol can interact with many prescribed and over-the-counter medications, herbal preparations and illicit drugs, which can alter the effect of either the alcohol or the medication |
| Family history          | - Those with a family history of alcohol dependence (particularly among first-degree relatives) have an increased risk of developing dependence themselves |
| Other health conditions | - Those with health conditions caused or exacerbated by alcohol, such as epilepsy, alcohol dependence, cirrhosis of the liver, hepatitis or pancreatitis, risk the condition becoming worse |
| Tolerance               | - Tolerance occurs because liver enzyme induction increases alcohol metabolism  
                       | - A person learns to cope with, and compensate for, the deficits induced by alcohol                                                                                                                   |

3. **Physical effects of alcohol**

### 3.1 Metabolism

- Alcohol starts to affect the brain within 5 minutes of being ingested
- Blood alcohol concentration (BAC) reaches its peak 30 - 45 minutes after the consumption of one standard drink
- Rapid consumption of multiple drinks results in a higher BAC because the liver has a
fixed rate of metabolising alcohol

- The rate of metabolism depends on liver size, body mass and composition, alcohol tolerance and individual variation in the genes that control expression of alcohol-metabolising enzymes in the liver
- In general it takes about 1 hour for the body to clear one standard drink, raising the BAC by 0.01%
- Eating when drinking alcohol slows BAC from increasing as food in the stomach reduces the speed at which alcohol is absorbed into the bloodstream
- Activities such as drinking coffee, having a cold shower, vomiting or exercising are myths that do not reduce BAC
- As it takes many hours for BAC to return to zero after a heavy night of drinking, a person may still have a BAC > 0.05% the following morning

3.2 Immediate effects

- The most immediate effects of alcohol are on the brain’s arousal, motor and sensory centres, which reduces reactions to stimuli and affects coordination, speech, cognition and the senses, with feelings of relaxation, wellbeing and loss of inhibitions
- As BAC increases, drowsiness, loss of balance, nausea and vomiting begin to occur while physical performance, behaviour and memory (blackouts) deteriorate progressively
- When BAC reaches high levels, life-threatening events can occur, such as unconsciousness, inhibition of normal breathing and death, especially with aspirated vomitus
- Alcohol affects the pituitary gland, suppressing the production of anti-diuretic hormone, causing the kidneys to fail to reabsorb adequate amounts of water, resulting in diuresis and dehydration
- Alcohol reduces the cognitive or verbal capacity to resolve conflicts which can increase the likelihood and extent of aggressive behaviours and physical violence

3.3 Cumulative effects

- Alcohol consumption is associated with a range of diseases and conditions that cause death or reduce quality of life (see Table 2)
Section 1: Lifestyle modifications

alcohol reduction

Table 2. Cumulative effects of alcohol

<table>
<thead>
<tr>
<th>Condition</th>
<th>Effect</th>
</tr>
</thead>
</table>
| Cardiovascular disease    | • Raised blood pressure  
                            • Increased risk of arrhythmias  
                            • Shortness of breath  
                            • Cardiac failure  
                            • Haemorrhagic stroke  
                            • Alcoholic cardiomyopathy  
                            • Raised high density lipoprotein cholesterol  
                            • Reduces plaque accumulation in arteries  
                            • Mild anti-coagulating effect |
| Cancer                    | • Alcohol is carcinogenic  
                            • Cancer of the oral cavity, pharynx, larynx, oesophagus, liver, colorectum and female breast  
                            • Related increased rates of tobacco use in drinkers further increases cancer risks |
| Diabetes                  | • Poor insulin sensitivity                                             |
| Nutrition                 | • Undernutrition  
                            • Thiamine and vitamin B1 deficiency which can lead to Wernicke-Korsakoff syndrome  
                            • Folate deficiency  
                            • Vitamin A depletion  
                            • Pellagra |
| Overweight and obesity    | • Adds kilojoules to the normal diet  
                            • Obesity and alcohol together promote liver disease morbidity and mortality |
| FASD                      | • See Developmental delay in children, page 184                       |
| Liver diseases            | • Alcoholic hepatitis, cirrhosis, liver failure and hepatocellular carcinoma  
                            • In the presence of obesity and hepatitis B or C, the likelihood and rate of progression of cirrhosis increases |
| Mental health conditions  | • Increases the risk of depression and anxiety in some people  
                            • May reduce the efficacy of antidepressant medication  
                            • Alcohol dependence increases the risk of developing major depression  
                            • The co-occurrence of major depression and alcohol use disorders increases the risks of violence and suicidal behaviour |
| Tolerance                 | • Drinkers who have greater tolerance for alcohol are likely to experience higher BAC levels more frequently and put themselves at higher risk of cumulative effects |
| Dependence                | • Drinking is given priority over other behaviours that are much more important e.g. food, parenting  
                            • Anxiety and depression  
                            • Increased risk of violence and self-harm |
| Long-term cognitive impairment | • Negative structural and metabolic brain changes  
                            • Increased risk of dementia |
| Self-harm                 | • Major risk factor for suicide and suicidal behaviour in both males and females across the lifespan  
                            • Increased risk of head trauma and sequelae |
4. The Australian standard drink

- A standard Australian drink is defined as containing 10 g of alcohol (see Table 3). For a pictorial chart see Resource 1.
- A serving of alcohol frequently differs from a ‘standard drink’ because
  - there is no common glass sizes used across all public drinking environments
  - jugs, casks and flagons are often shared
  - glasses are topped up
  - pre-mixed drinks contain variable amounts of alcohol per bottle, can or glass
- In Australia, all bottles, cans and casks containing alcoholic beverages are required by law to state on the label the approximate number of standard drinks

5. Identifying an alcohol problem

5.1 Suspicion

- People who drink excessively rarely present directly for assistance with a drinking problem
- Often when the client has presented for another problem, a drinking history is omitted due to time restrictions or having to ask awkward questions about their drinking
- The clinician should be alerted to a suspicion of problem drinking if certain clinical indicators exist (see Table 4)

5.2 Problem drinking

- If a suspicion of problem drinking exists consider an alcohol consumption screening tool, such as the Audit-C questionnaire (see Resource 2)

5.3 Dependence

- Alcohol dependence can be identified if 3 or more of the following are present
  - strong desire to drink alcohol
  - difficulties in controlling alcohol use
  - persisting in alcohol use despite harmful consequences
  - a higher priority given to alcohol use than to other activities and obligations
  - increased tolerance and
  - sometimes a physical withdrawal state

---

**Blood alcohol concentrations for driving in Australia**

- **0.00%** for a holder of a learner or provisional license regardless of age and those holding a license to drive passenger vehicles (buses, taxis, planes) and trucks
- **Below 0.05%** for a holder of an open license
# Section 1: Lifestyle modifications

## Alcohol reduction

<table>
<thead>
<tr>
<th>Beverage and alcohol content</th>
<th>Size</th>
<th>Standard drink</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Full strength beer</strong> 4.8% Alc./Vol</td>
<td>Midi or pot 285 mL</td>
<td>1.1</td>
</tr>
<tr>
<td></td>
<td>Schooner 425 mL</td>
<td>1.6</td>
</tr>
<tr>
<td></td>
<td>Can or stubbie 375 mL</td>
<td>1.4</td>
</tr>
<tr>
<td></td>
<td>Carton, slab, case 24 x 375 mL</td>
<td>34</td>
</tr>
<tr>
<td><strong>Mid strength beer</strong> 3.5% Alc./Vol</td>
<td>Midi or pot 285 mL</td>
<td>0.8</td>
</tr>
<tr>
<td></td>
<td>Schooner 425 mL</td>
<td>1.2</td>
</tr>
<tr>
<td></td>
<td>Can or stubbie 375 mL</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Carton, slab, case 24 x 375 mL</td>
<td>24</td>
</tr>
<tr>
<td><strong>Light beer</strong> 2.7% Alc./Vol</td>
<td>Midi or pot 285 mL</td>
<td>0.6</td>
</tr>
<tr>
<td></td>
<td>Schooner 425 mL</td>
<td>0.9</td>
</tr>
<tr>
<td></td>
<td>Can or stubbie 375 mL</td>
<td>0.8</td>
</tr>
<tr>
<td></td>
<td>Carton, slab, case 24 x 375 mL</td>
<td>19</td>
</tr>
<tr>
<td><strong>Red wine</strong> 13% Alc./Vol</td>
<td>Glass 100 mL</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Average restaurant glass 150 mL</td>
<td>1.5</td>
</tr>
<tr>
<td></td>
<td>Bottle 750 mL</td>
<td>7.7</td>
</tr>
<tr>
<td></td>
<td>2 Litre cask</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td>4 Litre cask</td>
<td>41</td>
</tr>
<tr>
<td><strong>White wine</strong> 11.5% Alc./Vol</td>
<td>Glass 100 mL</td>
<td>0.9</td>
</tr>
<tr>
<td></td>
<td>Average restaurant glass 150 mL</td>
<td>1.4</td>
</tr>
<tr>
<td></td>
<td>Bottle 750 mL</td>
<td>6.8</td>
</tr>
<tr>
<td></td>
<td>2 Litre cask</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>4 Litre cask</td>
<td>36</td>
</tr>
<tr>
<td><strong>Champagne</strong> 12% Alc./Vol</td>
<td>Average restaurant glass 150 mL</td>
<td>1.4</td>
</tr>
<tr>
<td></td>
<td>Bottle 750 mL</td>
<td>7.1</td>
</tr>
<tr>
<td><strong>Port</strong> 17.5% Alc./Vol</td>
<td>Standard serve 60 mL glass</td>
<td>0.8</td>
</tr>
<tr>
<td></td>
<td>2 Litre cask</td>
<td>28</td>
</tr>
<tr>
<td><strong>Spirits high strength</strong> 40% Alc./Vol</td>
<td>30 mL nip with mix</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Bottle 700 mL</td>
<td>22</td>
</tr>
<tr>
<td><strong>Pre-mix spirits</strong> 5% Alc./Vol</td>
<td>Can 250 mL</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Can 300 mL</td>
<td>1.2</td>
</tr>
<tr>
<td></td>
<td>Can 375 mL</td>
<td>1.5</td>
</tr>
<tr>
<td></td>
<td>Can 440 mL</td>
<td>1.7</td>
</tr>
<tr>
<td><strong>Pre-mix spirits high strength</strong> 7% Alc./Vol</td>
<td>Can 300 mL</td>
<td>1.6</td>
</tr>
<tr>
<td></td>
<td>Can 375 mL</td>
<td>2.1</td>
</tr>
<tr>
<td></td>
<td>Can 440 mL</td>
<td>2.4</td>
</tr>
</tbody>
</table>
Table 4. Clinical indicators of problem drinking

<table>
<thead>
<tr>
<th>Context</th>
<th>Tips</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical symptoms and signs</td>
<td>• Hypertension</td>
</tr>
<tr>
<td></td>
<td>• Bloodshot eyes</td>
</tr>
<tr>
<td></td>
<td>• Dilated facial capillaries</td>
</tr>
<tr>
<td></td>
<td>• Hand tremor</td>
</tr>
<tr>
<td></td>
<td>• Tongue tremor</td>
</tr>
<tr>
<td></td>
<td>• Gastrointestinal disorders</td>
</tr>
<tr>
<td></td>
<td>• Cognitive impairment</td>
</tr>
<tr>
<td></td>
<td>• Frequent accidents</td>
</tr>
<tr>
<td>Psychiatric and social indicators</td>
<td>• Work, financial, marriage, legal or relationship problems</td>
</tr>
<tr>
<td></td>
<td>• Insomnia</td>
</tr>
<tr>
<td></td>
<td>• Anxiety</td>
</tr>
<tr>
<td></td>
<td>• Depression</td>
</tr>
<tr>
<td></td>
<td>• Domestic violence</td>
</tr>
<tr>
<td>Abnormal investigations</td>
<td>• Abnormal liver tests</td>
</tr>
<tr>
<td></td>
<td>• Raised mean cell volume</td>
</tr>
<tr>
<td></td>
<td>• Raised blood or breath alcohol concentration</td>
</tr>
<tr>
<td></td>
<td>• Raised carbohydrate deficient transferrin</td>
</tr>
</tbody>
</table>

6. Engaging a client about their drinking

6.1 Supportive communication

- Listen to the person
- Speak and interact with the person in a non-judgemental, compassionate, patient, open, honest, sincere and supportive way, rather than threatening, confronting or lecturing them
- Understand the person’s own perception of their drinking
- Avoid accusing or labelling the person of being an alcoholic or an “addict”
- Be mindful that the person may not recognise they have a drinking problem
- Avoid coercing a client to admit they have a problem which can cause conflict and foster a lack of trust
- Identify and discuss the person’s behaviour rather than criticise their character e.g. “Your drinking seems to be getting in the way of your friendships” rather than “You’re a pathetic drunk”
- Avoid emotional coersion such as bribing, nagging, threatening or pleading
- Express a point of view by using “I” statements, for example, “I am concerned about how much you’ve been drinking lately”
- Providing advice rarely helps a person change their behaviour

6.2 Supporting change

- Outline what can be provided and how the client can be assisted
• Discuss professional confidentiality
• Acknowledge the difficult nature of changing alcohol consumption
• Encourage the person to set goals to either give up or reduce their intake
• Consider the person’s readiness to talk about their drinking by asking about areas of their life that it may be affecting e.g. their mood, work performance and relationships
• Be mindful that the person may recall events differently or not at all while they were intoxicated
• Ask the person if they would like information to reduce risky drinking (see Table 4)
• Encourage the person to reach out to friends and family to support their efforts
• Refer to a professional ATODs counsellor, social worker, psychologist or an alcohol and drug information service (see Resource 3) if the person admits they
  – think a lot about alcohol and when they will drink next
  – become anxious when they don’t drink
  – use alcohol to deal with certain situations
  – get violent, into arguments or have accidents when drinking
  – have difficulty performing at work or their day-to-day tasks as a result of drinking
  – are in debt because of alcohol

Table 5. Tips to reduce risky drinking

<table>
<thead>
<tr>
<th>Context</th>
<th>Tips</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge</td>
<td>• Know how many standard drinks are in each beverage (see Table 3)</td>
</tr>
<tr>
<td></td>
<td>• Count the number of standard drinks consumed</td>
</tr>
<tr>
<td></td>
<td>• Keep a drink diary (there are smartphone applications that can do this)</td>
</tr>
<tr>
<td></td>
<td>• Drink beverages with lower alcohol content</td>
</tr>
<tr>
<td>Social</td>
<td>• Do not let people top up a glass before it is finished, so as not to lose track of how much alcohol has been consumed</td>
</tr>
<tr>
<td></td>
<td>• Avoid keeping up with friends drink for drink</td>
</tr>
<tr>
<td></td>
<td>• Avoid drinking competitions and drinking games</td>
</tr>
<tr>
<td></td>
<td>• Avoid feeling pressured into drinking. It is okay to refuse</td>
</tr>
<tr>
<td></td>
<td>• Drink slowly</td>
</tr>
<tr>
<td></td>
<td>• Take sips instead of gulps</td>
</tr>
<tr>
<td></td>
<td>• Put the drink down between sips</td>
</tr>
<tr>
<td></td>
<td>• Only have 1 drink at a time</td>
</tr>
<tr>
<td></td>
<td>• Spend time in activities that don’t involve drinking</td>
</tr>
<tr>
<td></td>
<td>• Avoid situations where drinking is likely</td>
</tr>
<tr>
<td>Other intake</td>
<td>• Eat while drinking</td>
</tr>
<tr>
<td></td>
<td>• Drink plenty of water when drinking alcohol to prevent dehydration</td>
</tr>
<tr>
<td></td>
<td>• Switch to non-alcoholic drinks when starting to feel the effects of alcohol</td>
</tr>
</tbody>
</table>
• Clinicians can access locally available ATODs withdrawal management tools and guidelines to assist with alcohol reduction or cessation
• Seeking professional help is ultimately the person’s decision

6.3 Changing drinking behaviour
• The only person that can reduce their alcohol intake is the person involved
• Many lifestyle changes are required to change drinking behaviours
• The person may attempt to change their drinking behaviour many times before success
• Choosing not to change a drinking behaviour is a choice

7. References
5. Mental Health First Aid (2013) Helping someone with alcohol use problems: Mental Health First Aid Guidelines. MHFA Australia

8. Resources
3. Alcohol and Drug Information Service is a 24 hour telephone service available on 1800 177 833 or Turning Point an online counselling service available at http://www.turningpoint.org.au/
4. The Queensland Alcohol and Drug Withdrawal Clinical Practice Guidelines have been developed to provide clinicians with a comprehensive manual that covers all aspects of withdrawal management available at http://www.dovetail.org.au/insight/modules/qh_detox_guide.pdf
Section 1: Lifestyle modifications

alcohol reduction
Diet and nutrition

Recommendations

1. Achieve and maintain a healthy weight, be physically active and choose amounts of nutritious food and drinks to meet an individual's energy needs
   - Children and adolescents should eat sufficient nutritious foods to grow and develop normally
   - Children and adolescents should be physically active every day and their growth should be checked regularly
   - Older people should eat nutritious foods and keep physically active to help maintain muscle strength and a healthy weight

2. Enjoy a wide variety of nutritious foods from all 5 groups every day
   - Plenty of vegetables including different types and colours and legumes/beans
   - Fruit
   - Grain (cereal) foods, mostly wholegrain and/or high cereal fibre varieties, such as breads, cereals, rice, pasta, noodles, polenta, couscous, oats, quinoa and barley
   - Lean meats and poultry, fish, eggs, tofu, nuts and seeds and legumes/beans
   - Milk, yoghurt, cheese and/or their alternatives, mostly reduced fat (reduced fat milks are not suitable for children under the age of 2 years)
   - Drink plenty of water

3. Limit intake of foods containing saturated fat, added salt, added sugars and alcohol
   - Replace high fat foods which contain predominantly saturated fats such as butter, cream, cooking margarine, coconut and palm oil with foods which contain predominantly polyunsaturated and monounsaturated fats such as oils, spreads, nut butters/pastes and avocado
   - Low fat diets are not suitable for children under the age of 2 years
   - Limit intake of foods and drinks containing added salt by choosing lower sodium food options and avoiding adding salt to foods in cooking or at the table
   - Limit intake of foods and drinks containing added sugars such as confectionary, sugar-sweetened soft drinks and cordials, fruit drinks, vitamin waters, energy and sports drinks
   - Limit alcohol intake
   - For women who are pregnant, planning a pregnancy or breastfeeding, not drinking alcohol is the safest option

4. Encourage, support and promote breastfeeding

5. Care for, prepare and store food safely

1. The facts
   - A healthy eating pattern and an active lifestyle are most beneficial to health and maintenance of healthy body weight
   - 60% of Australian adults and around 25% of our children are now overweight or obese
• Being overweight reduces life expectancy and greatly increases the risk of high blood pressure, muscle, bone and respiratory disorders and chronic conditions including type 2 diabetes, heart disease, stroke
• 25% of all incidences of cancer are attributable to obesity and a sedentary lifestyle
• Overweight people, especially children and adolescents, can also face social discrimination, low self-esteem, poor body image and depression
• Children who are overweight tend to become overweight adults, especially if their parents are also overweight
• Being underweight in adulthood contributes to osteoporosis, decreases muscle strength and immunity, increasing susceptibility to some infectious diseases
• In older people, being underweight can be more harmful than being overweight
• In infancy and early childhood, underweight and poor growth is commonly a result of socioeconomic and/or physiological factors which can predispose the child to future chronic conditions (see Poor growth in children, page 278)
• The best guide as to whether adults are eating appropriate amounts for their energy requirements is whether their weight is stable
• The best guide as to whether children are eating appropriate amounts for their energy requirements is whether their growth is normal

2. Nutritional components of food
• Table 1 provides a general summary of nutrients found in food
• For further information regarding micronutrients see Resource 1.

2.1 Energy
• Energy is released from carbohydrates, proteins and fats. It is necessary for brain function, cell metabolism, synthesis and metabolism of enzymes and hormones, transport of substances around the body, maintenance of body temperature and ongoing functioning of muscles including the heart

2.2 Protein
• Protein occurs in all living cells and has both functional and structural properties
• The building blocks of protein, amino acids, can be made by the body while others are essential in the diet

2.3 Fat
• Fats are the most concentrated form of energy for the body. Fats aid in the absorption of vitamins, A, D, E and K
• Dietary fats include triglycerides, phospholipids, phytosterols and cholesterol

2.4 Carbohydrates
• Dietary carbohydrates provide energy to cells, particularly the brain that requires glucose for its metabolism
• Dietary carbohydrates are necessary to avoid ketoacidosis

2.5 Fibre
• Dietary fibre, a component of all plant materials, is essential for proper functioning of the gut and reduces the risk for a number of chronic conditions including heart disease,
certain cancers and diabetes

2.6 Water
- Water accounts for 50 - 80% of body weight and is an essential nutrient in which all bodily biochemical reactions occur
- Water fills the spaces in and between cells and helps form molecules such as protein and glycogen and is required for digestion, absorption, transportation, dissolving nutrients, elimination of waste products and thermoregulation

3. Breastfeeding
- It is every health professional’s responsibility to support, promote and educate parents of the benefits of breastfeeding (see Resource 2)
- It is recommended that infants be exclusively breastfed to 6 months
- Exclusive breastfeeding means that infants are given only breastmilk and no additional fluids, including water
- Breastfeeding should continue until the baby is 12 months old, or for as long as the mother and infant desire
- If breastfeeding is not possible, commercial infant formula should be used
- If formula fed, the infant should continue to drink formula until 12 months of age
- Formula fed infants may have cooled boiled tap water if additional fluids are needed
- From 6 months, small amounts of cooled boiled water can supplement breast milk or infant formula
- Consuming any other drinks in the first 12 months may interfere with an infant’s nutritional intake and is not recommended
- Any breastfeeding is beneficial

4. First foods
- Introduction of first foods should begin around 6 months, starting with iron fortified infant cereal and/or iron rich foods such as puréed meat or tofu, followed by other foods from the Five Food Groups
- Introduce different tastes and textures as the baby grows
- Unmodified milk from animal sources or cow’s milk should not be given as a main drink to infants under 12 months of age
- In the first 12 months soy (except soy follow-on formula) and other nutritionally incomplete plant-based milks (e.g. rice, oat, coconut or almond milk) are inappropriate alternatives to breast milk or formula
- Any fruit juice is not recommended for children
- Cow’s milk may be served in small quantities in foods, with cereals and as plain custards without added sugars
- Pasteurised cow’s milk can be introduced at 12 months of age
- Fortified soy drink or calcium-enriched rice and oat beverages can be used after 12 months under health professional supervision, as long as a full-fat variety is used and other sources of protein and vitamin B12 are included in the diet
- Due to high sodium/protein content, feeding goat’s milk to infants is not recommended
- To prevent botulism, do not feed honey to infants aged under 12 months
By 12 months of age, infants should be consuming a wide variety of nutritious foods enjoyed by the rest of the family. To reduce the risk of choking avoid giving whole nuts, cocktail franks and similar hard foods to young children aged less than 3 years. Low-fat and reduced-fat milks are not recommended in the first 2 years of life. Do not offer infants: tea, herbal teas, coffee or sugar-sweetened drinks such as soft drinks, cordials, sports drinks, energy drinks and flavoured milks.

Table 1. Nutrients found in food

<table>
<thead>
<tr>
<th>Grain (cereal) foods, mostly wholegrain and/or high cereal fibre varieties</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Carbohydrate</td>
</tr>
<tr>
<td>• Protein</td>
</tr>
<tr>
<td>• Iron</td>
</tr>
<tr>
<td>• Dietary fibre</td>
</tr>
<tr>
<td>• Thiamine</td>
</tr>
<tr>
<td>• Folate</td>
</tr>
<tr>
<td>• Iodine</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Vegetables and legumes/beans</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Beta-carotene and other carotenoids</td>
</tr>
<tr>
<td>• Vitamin C</td>
</tr>
<tr>
<td>• Folate</td>
</tr>
<tr>
<td>• Dietary fibre</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fruit</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Vitamin C</td>
</tr>
<tr>
<td>• Dietary fibre</td>
</tr>
<tr>
<td>• Carbohydrate</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Milk, yoghurt, cheese and/or alternatives, mostly reduced fat</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Calcium</td>
</tr>
<tr>
<td>• Protein</td>
</tr>
<tr>
<td>• Riboflavin</td>
</tr>
<tr>
<td>• Vitamin B₁₂</td>
</tr>
<tr>
<td>• Energy</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Lean meat and poultry, fish, eggs, tofu, nuts and seeds, legumes/beans</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Protein</td>
</tr>
<tr>
<td>• Iron</td>
</tr>
<tr>
<td>• Zinc</td>
</tr>
<tr>
<td>• Vitamin B₁₂ (animal foods only)</td>
</tr>
<tr>
<td>• Long chain omega 3 fatty acids</td>
</tr>
</tbody>
</table>
5. How much to eat?
• For pictorial representations of food serve sizes see Resource 2.

5.1 What is a serve size?
• A serve size is a set amount that does not change
• Table 2. to Table 5. provide a guide to determine the total daily amount of food serves for individuals

5.2 What is a portion size?
• A portion size is the amount an individual eats
• Eating larger portions than the serve size will lead to weight gain
• Eating smaller portions than the serve size will lead to weight loss

5.3 A serve of vegetables
• A serve of vegetables or legumes/beans equates to 75 g by weight or 100 - 350 kJ in energy which is
  - ½ cup of cooked green or orange vegetables
  - ½ cup cooked, dried or canned beans, peas or lentils
  - 1 cup of green leafy or raw salad vegetables
  - ½ cup of sweetcorn
  - ½ medium potato or other starchy vegetables
  - 1 medium tomato

5.4 A serve of fruit
• A serve of fruit equates to 150 g by weight or 350 kJ in energy which is
  - 1 medium apple, banana, orange or pear
  - 2 small apricots, kiwi fruits or plums
  - 1 cup diced or canned fruit
  - or occasionally 30 g dried fruit (e.g. 4 dried apricot halves or 1½ tablespoons of sultanas) or 125 ml (1/2 cup) fruit juice with no added sugar

5.5 A serve of grain
• A serve of grain (cereal) foods, mostly wholegrain and/or high cereal fibre varieties equates to 500 kJ in energy which is
  - 1 slice of bread (40 g)
  - ½ medium roll or flat bread (40 g)
  - ½ cup cooked rice, pasta, noodles, barley, buckwheat, semolina, polenta, bulgur or quinoa (75 - 120 g)
  - ½ cup cooked porridge (about 120 g)
  - ⅓ cup wheat cereal flakes (30 g)
  - ¼ cup muesli (30 g)
  - 3 crispbreads (35 g)
  - 1 crumpet (60 g) or a small English muffin or plain scone (35 g)
5.6 A serve of meats or equivalent
- A serve of lean meat and poultry, fish, eggs, tofu, nuts and seeds, legumes/beans equates to 500 - 600 kJ in energy which is
  - 65 g cooked lean meat (about 90 - 100 g raw weight of beef, veal, lamb, pork, kangaroo or goat)
  - 80 g cooked poultry (about 100 g raw weight of skinless chicken or turkey)
  - 100 g cooked fish fillet (about 115 g raw weight)
  - 100 g (about ½ cup) almonds with skin
  - 75 - 80 g (about ½ cup) canned pink or Australian salmon with bones
  - 45 g sardines, canned in water (about 1 to 2 sardines)
  - 2 large eggs (120 g)
  - 1 cup (150 g) cooked or canned legumes/beans such as lentils, chick peas or split peas (preferably with no added salt)
  - 170 g tofu
  - 30 g nuts, seeds or peanut or almond butter or tahini or other nut or seed paste (no added salt)

5.7 A serve of dairy
- A serve of milk, yoghurt, cheese and alternatives equates to 500 - 600 kJ which is
  - 1 cup (250 ml) fresh, UHT long-life or reconstituted powdered milk or buttermilk
  - ½ cup (120 ml) evaporated milk
  - 2 slices, or a small cube (40 g) of hard cheese
  - ½ cup (120 g) ricotta cheese
  - ¾ cup (200 g tub) yoghurt
  - 1 cup (250 ml) soy beverage or beverages made from rice or other cereals which contain at least 100 mg of added calcium per 100 ml
  - 45 g sardines, canned in water (about 1 - 2 sardines provides about 200 - 250 mg calcium)
  - 100 g (about ½ cup) canned pink or Australian salmon with bones

5.8 A serve of water
- Water is constantly lost from the body and needs to be replaced according to age and life stages
  - breast milk or infant formula should be the main drink in the first 12 months
  - exclusively breastfed infants do not require additional fluids up to 6 months of age
  - 4 - 5 cups of water a day for children up to 8 years of age
  - 6 - 8 cups of water a day for adolescents
  - 8 cups of water a day for women (9 cups in pregnancy and lactation)
  - 10 cups of water a day for men

5.9 A serve of unsaturated spreads and oils
- A serve of polyunsaturated and monounsaturated fats such as oils, spreads, nut butters/ pastes and avocado equates to 250 kJ which is
  - 10 g polyunsaturated spread
- 10 g monounsaturated spread
- 7 g monounsaturated or polyunsaturated oil, e.g. olive, canola or sunflower oil
- 10 g tree nuts or peanuts or nut pastes/butters

### Table 2. Daily food patterns for infants 7 - 12 months of age

<table>
<thead>
<tr>
<th>Food</th>
<th>Serve size</th>
<th>Serves/day</th>
<th>Serves/week</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vegetables and legumes/beans</td>
<td>20 g</td>
<td>1½ - 2</td>
<td>10 - 14</td>
</tr>
<tr>
<td>Fruit</td>
<td>20 g</td>
<td>½</td>
<td>3 - 4</td>
</tr>
<tr>
<td>Grain (cereal) foods</td>
<td>40 g bread equivalent</td>
<td>1½</td>
<td>10</td>
</tr>
<tr>
<td>Infant cereal (dried)</td>
<td>20 g</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>Lean meats, poultry, fish, tofu, eggs</td>
<td>30 g</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>Breast milk or formula</td>
<td>600 ml</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>Yoghurt, cheese or alternatives</td>
<td>20 ml yoghurt or 10 g cheese</td>
<td>½</td>
<td>3 - 4</td>
</tr>
</tbody>
</table>

Avoid whole nuts and seeds due to choking hazard

### Table 3. Daily food pattern for toddlers 1 - 2 years of age

<table>
<thead>
<tr>
<th>Food</th>
<th>Serve size</th>
<th>Serves/day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vegetables and legumes/beans</td>
<td>75 g</td>
<td>2 - 3</td>
</tr>
<tr>
<td>Fruit</td>
<td>150 g</td>
<td>½</td>
</tr>
<tr>
<td>Grain (cereal) foods</td>
<td>40 g bread equivalent</td>
<td>4</td>
</tr>
<tr>
<td>Lean meats, poultry, fish, tofu, eggs, legumes</td>
<td>65 g</td>
<td>1</td>
</tr>
<tr>
<td>Milk, yoghurt, cheese and/or alternatives</td>
<td>250 ml milk equivalent</td>
<td>1 - ½</td>
</tr>
</tbody>
</table>

Avoid whole nuts and seeds due to choking hazard
### Table 4. Recommended daily serves for children from the five food groups

<table>
<thead>
<tr>
<th></th>
<th>Vegetables and legumes/beans</th>
<th>Fruit</th>
<th>Grain (cereal) foods, mostly wholegrain and/or high fibre cereal varieties</th>
<th>Lean meats and poultry, fish, tofu, nuts and seeds and legumes/beans</th>
<th>Milk, yoghurt, cheese and/or alternatives, mostly reduced fat</th>
<th>Polyunsaturated and monounsaturated fats such as oils, spreads, nut butters/pastes and avocado</th>
<th>*Approx. number of additional discretionary choice of serves from the five food groups</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Boys</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 - 3 years</td>
<td>2½</td>
<td>1</td>
<td>4</td>
<td>1</td>
<td>1½</td>
<td>½</td>
<td>0 - 1</td>
</tr>
<tr>
<td>4 - 8 years</td>
<td>4½</td>
<td>1½</td>
<td>4</td>
<td>1½</td>
<td>2</td>
<td>1</td>
<td>0 - 2½</td>
</tr>
<tr>
<td>9 - 11 years</td>
<td>5</td>
<td>2</td>
<td>5</td>
<td>2½</td>
<td>2½</td>
<td>2</td>
<td>0 - 3</td>
</tr>
<tr>
<td>12 - 13 years</td>
<td>5½</td>
<td>2</td>
<td>6</td>
<td>2½</td>
<td>3½</td>
<td>1½</td>
<td>0 - 3</td>
</tr>
<tr>
<td>14 - 18 years</td>
<td>5½</td>
<td>2</td>
<td>7</td>
<td>2½</td>
<td>3½</td>
<td>2</td>
<td>0 - 5</td>
</tr>
<tr>
<td><strong>Girls</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 - 3 years</td>
<td>2½</td>
<td>1</td>
<td>4</td>
<td>1</td>
<td>1½</td>
<td>½</td>
<td>0 - 1</td>
</tr>
<tr>
<td>4 - 8 years</td>
<td>4½</td>
<td>1½</td>
<td>4</td>
<td>1½</td>
<td>1½</td>
<td>1</td>
<td>0 - 1</td>
</tr>
<tr>
<td>9 - 11 years</td>
<td>5</td>
<td>2</td>
<td>4</td>
<td>2½</td>
<td>3</td>
<td>1</td>
<td>0 - 3</td>
</tr>
<tr>
<td>12 - 13 years</td>
<td>5</td>
<td>2</td>
<td>5</td>
<td>2½</td>
<td>3½</td>
<td>1½</td>
<td>0 - 2½</td>
</tr>
<tr>
<td>14 - 18 years</td>
<td>5</td>
<td>2</td>
<td>7</td>
<td>2½</td>
<td>3½</td>
<td>2</td>
<td>0 - 2½</td>
</tr>
<tr>
<td>Pregnant</td>
<td>5</td>
<td>2</td>
<td>8</td>
<td>3½</td>
<td>3½</td>
<td>-</td>
<td>0 - 3</td>
</tr>
<tr>
<td>Breastfeeding</td>
<td>5½</td>
<td>2</td>
<td>9</td>
<td>2½</td>
<td>4</td>
<td>-</td>
<td>0 - 3</td>
</tr>
</tbody>
</table>

*Additional serves for more active, taller or older children and adolescents.

Important. Serving sizes shown on food labels are not the same as these recommendations.
### Table 5. Recommended daily serves for adults from the five food groups

<table>
<thead>
<tr>
<th></th>
<th>Vegetables and legumes/beans</th>
<th>Fruit</th>
<th>Grain (cereal) foods, mostly wholegrain and/or high fibre cereal varieties</th>
<th>Lean meats and poultry, fish, eggs, tofu, nuts and seeds and legumes/beans</th>
<th>Milk, yoghurt, cheese and/or alternatives, mostly reduced fat</th>
<th>Polyunsaturated and monounsaturated fats such as oils, spreads, nut butters/pastes and avocado</th>
<th>*Approx. number of additional discretionary choice of serves from the five food groups</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Men</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19 - 50 years</td>
<td>6</td>
<td>2</td>
<td>6</td>
<td>3</td>
<td>2½</td>
<td>4</td>
<td>0 - 3</td>
</tr>
<tr>
<td>51 - 70 years</td>
<td>5½</td>
<td>2</td>
<td>6</td>
<td>2½</td>
<td>2½</td>
<td>4</td>
<td>0 - 2½</td>
</tr>
<tr>
<td>70+ years</td>
<td>5</td>
<td>2</td>
<td>4½</td>
<td>2½</td>
<td>3½</td>
<td>2</td>
<td>0 - 2½</td>
</tr>
<tr>
<td><strong>Women</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19 - 50 years</td>
<td>5</td>
<td>2</td>
<td>6</td>
<td>2½</td>
<td>2½</td>
<td>2</td>
<td>0 - 2½</td>
</tr>
<tr>
<td>51 - 70 years</td>
<td>5</td>
<td>2</td>
<td>4</td>
<td>2</td>
<td>4</td>
<td>2</td>
<td>0 - 2½</td>
</tr>
<tr>
<td>70+ years</td>
<td>5</td>
<td>2</td>
<td>3</td>
<td>2</td>
<td>4</td>
<td>2</td>
<td>0 - 2</td>
</tr>
<tr>
<td>Pregnant</td>
<td>5</td>
<td>2</td>
<td>8½</td>
<td>3½</td>
<td>2½</td>
<td>2</td>
<td>0 - 2½</td>
</tr>
<tr>
<td>Breastfeeding</td>
<td>7½</td>
<td>2</td>
<td>9</td>
<td>2½</td>
<td>2½</td>
<td>2</td>
<td>0 - 2½</td>
</tr>
</tbody>
</table>

* Additional serves for more active, taller or older adults

Important. Serving sizes shown on food labels are not the same as these recommendations

### 6. Preparing and storing food safely

- Foodborne illnesses occur when micro-organisms in food multiply to harmful levels as a result of incorrect handling, particularly when temperature control is inadequate
- Correct handling of food during all stages of its preparation and storage is essential in reducing the risk of contamination and disease
- Most healthy people recover quickly from food poisoning but those at risk of serious illness include those with weakened immune systems, pregnant women, infants and older people
- The following foods are considered higher risk for contamination because pathogenic bacteria can be present and multiply if not stored and prepared safely
  - raw and cooked meat and poultry
  - dairy products
  - seafood
  - cooked rice and pasta
  - processed fruit and vegetables such as salads
— processed foods containing eggs or other protein-rich ingredients
— foods that contain any of the foods above

**Best before vs Use by**

**Best before** indicates the length of time a food should keep before it begins to deteriorate.

**Use by** indicates how long a food can remain safe provided it has been stored according to labelled storage conditions and the package is unopened when purchased

### 7. Food labels

- Food labels are useful to compare the nutritional content of packaged foods
- All packaged foods must display a nutrition information panel which should state the servings per pack and serving size and can be used to compare between different brands or types of similar foods
- A food label must show a list of ingredients, listed in descending order of their proportion by weight in the food

**Serving sizes shown on food labels are not the same as nationally recommended serving sizes**

#### 7.1 Sugar

- Avoid large amounts of added sugars
- Sugar content of 15 g or higher per 100 g is considered high
- Other names for added sugar include: dextrose, fructose, glucose, golden syrup, honey, maple syrup, malt, maltose, lactose, brown sugar, caster sugar, raw sugar and sucrose

#### 7.2 Sodium (salt)

- Choose low sodium option foods
- Foods with less than 400 mg per 100 g are good
- Foods with less than 120 mg per 100 g are best
- High salt ingredients include: baking powder, celery salt, garlic salt, meat/yeast extract, monosodium glutamate (MSG), onion salt, rock salt, sea salt, sodium, sodium ascorbate, sodium bicarbonate, sodium nitrate/nitrite, stock cubes and vegetable salt

#### 7.3 Total fat

- Choose foods with less than 10 g per 100 g
- For milk, yoghurt and icecream, choose less than 2 g per 100 g
- For cheese, choose less than 15 g per 100 g

#### 7.4 Saturated fat

- Aim for lowest saturated fat per 100 g
- Less than 3 g per 100 g is best
8. References


9. Resources

Physical activity

Recommendations

1. Children aged 0 - 5 years
   - Should not be sedentary, restrained, or kept inactive, for more than 1 hour at a time, with the exception of sleeping
   - Infants aged 0 - 1 year should be encouraged to do floor-based play in a safe and supervised environment
   - Toddlers and pre-schoolers aged 1 - 5 years should be physically active every day for at least 3 hours, spread throughout the day

2. Children aged 5 - 12 years and young people aged 13 - 17 years
   - Should accumulate at least 60 minutes of moderate to vigorous intensity physical activity every day
   - Should include a variety of aerobic activities, including vigorous intensity activity
   - On at least 3 days per week, children should engage in activities that strengthen muscle and bone
   - Additional health benefits in children can be achieved by engaging in several hours more activity per day

3. Adults aged 18 - 64
   - Doing any physical activity is better than doing none
   - Each week accumulate
     - 150 - 300 minutes of moderate intensity physical activity or
     - 75 - 150 minutes of vigorous intensity physical activity or
     - an equivalent amount of combined moderate and vigorous activity
   - Be active on most, preferably all, days every week
   - Do muscle strengthening activities on at least 2 days each week

4. People over 65 years of age
   - Should accumulate at least 30 minutes of moderate intensity physical activity on most, preferably all, days
   - Should do some form of physical activity, no matter what their age, weight, health problems or abilities
   - Should be active daily in as many ways as possible, doing a range of physical activities that incorporate fitness, strength, balance and flexibility
   - Those who have stopped physical activity, or who are starting a new physical activity, should start at a level that is easily manageable and gradually build up the amount, type and frequency of activity
   - Those who have had a lifetime of vigorous physical activity should continue to participate at this level in a manner suited to their capability into later life
1. **The facts**¹

- Annually in Australia, at least $400 million in health costs and around 8,000 deaths per year can be attributed to physical inactivity¹
- For men and women from different population groups, there is an overall 30% reduction in risk of death in active individuals compared with those who are least active²
- In children and young people, higher levels of physical activity are associated with multiple health benefits including cardiometabolic health, prevention of unhealthy weight gain, musculoskeletal health, mental health and cardiorespiratory fitness¹
- About 25% of all incidences of cancer in adults is attributable to obesity and a sedentary lifestyle
- In older people a combination of moderate aerobic, strength, balance and flexibility exercises can prevent the onset of chronic conditions and ameliorate the impact of chronic conditions³

2. **Sedentary behaviour**

2.1 **Children aged 0 - 5 years**¹

- For children 2 - 5 years of age, limit sitting, screen based activities and other electronic media to less than 60 minutes per day
- Children younger than 2 years of age should not spend any time with screen-based activities and other electronic media
- Children aged 2 - 4 years spend an average of 6 hours a day engaged in physical activity and 1½ hours engaged in sedentary activities

2.2 **Children aged 5 - 12 years**¹

- Children aged 5 - 12 years should limit sitting, screen-based activities and other electronic media to no more than 2 hours a day
  - Break up long periods of sitting as often as possible
  - Children and young people aged 5 - 17 years spend an average of 1½ hours a day on physical activity and 2 hours a day engaged in screen-based activity
- Nearly ½ of all children and young people have at least one type of screen-based item in their bedroom. This group spends 2 hours per week more engaged in screen-based activity compared with those who do not have any such item in their bedroom

2.3 **Young people aged 13 - 17 years**¹

- To reduce health risks, young people aged 13 - 17 years should limit sitting, screen-based activities and other electronic media to no more than 2 hours a day
- Break up long periods of sitting as often as possible
- Three quarters of young people have some kind of screen-based media in their bedroom
- 16 year olds who engage in physical activity less than 3 times a month are more likely to experience drug and alcohol use problems

2.4 **Adults aged 18 - 64 years**²

- Adults should minimise the amount of time spent in prolonged sitting positions and...
break up long periods of sitting as often as possible

• People employed in sedentary occupations such as administrative workers and long distance vehicle drivers spend on average 22 hours a week sitting
• The most prevalent sedentary recreational activity is watching television, at nearly 13 hours a week

2.5 People over 65 years of age

• Less than ½ of Australians aged 65 years and over do sufficient physical activity to produce health benefit
• In older Australians, mortality risk is 74% greater in sedentary older people compared to those who are active to some degree

3. Benefits of activity
For a description of the types of physical activity see Table 1.

3.1 Children and young people

• 40 - 70 minutes of moderate to vigorous aerobic activity for 3 times a week significantly improves cardiorespiratory fitness
• Any regular physical activity lowers rates of weight gain and obesity while improving cognitive ability, executive function and intelligence
• High impact activities (e.g. jumping) on at least 3 days per week improves skeletal health
• 30 minutes daily of moderate to vigorous activity improves muscular strength and flexibility
• At least 60 minutes of moderate to vigorous activity at least 3 days per week has positive mental health benefits e.g. improved self esteem and physical self perceptions and less anger and emotional problems and perceived stress

3.2 Adults

• 60 - 90 minutes of moderate or 30 - 60 minutes of vigorous activity leads to a 20 - 30% reduction in the risk of coronary heart disease, chronic heart failure and stroke
• 60 minutes of low to moderate intensity activity reduces the risk of developing diabetes
• 180 minutes per week of moderate to vigorous activity improves prevention and management of glucose regulation, insulin resistance, hypertension, high blood lipids and central obesity in those with diabetes
• 60 - 90 minutes of moderate or 30 - 60 minutes of vigorous activity on most days of the week can reduce the risk of colon cancer by 30% and breast cancer by 20%
• Both weight bearing physical activity and resistance and muscle strengthening activities have protective factors for osteoarthritis, bone mineral density, functional status, and risk of falls and fractures

3.3 Older people

• Physical activity offers an effective, non-pharmacological public health intervention for increasing and maintaining quality of life among older adults
• All the benefits of physical activity for those under 65 are extended to those over 65
years of age primarily in preventing heart disease and diabetes

- Physical activity is effective in reducing falls risk and improving balance
- Both strengthening and aerobic exercise can reduce pain and improve function and health status in those with osteoarthritis

### Table 1. Types of activity

<table>
<thead>
<tr>
<th>Activity</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical</td>
<td>• Any bodily movement produced by skeletal muscles that expends energy</td>
</tr>
</tbody>
</table>
| Sedentary                 | • Activity that involves sitting or lying down, with little energy expenditure  
                             | • Examples include: sitting at work, watching TV, reading, computer or computer games use, social networking or sitting in a vehicle  |
| Light                     | • Day to day activity related to the home, workplace or community  
                             | • Examples include: standing up, moving around, cleaning or cooking  |
| Moderate                  | • An intensity which requires some effort  
                             | • Allows a conversation to be held  
                             | • Examples include: brisk walking, gentle swimming, lawn mowing or social tennis  |
| Vigorous                  | • Makes you breathe hard or makes you breathless  
                             | • Examples include: aerobics, jogging, cycling or competitive sports  |
| Muscle strengthening      | • Activities that improve strength, power, endurance and size of skeletal muscles  
                             | • Examples include: resistance exercises that use either body weight (e.g. push-ups or chin-ups), free weights (e.g. dumbbells) or machines  |
| Aerobic                   | • Activities that depend on adequate oxygen supply  
                             | • Involves large muscle groups moving at pace for more than a few minutes  
                             | • These activities improve the transport and uptake of oxygen by the cardiorespiratory and metabolic systems, to provide energy for working muscles  
                             | • Examples include: walking, swimming, cycling, dancing or competitive ball games  |
| Anaerobic                 | • Activity that does not depend on a regular supply of oxygen to working muscles  
                             | • Can usually only be continued for a very short time before becoming aerobic activity  
                             | • Examples include: sprinting or lifting heavy weights  |

### 4. Engaging a client about physical activity

#### 4.1 Supportive communication

- Listen to the person
- Speak and interact with the person in a non-judgemental, compassionate, patient, open, honest, sincere and supportive way, rather than threatening, confronting or lecturing them
- Understand the person’s own perception of physical activity
• Avoid expressing moral judgements of a client or of their thoughts of physical activity e.g. lazy or overweight
• Avoid forcing a client to admit they have a problem
• Avoid emotional coersion such as bribing, nagging, threatening or pleading
• Providing advice rarely helps a person change their behaviour
• Express a point of view by using “I” statements, for example, “I am concerned about your blood pressure”

4.2 Supporting change
• Outline what can be provided and how the client can be assisted
• Discuss professional confidentiality
• Consider the person’s readiness to change their exercise levels
• Acknowledge any difficulties a person may have with engaging in physical activity
• Encourage the person to set goals to overcome any barriers to activity and to begin low levels of activity
• Provide information as required including
  – types and levels of exercise
  – locations of exercise based facilities e.g. gyms or walking tracks
  – exercise support groups e.g. walking groups or Hash House Harriers
  – see Resource 1.
• Encourage the person to reach out to friends and family to support their efforts
• Refer to a professional counsellor, social worker, psychologist or a personal trainer
• Seeking professional help is ultimately the person’s decision

4.3 Changing physical activity levels
• The only person who can become more active is the person involved
• The person may attempt exercise and engage with a clinician many times before changing their behaviour
• Choosing to continue with a sedentary lifestyle is a choice
5. References

6. Resources
Sexual and reproductive health

Recommendations

1. Safe sexual practice
   - To reduce person to person spread of many sexually transmitted infections (STIs), including HIV, always use condoms when having vaginal, oral or anal sex
   - To avoid unintended pregnancy, arrange contraception prior to sexual encounters
   - Stay emotionally healthy and in control by deciding
     - whether to have sex
     - when to start having sex
     - when to have sex
     - who to have sex with
     - how to have sex
     - to have safe sex every time
   - Do not have sex with a person who has a visible sore, ulcer or lump on the genitals or around the anal area
   - To avoid a STI infection of the throat always use protection (a condom) when having any form of oral sex (mouth to penis, vulva or anus)

2. Communication
   - If having unprotected sex, people should talk with their partners about the risks involved
   - Open discussion fosters better understanding of the need for protected sex in some cases

3. Other ways to have sex
   - There are lots of ways to enjoy physical intimacy with a partner which do not put people at risk of STIs or unintended pregnancies
   - If using sex toys, use condoms and change the condom for each person. Wash toys and hands after use

4. Avoiding alcohol
   - Drinking alcohol and taking other drugs may affect people’s ability to make safe decisions
   - While drinking, stay in control to make safer and more rational choices about sexual contacts

5. Acting on unprotected sex
   - After an unprotected sexual encounter a person may be at risk of a STI or pregnancy and should have a sexual health check-up and consider emergency contraception if required

For any acute STI presentations refer to the current edition of the PCCM
1. The facts

- STIs can cause significant long term health problems and are a major public health concern
- The most significant STIs in Australia are chlamydia, genital herpes, genital warts, trichomoniasis, gonorrhoea, hepatitis B, syphilis and HIV
- STIs can be passed from person to person through
  - vaginal sex
  - oral sex
  - anal sex
  - close sexual contact
  - sex toys
- More than half of all STI notifications in Australia are among 15 - 24 year olds, chlamydia accounting for about 90% of these notifications
- Some STIs can be transmitted from a mother to child during pregnancy or childbirth and from person to person by sharing injecting drug equipment
- Sometimes STIs cause symptoms but very often a person can have a STI without knowing it
- People are always at risk of a STI after an encounter of unprotected sex
- STIs are twice as prevalent among those who use illicit drugs and/or those who consume excessive amounts of alcohol
- The rate of new infection cases has risen fivefold for chlamydia and threefold for gonococcal infections since 1994 when national notification began
- The rate of new syphilis infections has risen from 9.6 per 100,000 people in 2004 to 12.6 in 2013
- Notification rates of hepatitis B and hepatitis C have fallen since 2001
- The rate of HIV diagnosis rose 25% between 2002 and 2012

2. Priority groups

- Be mindful that concerns about stigma and discrimination in some priority groups can lead to fears of disclosure and heightened secrecy

2.1 Young people

- Testing at least once a year is recommended for all asymptomatic young people (under 30 years of age) who are sexually active
- Consider preventative vaccinations including for human papillomavirus (HPV) and hepatitis B

2.2 Aboriginal and Torres Strait Islander people

- Several STIs occur in Aboriginal and Torres Strait Islander communities at significantly higher rates than the non-Aboriginal and Torres Strait Islander populations
- Testing is recommended for all Aboriginal and/or Torres Strait Islander people as part of
an annual health check or opportunistically if indicated

2.3 Gay men and other men who have sex with men (MSM)\textsuperscript{4,5}

- MSM in Australia are disproportionately and increasingly affected by STIs including HIV due in part to changes in sexual behaviour such as reduction in condom use
- All men who have had any type of sex with another man in the previous year should have a STI screen at least once a year
- All MSM who fall into one or more categories listed below should be tested up to four times a year (see Resource 1)
  - any unprotected anal sex
  - more than 10 sexual partners in 6 months
  - participate in group sex
  - use recreational drugs during sex
  - are HIV-positive

2.4 People in custodial settings\textsuperscript{4,5}

- All people should have a risk assessment for sexual health and blood borne virus (BBV) infection on admission to prison by appropriately trained staff
- Consider testing for herpes only if there are clinical signs and symptoms

2.5 Sex industry workers\textsuperscript{4,5}

- Regular screening recommendations exist for sex industry workers (see Resource 2)
- A sex industry worker cannot work, or a brothel licensee/manager cannot allow a sex industry worker to work, when known to be infected with a STI

2.6 Travellers and mobile workers\textsuperscript{4,5}

- People may behave differently when they travel and in ways that may put them at risk of exposure to STIs
- This group includes
  - people who engage in unsafe sex while travelling
  - fly in fly out (FIFO) seasonal workers and the communities they have contact with, particularly in regional, rural and remote areas
- Regular testing for gonorrhea, chlamydia, syphilis and HIV is recommended
- Confirm hepatitis B status and vaccinate if not immune (see Hepatitis B, page 220)

2.7 Culturally and linguistically diverse people (CALD)\textsuperscript{4,5}

- Language and culture, stigma, cost, low awareness and knowledge, unfamiliarity with the Australian health system, traditional beliefs, and fear put this rapidly growing population at high risk of STI infection
- Screening for chronic hepatitis B and syphilis should be offered to all
- Screening for HIV, chlamydia and gonorrhoea should be offered to newly arrived individuals considered at risk
3. STI prevention

- Every STI case or inquiry offers an opportunity for preventative sexual and reproductive health education, without judgement or moral stance.
- The aim of preventative education is the same for all people; to encourage people to eliminate or reduce their risk of further infections.
- The provision of education is tailored to an individual’s lifestyle, belief, culture, sexual practices and risk behaviours e.g. speaking with a young Aboriginal man from a remote community will differ to speaking with an older urban lesbian woman.
- Abstaining from sex and having a sexual health check prior to a new sexual relationship or if a partner or the client suspects they have an STI, is a safe preventative choice.
- Provide written and/or verbal information and pamphlets relevant to the identified risk group (see Resource 3).

3.1 Vaccination

- Vaccination is the most effective means of reducing and preventing the transmission of hepatitis A and B and human papillomavirus (HPV).

3.2 Condoms

- If penetrative sexual intercourse does occur, condoms and water-soluble lubricant will reduce STI risk.
- Clients should be instructed in condom use, and told where affordable or free condoms and lubricant can be obtained.
- Discuss how to negotiate with partners to ensure that condoms are used.
- Sexually active people should have easy access to condoms at all times.
- Condoms should be made freely available in all health facilities.
- Reinforce safe sex messages and provide condoms and lubricant.
- If required demonstrate correct condom usage.

3.3 Reducing sexual partners

- Reducing the number of sexual partners reduces the risk of coming in to contact with a STI.
- Mutual monogamy eliminates the risk of STIs.
- Encourage people to establish an honest sexual relationship by communicating their sexual needs with one another.

3.4 Clean injecting equipment

- Blood borne infections and STIs are closely linked.
- Injecting drug users should be alerted to the risks of sharing injecting equipment.
- Clinicians should provide information about where clean injecting equipment can be obtained, and any programs or services available to support prevention of the practice.
3.5 Safe sexual choices
- People should be encouraged to openly communicate and negotiate safe sexual practice with partners
- Young people in particular need to be aware that choosing to ‘take a break’ or saying ‘no’ are options available to them as individuals as part of a healthy emotional and sexual lifestyle
- Choosing to abstain from sex removes the risk of contracting or passing on STIs and should be discussed non-judgementally as an option

4. STI testing and treatment
- Refer to the current edition of the PCCM for more details of specific STI testing procedures and treatment options

4.1 Confidentiality
- Ensure the client is reassured of the confidentiality surrounding testing and treatment and how they can protect their own confidentiality by carefully considering who they discuss any health issues with
- Consider using a local health service endorsed coding system when requesting and receiving STI specimens and results

4.2 Informed consent
- Discuss why a STI is being screened for i.e. to treat infections, improve health outcomes and reduce risk of transmission
- Explain how the test is done i.e. urine, swab or blood test
- Explain what the test does, and does not, provide
- Advise if and when repeat testing will be necessary
- Inform the client of the legal requirements for a notifiable infection in the case of a positive result
- Advise that if testing for a STI is positive, any partners will also need to be offered testing and treatment (see 5. Contact tracing)

4.3 History
- A history may or may not be forthcoming however this should not prevent screening being undertaken
- A thorough history will determine which STI a client may have been exposed to and guide the specimen required
- A history should include
  - types of sexual behaviour
  - number of partners
  - when exposure occurred
  - previous STIs and treatment
4.4 Prior to the results

- Discuss how and when to obtain results
- Consider discussing implications of a negative result
  - preventative education to avoid future risk
  - safe sex practices
- Consider discussing implications of a positive result
  - need for professional support e.g. social worker or counsellor
  - discuss any family or friends available for support
  - options for medical treatment and follow up
  - any need for leave from employment

4.5 After the results

- For a negative result consider discussing
  - what the test does and does not provide
  - if and when repeat testing is necessary (STI window periods)
  - safe sexual practises
- For a positive result
  - allow for an open/relaxed discussion while listening and encouraging questions
  - be guided by the person’s response to determine how much information to provide and avoid overloading them
  - offer ongoing social emotional support and management
  - referral to a local sexual health clinic or service for counselling (see Resource 4)
  - ensure the person has a support network
  - discuss preventative education to avoid future risk (see 3. STI prevention)
  - discuss contact tracing

5. Contact tracing\textsuperscript{7,8,9}

- Contact tracing is following up with sexual contacts of a person who has tested positive for a STI
- Ensuring sexual partners are tested and treated is an important way of controlling the spread of the infection
- Contact tracing is necessary but requires sensitivity and confidentiality

5.1 Procedure\textsuperscript{8}

- Introduce the reasons for contact tracing
  - to ensure any partners are offered screening and treatment
  - most people with a STI don’t know they have it and can continue to pass it onto others
- Assist clients to identify which partner(s) need to be informed using cues such as locations or events
- The client should be allowed the opportunity to inform any contacts who are to be tested for a STI. Table 1. provides some contact tracing tips
provide STI specific information (see Resource 3)
- discuss how a partner might react to the news. If there is concern over a violent reaction or history of domestic violence then refer to the local sexual health clinic for social work support

It is the responsibility of the clinician to discuss the public health implications and health outcomes for untreated sexually transmitted infections and to support the client through the contact tracing process

- Schedule a follow up visit or phone call to determine if the client was able to inform their partner(s)
- If the client has not notified a partner, with client consent perform contact tracing as per client request
- In most cases, contact tracing can be undertaken immediately by the client with a clinician’s support
- Contact tracing needn’t be a complex or time consuming exercise

Table 1. Tips to let a sexual contact know to be tested

Some people may react badly to being told they are at risk of a STI. If a client thinks their partner could become abusive hearing this news, consider using an anonymous email, SMS, letter or ask their doctor instead

<table>
<thead>
<tr>
<th>Method</th>
<th>Tips</th>
</tr>
</thead>
</table>
| Face to face| • Most people like to be told in person  
• Most people report that telling their partner(s) was easier than they thought it would be  
• Do it straight away  
• Delaying the discussion may result in it never happening  
• Plan the conversation (for sample conversations see [http://www.letthemknow.org.au/talking.html](http://www.letthemknow.org.au/talking.html))  
• Don’t feel the need to provide a lot of details  
• Provide a fact sheet, a website or phone numbers to contact  
• Avoid phrases like “you’ve given me chlamydia” which may make a partner defensive |
| By letter   | • If anyone else might read the letter, use another method  
• A letter should be direct, objective, factual and free of emotion  
| By SMS      | • If anyone else might read the SMS, use another method  
• An SMS should be direct, objective, factual and free of emotion  
| By email    | • If anyone else might read the email, use another method  
• An email should be direct, objective, factual and free of emotion  
• In cases where a clinician finds the contact tracing process problematic refer to a specialist service (see Resource 4)

6. Contraception\textsuperscript{2,10}

• Contraceptive methods (see Table 2) may be influenced by
  – contraceptive efficacy
  – associated health risks or side effects
  – associated risks with pregnancy
  – reversibility
  – age
  – relationship status
  – personal beliefs
  – socioeconomic circumstances
  – user friendliness
  – protection against STIs
  – accessibility
  – cost

• Provide adequate information so clients can make an informed choice about their current and future fertility (see Resource 5)

• Once chosen, discuss and provide written information to the client about
  – how to use the method
  – clinical follow up requirements
  – what to do if the method is not used correctly or fails
### Table 2. Contraception types\(^2,10\)

<table>
<thead>
<tr>
<th>Interuterine devices (IUDs) and implants</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Suitable for women of any age</td>
</tr>
<tr>
<td>• Can be removed easily at any time and are immediately reversible on removal</td>
</tr>
<tr>
<td>• Provides no protection against STIs</td>
</tr>
<tr>
<td>• The hormonal IUD is 99.8% effective while the copper IUD is 99.2% effective</td>
</tr>
<tr>
<td>• IUDs need to be replaced every 5 to 10 years</td>
</tr>
<tr>
<td>• The contraceptive implant is inserted directly under the skin, on the inner arm above the elbow, where it continuously releases a low dose of a progestogen hormone over a 3 year timeframe. Implants are 99.9% effective. They need to be replaced every 3 years or can be removed earlier if required</td>
</tr>
<tr>
<td>• Contraceptive injections (depot medroxyprogesterone acetate) are given by an injection into a muscle every 12 weeks and is 94 - 99.8% effective</td>
</tr>
</tbody>
</table>

### Short acting hormonal methods

<table>
<thead>
<tr>
<th>Barrier methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>• The contraceptive vaginal ring is a soft plastic ring which slowly releases low doses of oestrogen and a progestogen, is self-inserted, and remains in the vagina for 3 weeks. It is then removed and replaced with the next ring a week later</td>
</tr>
<tr>
<td>• Combined oral contraceptives (or ‘the pill’) are preparations of synthetic oestrogen and progestogen which rely on consistent daily use to be effective</td>
</tr>
<tr>
<td>• The progestogen only pill (or ‘mini-pill’) is an oral hormone contraceptive containing only progestogen which rely on consistent daily use to be effective</td>
</tr>
</tbody>
</table>

### Barrier methods

<table>
<thead>
<tr>
<th>Lactational amenorrhoea method (LAM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• LAM is the use of breastfeeding as a contraceptive method which reduces the probability of ovulation (egg release) occurring. LAM is 98% effective when menstrual periods have not returned AND the mother gave birth less than 6 months ago AND the mother is exclusively breastfeeding</td>
</tr>
</tbody>
</table>

### Fertility awareness based methods (FABMs)

<table>
<thead>
<tr>
<th>Withdrawal (coitus interruptus)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Withdrawal is where the penis is withdrawn from the woman’s vagina before ejaculation</td>
</tr>
<tr>
<td>• Withdrawal is 78% - 97% effective but is not recommended as a reliable form of contraception</td>
</tr>
</tbody>
</table>
### Table 2. Contraception types (continued)²,¹⁰

<table>
<thead>
<tr>
<th><strong>Abstinence</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Abstinence, ‘taking a break’ or saying ‘no’ to penetrative sex is an option which is 100% effective in preventing pregnancy</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Emergency contraception (EC)</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduces the risk of unintended pregnancy after unprotected sex</td>
<td></td>
</tr>
<tr>
<td>EC is not a method of regular contraception; using a reliable form of contraception is the best ongoing protection against unplanned pregnancy</td>
<td></td>
</tr>
<tr>
<td>The <strong>emergency contraception pill</strong> (ECP) can be taken up to 5 days after unprotected sex but it is most effective if taken in the first 24 hours. When taken in the first 72 hours (3 days), it prevents about 85% of expected pregnancies</td>
<td></td>
</tr>
<tr>
<td>A <strong>copper intrauterine contraceptive device</strong> (Cu-IUD) is inserted in the first 120 hours (5 days) after sex, it prevents about 99% of expected pregnancies. A Cu-IUD then provides immediate and ongoing contraception</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Permanent contraception (sterilisation)</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Sterilisation is permanent contraception which can’t be reversed</td>
<td></td>
</tr>
<tr>
<td>Sterilisation methods are 99.5% effective</td>
<td></td>
</tr>
<tr>
<td><strong>Female sterilisation</strong> (tubal ligation) involves an operation blocking the fallopian tubes to stop the passage of the ovum (egg)</td>
<td></td>
</tr>
<tr>
<td><strong>Male sterilisation</strong> (vasectomy) involves a simple operation performed under local anaesthetic on the vas deferens to prevent sperm from joining the ejaculate fluid</td>
<td></td>
</tr>
</tbody>
</table>
7. References

8. Resources
5. For detailed contraception choices see resources available at http://www.fpq.com.au/publications/fsBrochures/menu_contraception.php-
Section 1: Lifestyle modifications

sexual and reproductive health

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Smoking cessation

**Recommendations**

1. **Cease smoking**
   - Smoking causes many respiratory and cardiac conditions as well as cancer and premature death
   - All people who smoke should endeavour to quit smoking immediately

2. **Prevent uptake of smoking**
   - Early exposure to modelled cigarette smoking behaviours increases the risk that children and young people will start smoking
   - Smokers should avoid smoking in front of children
   - Smokers should keep cigarette packets, lighters, ashtrays and all other cigarette smoking paraphernalia away from children and young people
   - Parents should educate children from a young age about the dangers of smoking

3. **Smokers should access support to quit smoking and prevent relapse**
   - Smokers who are motivated to quit should be assisted by a recognised smoking cessation service
   - Smokers need to be made aware of their level of nicotine dependence
   - Smokers should determine which modality would best suit them in their quit attempt, including pharmacotherapy and behavioural and information based support
   - Smokers should have access to smoking cessation services such as QUIT (137848)

4. **Eliminate harmful exposure to tobacco smoke among children and non smokers**
   - Children and non smokers who are exposed to cigarette smoke are at risk of developing acute respiratory illnesses and chronic conditions in later life
   - Smokers should avoid smoking around children and non smokers, especially indoors and enclosed spaces such as motor vehicles
   - Smokers must adhere to state and national legislation governing smoking restrictions e.g. within 10 metres of a building entrance and designated signed public areas

**1. The facts**

- Around 3.3 million Australians smoke
- Smoking remains the behavioural risk factor responsible for the highest levels of chronic conditions and premature deaths in the world\(^1,2,3\) (see Table 1)
- The financial burden on Australian taxpayers was estimated at $31.5 billion in 2004-05\(^4\)
- Although falling, the incidence of smoking among Aboriginal and Torres Strait Islander populations continues to be higher than the non-Indigenous population\(^2\)
- Reducing parental smoking rates is the intervention with the clearest effect on youth smoking uptake\(^2\)
- Up to \(\frac{3}{4}\) of current smokers will die 10 years earlier than non-smokers from smoking related diseases\(^4\)
Section 1: Lifestyle modifications

Health professionals play a key role in preventing cigarette uptake and supporting cessation

1.1 High prevalence populations

In 2010, populations that accounted for smoking rates higher than the general population included:
- low socioeconomic groups (24.6%)
- those who are unemployed (27.6%)
- the homeless
- those who are imprisoned (74%)
- those with a mental illness (66%)
- those with drug or alcohol dependency
- those living in remote areas (28.9%)

Table 1. Known health effects of smoking on organs

<table>
<thead>
<tr>
<th>Organ</th>
<th>Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eyes</td>
<td>- Macular degeneration and cataracts</td>
</tr>
<tr>
<td>Hair</td>
<td>- Hair loss</td>
</tr>
<tr>
<td>Skin</td>
<td>- Ageing, wrinkles and wound infections</td>
</tr>
<tr>
<td>Brain</td>
<td>- Stroke</td>
</tr>
<tr>
<td>Mouth and pharynx</td>
<td>- Cancer and gum disease</td>
</tr>
<tr>
<td>Lungs</td>
<td>- Cancer, chronic bronchitis, bronchiectasis, emphysema, tuberculosis and pneumonia</td>
</tr>
<tr>
<td>Heart</td>
<td>- Coronary heart disease and myocardial infarction</td>
</tr>
<tr>
<td>Stomach</td>
<td>- Cancer and ulcers</td>
</tr>
<tr>
<td>Pancreas</td>
<td>- Cancer</td>
</tr>
<tr>
<td>Bladder and kidney</td>
<td>- Cancer</td>
</tr>
<tr>
<td>Female reproductive system</td>
<td>- Cervical and ovarian cancer, early menopause and irregular and painful periods</td>
</tr>
<tr>
<td>Male reproductive system</td>
<td>- Erectile dysfunction</td>
</tr>
<tr>
<td>Arteries</td>
<td>- Peripheral vascular disease</td>
</tr>
<tr>
<td>Bones</td>
<td>- Osteoporosis, cancer</td>
</tr>
<tr>
<td>Liver</td>
<td>- Cancer</td>
</tr>
<tr>
<td>Hands and feet</td>
<td>- Pain, gangrene and amputation</td>
</tr>
<tr>
<td>Unborn fetus (smoking mother)</td>
<td>- Cardiovascular/heart defects, musculoskeletal defects, limb reduction defects, missing extra digits, clubfoot, craniosynostosis, facial defects, eye defects, orofacial clefts, gastrointestinal defects, gastrochisis, anal atresia, herna, leukaemia, behavioural problems (e.g. ADHD), nicotine dependence and undescended testes</td>
</tr>
</tbody>
</table>
1.2 During pregnancy
- Approximately 14.5% of women in Australia smoke during pregnancy\(^2\)
- Maternal smoking is associated with significant fetal defect risks including cardiovascular, musculoskeletal and gastrointestinal systems, orofacial clefts and cryptorchidism (absence of one or both testes)\(^6\)

1.3 Infants and children exposed to smoke
- Children are particularly susceptible to the effects of secondhand smoke due to their
  - higher breathing rates per body weight
  - greater lung surface area relative to adults
  - immature lungs
  - inability to control their environment
  - inability to take steps to avoid exposure\(^6\)
- Children are 6 times more likely to be exposed to smoking if
  - they come from households with lower income
  - there is a lower parental (or head of house) education level
  - they live with multiple adult smokers\(^5\)
- 23% of the most disadvantaged households do not ban smoking indoors\(^5\)
- Postnatal exposure to secondhand smoke doubles the risk of SIDS due to\(^7\)
  - thickening and inflammation of the airways
  - increased susceptibility to lung infections
  - the body’s impaired control over respiration and heart rate
  - an impaired automatic response to start breathing again after an episode of apnoea
- Children exposed to secondhand smoke experience higher rates of
  - childhood asthma
  - respiratory tract infections
  - decreased lung function
  - middle ear disease
  - reduced sense of smell
  - longer term developmental effects and
  - childhood cancers

1.4 School students\(^5\)
- The majority of smokers start smoking as teenagers
- In 2011, 15% of those aged 17 years smoked in the last week

1.5 Aboriginal and Torres Strait Islander populations\(^1,5,6\)
- In 2013, Aboriginal and/or Torres Strait Islander Australians aged 14 years and older were 2½ times more likely to smoke daily than non-Indigenous Australians
- Aboriginal and/or Torres Strait Islander women were more than 3 times more likely to
2. Pathophysiology of smoking\textsuperscript{5,8,10,11}

- Many of the more than 4000 compounds found in tobacco smoke, have toxic, mutagenic or carcinogenic effects.

- Carbon monoxide, fatal in large doses, displaces oxygen in blood, starving the lungs, heart, brain and other organs of the oxygen they need to function efficiently. These same risks transfer to the fetus of a smoking mother.

- Tar, a sticky brown substance, coats and irritates the lungs, increasing the amount of mucus and restricting breathing.

- Nicotine in tobacco, a lethal nerve toxin, is the most addictive of these compounds.

- Cigarette smoke rapidly delivers nicotine to the brain as it is drawn into and absorbed by the large surface area of the lungs.

- Nicotine affects specialised cell receptors in the brain and other organs and muscles to produce a wide range of physical reactions including:
  - increase in heart rate and blood pressure
  - decrease blood flow in the skin, producing a subjective drop in temperature
  - increase blood flow in skeletal muscle
  - vasoconstriction (narrowing) of coronary arteries
  - altered brain waves
  - endocrine changes
  - relaxation of skeletal muscles
  - increase in metabolic rate and appetite suppression

- Smokers become accustomed to certain levels of nicotine in their blood, which is maintained by continued self-administration.

- As the effects of nicotine diminish, smokers increase cigarette use, puff frequency and puff depth to maintain nicotine affects.

- Nicotine levels rise quickly after smoking a cigarette then fall slowly over 6 - 8 hours, gradually accumulating in blood over the course of a day.

- The primary sites for metabolism of nicotine are the liver, lungs and brain, while up to \( \frac{1}{3} \) of nicotine by-products are excreted in the urine\textsuperscript{5}.

- The chemicals in tobacco smoke increase the metabolism of certain drugs by human cytochromes CYP1A2 e.g. clozapine, theophylline, warfarin and caffeine and it may be necessary to adjust dosages soon after smoking is stopped.

3. Intervention and support

- The first step to any intervention is determining a client’s willingness to change their behaviour.

- Listen to the person.

- Speak and interact with the person in a non-judgemental, compassionate, patient, open, honest, sincere and supportive way, rather than threatening, confronting or lecturing.
• Outline what can be provided and how the client can be assisted
• Acknowledge the difficult nature of tobacco addiction
• The only person who can reduce tobacco intake is the person involved
• Many lifestyle changes are required to change smoking behaviours
• Choosing not to quit smoking is a choice
• See the well resourced QUIT website at http://www.quit.org.au

3.1 Assessing nicotine dependence

• Providing a clear smoking cessation pathway will assist the clinician to assess the client’s nicotine dependence then advise and assist them to quit (see Resource 1)
• Figure 1. illustrates the pathway to provide effective intervention and support a client to cease smoking
• As nicotine in tobacco smoke reaches the brain’s reward system, within seconds of inhalation activation of nicotine receptors triggers the release of pleasurable neurotransmitters
• The Fagerstrom Test for nicotine dependence can be used to assess the level of a client’s nicotine dependence (see Table 2)

![Figure 1. Intervention and support pathway for smoking cessation](image)

3.2 Behavioural and information based support

• Brief intervention from health professionals has been shown to be effective in encouraging smoking cessation
• Every smoker should be offered brief intervention for smoking cessation, including the following
  – suggestion or recommendation to consider quitting
  – an assessment of the smoker’s commitment to quit
  – offer of pharmacotherapy
  – offer of counselling behavioural support
  – self-help material
  – referral to Quitline (see Resource 2)

Table 2. The Fagerstrom Test for nicotine dependence\textsuperscript{3,5}

<table>
<thead>
<tr>
<th>Questions</th>
<th>Answer</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>How soon after you wake up do you smoke your first cigarette?</td>
<td>• Within 5 minutes</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>• 6 - 30 minutes</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>• 31 - 60 minutes</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>• After 60 minutes</td>
<td>0</td>
</tr>
<tr>
<td>Do you find it difficult to refrain from smoking in places where it is forbidden?</td>
<td>• Yes</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>• No</td>
<td>0</td>
</tr>
<tr>
<td>Which cigarette would you hate to give up most?</td>
<td>• The first one in the morning</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>• All others</td>
<td>0</td>
</tr>
<tr>
<td>How many cigarettes per day do you smoke?</td>
<td>• 10 or less</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>• 11 - 20</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>• 21 - 30</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>• 31 or more</td>
<td>3</td>
</tr>
<tr>
<td>Do you smoke more frequently during the first hours after waking than during the rest of the day?</td>
<td>• Yes</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>• No</td>
<td>0</td>
</tr>
<tr>
<td>Do you smoke if you are so ill that you are in bed most of the day?</td>
<td>• Yes</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>• No</td>
<td>0</td>
</tr>
</tbody>
</table>

Answers added to give a total score of 6 or more is seen as an indicator of high dependence

3.3 Counselling

• Telephone, individual or group counselling have higher success rates of smoking cessation than approaches with minimal support
• Counselling involves scheduled phone or face-to-face meetings with a social worker or psychologist for at least 4 weeks after the last cigarette
• Group therapy involves scheduled meetings where clients receive information and encouragement in the form of behavioural intervention
• Counselling consists of mutual problem solving, skills training and social support as part of the treatment

3.4 Pharmacotherapy

• By reducing withdrawal symptoms and blunting the satisfying effects of smoking, medications can assist as an adjunct to smoking cessation
Nicotine replacement therapy (NRT) agents (e.g. patches and chewing gum to aid cessation) facilitate nicotine absorption at lower doses and/or slower rates than cigarette smoke.

4. Quit plan
- A quit plan involves a client
  - setting goals and steps for quitting
  - quitting
  - maintaining tobacco abstinence, preferably with support

4.1 Identifying reasons to quit
- The risks to health from smoking (see 1. The facts and 2. Pathophysiology of smoking)
- The health benefits of ceasing smoking (see Table 3)
- Cost of smoking e.g. 1 packet of 25 cigarettes at between $17 and $25 per day equates to between $6200 and $9100 per year (see Resource 3)
- Regaining control and being smoke free
- Clean breath, clothes and home
- Being a positive role model to children
- Protecting others from secondhand smoke

4.2 Preparing to quit
- Understand a client’s level of addiction
- Discuss common withdrawal symptoms including: cravings, irritability, trouble concentrating, restlessness, anxiety, low mood and poor concentration
- Discuss how to avoid triggering the urge to smoke by altering the learned smoking habits often tied to certain activities, places or people (see Table 4)

4.3 Choosing a method to quit
- The likelihood of quitting tobacco increases when professional support or guidance is combined with nicotine replacement products or anti-craving pharmacotherapy (see Table 5)

4.4 Commencing
- Support the client to set a quit date and begin

4.5 Managing withdrawal
- During the first 2 - 4 weeks post quitting most people will experience strong tobacco cravings and/or withdrawal symptoms. Besides changing routines (see Table 4) Table 6. offers practical tips to overcome withdrawal symptoms
- The withdrawal symptoms wane after the first few weeks post quitting as a person experiences whole days free of cravings and cigarettes
- As the months pass people may report cravings from time to time, especially when in
situations where they used to smoke or even in dreams

- During times of stress many people feel like the “quitting cigarettes” rules don’t apply e.g. sudden bad news, an argument, a relationship breakup or a car accident

- People will often recall how they used to have a cigarette to temporarily “manage” a situation. To prevent a relapse
  - be prepared to challenge and change invasive thoughts of wanting to smoke e.g. “I really need just one last cigarette”, “just one won’t hurt” or “I could get hit by a bus tomorrow”
  - use self-talk e.g. “I can do this”, “I’m a non-smoker now” or “I won’t let cigarettes rule my life”
  - accept but avoid dwelling on the smoking thought by focusing on a positive reason to quit such as children, a partner, money or simply a relaxing image
  - resist the temptation and the urges will pass
  - call the nominated coach or friend

### Table 3. Timing of health effects from smoking cessation

<table>
<thead>
<tr>
<th>Time ceased</th>
<th>Health effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Within 6 hours</td>
<td>• Heart rate slows and blood pressure decreases</td>
</tr>
<tr>
<td>Within a day</td>
<td>• Almost all of the nicotine leaves the bloodstream</td>
</tr>
<tr>
<td></td>
<td>• Venous carbon monoxide levels fall</td>
</tr>
<tr>
<td></td>
<td>• Oxygenation of muscles (including heart muscle) improves</td>
</tr>
<tr>
<td></td>
<td>• Fingertips become warmer and hands steadier</td>
</tr>
<tr>
<td>Within a week</td>
<td>• Sense of taste and smell improves</td>
</tr>
<tr>
<td></td>
<td>• The lungs’ ability to clear secretions, tar and dust begins to recover</td>
</tr>
<tr>
<td></td>
<td>• Higher blood levels of antioxidants such as vitamin C</td>
</tr>
<tr>
<td>Within 2 months</td>
<td>• Reduced coughing and wheezing</td>
</tr>
<tr>
<td></td>
<td>• The immune system begins to recover</td>
</tr>
<tr>
<td></td>
<td>• Blood becomes less viscous and blood flow to hands and feet improves</td>
</tr>
<tr>
<td>Within 6 months</td>
<td>• Lung function improves, producing less phlegm</td>
</tr>
<tr>
<td></td>
<td>• Stress levels decrease</td>
</tr>
<tr>
<td>After 1 year</td>
<td>• Lung function improves, breathing easier</td>
</tr>
<tr>
<td>Within 2 to 5 years</td>
<td>• A marked reduction in risk of heart attack and stroke</td>
</tr>
<tr>
<td></td>
<td>• The risk of cervical cancer is the same as someone who has never smoked</td>
</tr>
<tr>
<td>After 10 years</td>
<td>• The risk of contracting lung cancer is lower than that of a continuing smoker</td>
</tr>
<tr>
<td>After 15 years</td>
<td>• The risk of heart attack, stroke and mortality is close to that of a person who has never smoked</td>
</tr>
</tbody>
</table>
Table 4. Smoking triggers and avoidance strategies

<table>
<thead>
<tr>
<th>Habit trigger</th>
<th>Suggested strategies to avoid smoking</th>
</tr>
</thead>
<tbody>
<tr>
<td>First thing in the morning</td>
<td>• Have a shower first thing, exercise</td>
</tr>
<tr>
<td>With tea or coffee</td>
<td>• Explore non caffeinated drinks • Use a different cup or enjoy the drink somewhere different from usual</td>
</tr>
<tr>
<td>At morning or afternoon tea</td>
<td>• Read a magazine, get online or sit with different people</td>
</tr>
<tr>
<td>After lunch/dinner</td>
<td>• Go for a walk</td>
</tr>
<tr>
<td>Straight after work</td>
<td>• Listen to music, exercise, cooking or shopping</td>
</tr>
<tr>
<td>Before dinner</td>
<td>• Play with children, talk with friends</td>
</tr>
<tr>
<td>With alcohol</td>
<td>• Avoid or drink less alcohol for some time • Drink water every second drink • Change drink or hold drink in smoking hand • The more a person drinks, the more likely they will relapse due to losing sight of their goals</td>
</tr>
<tr>
<td>Stress</td>
<td>• Call a friend, go for a walk or play a game on the phone</td>
</tr>
<tr>
<td>When living with a smoker</td>
<td>• Make a smokefree house rule • Ask the person to help by not offering cigarettes and to smoke outside • Chew gum, bring a water bottle</td>
</tr>
<tr>
<td>At night in front of the TV</td>
<td>• Chew sugar free gum • Do a jigsaw puzzle</td>
</tr>
<tr>
<td>Just before bed</td>
<td>• Have a warm shower, read a book</td>
</tr>
<tr>
<td>Socialising</td>
<td>• Socialise with a non-smoking friend for support • Chew gum, drink bottled water, or play with a phone • Go to the bathroom, wash face, take some deep breaths • Step outside or leave and go somewhere else • Say “please don’t offer me a smoke, I’m quitting”, or “no thanks, I don’t smoke” • Go home early</td>
</tr>
</tbody>
</table>
Table 5. Options to quit smoking\textsuperscript{8,10,11}

<table>
<thead>
<tr>
<th>Coaching</th>
</tr>
</thead>
</table>
| • Coaches can provide structure, motivation and support to  
  – help organise and remind the person of what and when to do things  
  – help develop reasons to quit  
  – build confidence and encouragement  
  – learn new skills to manage cravings, withdrawal, weight and/or stress  
• Coaches can be a friend, health clinician or from a qualified service such as  
  – Quitline or QuitCoach (see Resource 4) |

<table>
<thead>
<tr>
<th>Nicotine replacement therapy (NRT) (for &gt; 8 week use)</th>
</tr>
</thead>
</table>
| **Patches**  
  - For those who smoke > 10 cigarettes/day and weigh > 45 kg  
    - 25 mg/16 hour patch or  
    - 21 mg/24 hour patch  
  - For those who smoke < 10 cigarettes/day or weigh < 45 kg or have cardiovascular disease  
    - 14 mg/24 hour patch or  
    - 10 mg/16 hour patch |
| • Nicotine is absorbed continuously when worn on the skin  
• Can help to reduce withdrawal symptoms  
• Available at a subsidised cost on a PBS prescription but not available at the same time as other PBS subsidised smoking cessation therapies (varenicline and bupropion)  
• If a person is unsuccessful quitting using patches, they can access other PBS subsidised medicines in the same 12 month period |

| **Gum**  
  - First cigarette > 30 minutes after waking  
    - 2 mg (8 to 12/day)  
  - First cigarette < 30 minutes after waking  
    - 4 mg (6 to 10/day) |
| • Chewed for a short while and parked in the side of the mouth as nicotine is released  
• Taken at regular intervals to help prevent cravings or prior to situations where cravings are expected  
• Not suitable with dentures or some types of dental work  
• Can be used while cutting down on cigarettes prior to stopping |

| **Lozenge**  
  - First cigarette > 30 minutes after waking  
    - 1.5 mg or 2 mg (1 every 1 - 2 hours)  
  - First cigarette < 30 minutes after waking  
    - 4 mg (1 every 1 - 2 hours) |
| • Tablets that dissolve in the mouth  
• Taken at regular intervals to help prevent cravings or prior to situations where cravings are expected  
• Can be used while cutting down on cigarettes prior to stopping |

| **Oral spray and strips**  
  - If assessed as being nicotine dependent  
    - up to 4 sprays per hour  
  - First cigarette > 30 minutes after waking  
    - 2.5 mg (1 strip every 1 - 2 hours at least 9/day) |
| • Sprayed or placed on the inside of the cheek or under the tongue  
• Fast nicotine absorption compared to other oral nicotine products |
Table 5. Options to quit smoking (continued)\(^{6,10,11}\)

<table>
<thead>
<tr>
<th>Nicotine replacement therapy (NRT) (for &gt; 8 week use)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Inhaler</strong></td>
</tr>
<tr>
<td>• For those who smoke &gt; 10 cigarettes/day</td>
</tr>
<tr>
<td>• 6 - 12 cartridges per day</td>
</tr>
<tr>
<td>• The inhaler is depressed during inhalation and the vapour is drawn into the lungs</td>
</tr>
</tbody>
</table>

| **Inhalator** |
|• For those assessed as being nicotine dependent  |
|• 3 to 6 cartridges per day  |
|• The cartridge is inserted into the inhalator and the vapour is inhaled into the lungs  |
|• Can be puffed on as long as a client would a cigarette  |
|• The cartridge empties after around 80 puffs or 15 minutes  |

<table>
<thead>
<tr>
<th>Anti-craving pharmacotherapy (doubles chance of quitting)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Varenicline</strong></td>
</tr>
<tr>
<td>• Smokers start varenicline and then set a quit date 1 - 2 weeks after starting (or later based on perceived effects of the drug)</td>
</tr>
<tr>
<td>• As the medication reaches therapeutic levels, cigarettes become less desirable and thus easier to cut down prior to the quit date</td>
</tr>
<tr>
<td>• Begin titration as follows</td>
</tr>
<tr>
<td>– 0.5 mg once daily - days 1 to 3</td>
</tr>
<tr>
<td>– 0.5 mg b.d. - days 4 to 7</td>
</tr>
<tr>
<td>– Day 8 onwards - 1 mg b.d. until the end of week 4</td>
</tr>
<tr>
<td>• Continue with 1 mg b.d. for a further eight weeks</td>
</tr>
<tr>
<td>• To reduce a relapse for those who successfully quit after 12 weeks continue with 1 mg b.d. for a final 12 weeks</td>
</tr>
<tr>
<td>• May cause mild-to-moderate transient nausea requiring dose reduction</td>
</tr>
</tbody>
</table>

| **Bupropion** |
|• An anti-craving medication that makes smoking less desirable  |
|• 150 mg daily for the first three days then increased to 150 mg b.d.  |
|• The client should stop smoking in the second week of treatment  |
|• May cause insomnia, rarely seizures (0.1% risk) and psychotic or manic symptoms, mainly with an existing psychiatric illness  |
|• Monitor BP if bupropion is used in combination with NRT  |

| Cold turkey |
|• Refers to quitting abruptly or suddenly (rather than gradually cutting down to no cigarettes)  |
|• Quitting cold turkey is most effective with coaching  |

| Cutting down |
|• Refers to reducing the number of cigarettes smoked each day over time, to a point of cessation  |
|• Some people decide to smoke only on the hour, for instance, then every 2 hours etc. until they are going all day without smoking  |
|• Research shows that quitting abruptly is more effective than cutting down  |

| Others |
|Currently there is a lack of evidence that e-cigarettes (personal vapouriser) are safe to use, or that they help people to cease smoking. Likewise, hypnotherapy (alone), acupuncture or switching to lower strength cigarettes lack evidence to suggest they help to cease smoking  |
Table 6. Tips to overcome cigarette withdrawal symptoms

<table>
<thead>
<tr>
<th>Withdrawal symptom</th>
<th>Tips to overcome symptom</th>
</tr>
</thead>
</table>
| Cravings                                                             | • Usually last only a few minutes. Resist each one and they get less frequent until they’re just memories  
|                                                                      | • Exercise                                                                              |
| Restlessness, difficulty concentrating and insomnia                  | • Deep breathing and relaxation exercises                                                |
|                                                                      | • Because smoking releases enzymes that metabolise caffeine, caffeine toxicity is common after quitting if intake remains the same  
|                                                                      | • Reduce caffeine intake by 50%                                                        |
|                                                                      | • Exercise                                                                              |
|                                                                      | • Do a jigsaw or crossword puzzle                                                      |
| Mood changes e.g. depression, sadness, crying, anger, anxiety or irritability | • Normal in the early phases of nicotine withdrawal                                      |
|                                                                      | • Within 6 months of quitting most people report that their overall mood is better and their stress levels lower  
|                                                                      | • Exercise                                                                              |
|                                                                      | • Use a stress ball                                                                     |
| Weight gain due to increase in appetite                              | • Have a piece of gum or fruit instead                                                  |
|                                                                      | • Sip a glass of water slowly                                                          |
|                                                                      | • Do some gardening                                                                     |
| Cold symptoms, constipation, diarrhoea, stomach aches or nausea      | • Vary diet with plenty of water                                                       |
|                                                                      | • Refer to MO or NP for symptomatic relief                                              |

4.6 Managing weight gain

- See Physical activity, page 26 and Diet and nutrition, page 14
- Gaining weight is common in the months after quitting cigarettes due to
  - substituting the hand to mouth action of smoking with food rewards, snacks or treats  
  - slowing of a person’s metabolism in the absence of nicotine, to a healthier, more normal rate  
  - an increased appetite        
  - ability to better taste and enjoy food
- Prepare for changes to appetite and eating habits after quitting to prevent or minimise unwanted weight gain
  - plan meals and snacks ahead of time. Avoid opportunistic snacking  
  - plan and cook tasty, healthier meals  
  - avoid strict diets  
  - avoid skipping meals  
  - limit sugary snacks  
  - increase exercise

4.7 Rewarding the ex-smoker

- The client should learn to embrace being a non-smoker living a smokefree life with no need for cigarettes
• Encourage the client to celebrate the small early achievements and the long term achievement of being a healthier, happier and wealthier non-smoker

• By rewarding the persistence and dedication to their health and future, the client can continue to motivate themselves

• Calculate the savings from quitting (see Resource 3) and
  – save for a holiday
  – buy that much wanted something
  – start a new hobby
5. References


6. Resources


3. Calculate the cost of smoking and/or the savings from quitting at http://www.quit.org.au/reasons-to-quit/cost-of-smoking#CostCalculatorTool

Section 2
Management of diagnosed conditions
Notes:
**Section 2: Management of diagnosed conditions**

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</tr>
<tr>
<td>Asthma (child 12 and under)</td>
<td>86</td>
</tr>
<tr>
<td>Chronic heart failure (CHF)</td>
<td>100</td>
</tr>
<tr>
<td>Chronic kidney disease (CKD)</td>
<td>112</td>
</tr>
<tr>
<td>Chronic obstructive pulmonary disease (COPD)</td>
<td>128</td>
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<tr>
<td>Coronary heart disease (CHD)</td>
<td>142</td>
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<tr>
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<td>240</td>
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<tr>
<td>Osteoporosis</td>
<td>250</td>
</tr>
<tr>
<td>Overweight and obesity in adults</td>
<td>260</td>
</tr>
<tr>
<td>Overweight and obesity in children</td>
<td>270</td>
</tr>
<tr>
<td>Poor growth in children</td>
<td>278</td>
</tr>
<tr>
<td>Rheumatic heart disease (RHD)</td>
<td>290</td>
</tr>
<tr>
<td>Stroke and transient ischaemic attacks</td>
<td>300</td>
</tr>
</tbody>
</table>
Anxiety disorders

High risk groups
- Family history of anxiety
- Physical or emotional stress
- History of physical or emotional trauma
- Other mental health conditions

Considerations for women of child-bearing age
- Consider risk/benefit of psychotropic drugs in pregnancy

Urgent referral
- Refer immediately to the MO/NP or mental health team if there is any risk of harm to themselves or others
- Lifeline 1300 131 114 (local call)
- Kids Helpline 1800 55 1800 (free call)

1. What is an anxiety disorder?
- Anxiety is the anticipation of a future or perceived threat. While anxious feelings are a common response to a situation where a person feels under pressure, these quickly pass once the stressor is removed
- The feeling of anxiety may relate to perceived danger within oneself (internal) or outside oneself (external)
- A degree of arousal and anxiety improves performance, but high levels of anxiety diminish performance and can lead to decompensation
- Anxiety becomes known as a disorder when it is either excessive and/or cannot be controlled
- Anxiety symptoms may be primary or secondary to other physical or mental health conditions such as depression
- There are many types of anxiety disorders including
  - Generalised anxiety disorder (GAD). People with GAD experience generalised and persistent fatigue, muscle tension, headaches, irritability, restlessness, sleep disturbance and gastrointestinal system symptoms, which affects their ability to function. GAD is more common in women than men and has a chronic course that often spans a person's life
  - Panic Disorder refers to recurrent unexpected panic attacks. These are abrupt surges of intense fear or discomfort that reach a peak within minutes and are associated with several symptoms (see Table 1). These attacks are not restricted to any particular situation or set of circumstances and can cause significant distress or disability
  - Post traumatic stress disorder (PTSD) arises as a delayed or protracted response (> 6 months) to a stressful event involving actual or threatened death, a serious injury, or threats to a person's physical integrity. It is characterised by intrusive
nightmares, flashbacks, thoughts and avoidance of reminders of the event, leading to sleep disturbance, irritability, hyperarousal and anger.

- **Obsessive compulsive disorder (OCD)** is characterised by recurring and distressing intrusive thoughts, urges, obsessions and repetitive behaviours to reduce anxiety. Clients typically recognise their behaviour (e.g. hand washing, counting and checking) is excessive or unreasonable which can lead them to feel ashamed and attempt to conceal their symptoms from others.

- **Social anxiety disorder** is characterised by the fear of scrutiny or judgement including doing or saying something embarrassing or being seen as inappropriately anxious in social situations. These social situations are either avoided or endured with anguish having a significant impact on quality of life.

- **Specific phobia** is characterised by an intense and persistent fear of specific situations or objects such as: certain animals or insects, blood, injections, flying, thunder or heights. Confronting these phobic situations can set off overwhelming fear, panic and avoidance responses.

### Table 1. Criteria for a panic attack

<table>
<thead>
<tr>
<th>A distinct period of intense fear or discomfort, in which 4 (or more) of the following symptoms developed abruptly and reached a peak within 10 minutes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Palpitations, pounding heart or accelerated heart rate</td>
</tr>
<tr>
<td>Sweating</td>
</tr>
<tr>
<td>Trembling or shaking</td>
</tr>
<tr>
<td>Sensations of shortness of breath or smothering</td>
</tr>
<tr>
<td>Feeling of choking</td>
</tr>
<tr>
<td>Chest pain or discomfort</td>
</tr>
<tr>
<td>Nausea or abdominal distress</td>
</tr>
<tr>
<td>Feeling dizzy, unsteady, lightheaded or faint</td>
</tr>
<tr>
<td>Derealisation or depersonalisation</td>
</tr>
<tr>
<td>Fear of losing control or going crazy</td>
</tr>
<tr>
<td>Fear of dying</td>
</tr>
<tr>
<td>Parasthesias (numbness or tingling sensations)</td>
</tr>
<tr>
<td>Chills or hot flushes</td>
</tr>
</tbody>
</table>

2. **Diagnosis of anxiety disorders**

- Diagnosis is made after a general health assessment, physical examination and mental health history. It is important to exclude medical conditions and substance abuse and withdrawal as a cause of the client’s symptoms.

- Anxiety disorders tend to be highly co-morbid. Identifying those situations that are feared or avoided as well as the associated thought content helps differentiate between these disorders and informs the clinician as to a specific diagnosis.

- Defining the type of anxiety disorder is an important part of the underlying management strategy.
3. Management
Management of anxiety disorders primarily focuses on psychotherapy and medications

For management strategies to be successful, it is important to identify and address all possible psychological and lifestyle factors which may cause or exacerbate the disorder.  

3.1 Support client self management
- Provide information and resources about anxiety disorders (see Resource 2)
- Help the client to identify the signs and symptoms of anxiety and panic and recognise trigger factors (see Table 1)
- Discuss the role that modifying lifestyle behaviours has in improving general health
- Encourage the client to identify barriers to adequate lifestyle modification and medical adherence and create goals to overcome those barriers based on their capacity and understanding
- Reassure the person that anxiety disorder is a real medical condition
- Be aware of cultural factors that could influence the way symptoms are expressed or understood

3.2 Social emotional support
- Anxiety can be screened for by using a self- or clinician-rated mood scale (see Resource 1). Rating scales should be supplemented by a clinical assessment by a suitably qualified clinician to make a diagnosis
- Acknowledge any client concerns and reassure them that good adherence to appropriate treatment can improve the symptoms of their condition
- Provide a safe, convenient and confidential environment with flexible appointments and short waiting times
- Clinicians should be motivated, non-judgemental, considerate, easy to relate to, respectful, have good interpersonal and communication skills, treat people equitably and devote adequate time to the needs of the client
- Ensure the client is well informed about services and their rights, are involved in service provision and encouraged to involve parental/carer support
- Build strong therapeutic relationships which will form the basis of continuing care

3.3 Psychotherapy
- Psychotherapy modalities are considered first line treatment for anxiety
- The main form of psychotherapy treatment for anxiety disorders is cognitive behaviour therapy (CBT) which should be considered as first line treatment
• Psychotherapy has been associated with lower relapse rates after 2 - 3 years\(^5\)

• Psychotherapy\(^5,6,8\)
  – can be as effective as medications for anxiety disorders
  – may provide skills which reduce risk of relapse
  – requires commitment by the person with anxiety disorders
  – requires referral to an appropriately trained expert therapist e.g. social worker, mental health worker or psychologist

• General principles of psychotherapy include
  – the client is assisted to problem-solve stressors which adversely affect their mental health as they present\(^5,6,8\)
  – the client is encouraged to challenge negative thoughts and replace them with more realistic thoughts, and to resist pessimism and self-criticism\(^5,6,8\)
  – specific behavioural tasks designed to assist in managing and overcoming anxiety

3.4 Physical and leisure activities

• Exercise has been shown to be beneficial in managing the symptoms of mild to moderate anxiety\(^6\) (see Physical activity, page 26)

• Consider and support community program activities such as walking groups or other traditional activities such as fishing or hunting

• Dissuade excessive use of computerised devices or television as a form of leisure activity as they are sedentary in nature

3.5 Relaxation training

• Relaxation training has been shown to be effective in reducing mild to moderate anxiety and has been shown to be as effective as CBT in the treatment of GAD

• Relaxation training has been shown to be more effective for PTSD and social anxiety disorder than no treatment

• For panic disorder, relaxation training has been shown to be as effective as drug treatments and psychological therapies including CBT

• There are several types of relaxation training including progressive muscle relaxation which teaches a person to relax by tensing and relaxing specific groups of muscles

• Relaxation training can be learned via professional intervention or self-taught\(^5,6,8\)

3.6 Internet and computer based treatment

• Information-based self-help tools have the greatest evidence of efficacy for specific phobias, and are most effective when the individual is highly motivated to undertake treatment

• Internet and computer based treatment provides learning materials with practise exercises that individuals can either choose to use by themselves or under professional guidance (see Resource 3)

• May be done without the aid of a therapist, although evidence suggests that better results are achieved with a therapist\(^5\)
4. Medications

- Psychotherapy modalities are considered first line treatment
- Use of medication is helpful in controlling symptoms in situations where psychotherapy is not available or the client has low motivation and/or acceptance of such therapies
- Discuss with the client that
  - selective serotonin reuptake inhibitors (SSRIs) and serotonin and noradrenaline reuptake inhibitors (SNRIs) are well tolerated, however there are a wide range of potential side effects
  - the symptoms of anxiety may worsen for a short time when starting or increasing medication doses
  - potential improvement in symptoms occurs up to 2 weeks after medication commencement
- Abrupt cessation of antidepressant treatment may result in withdrawal side effects
- There is evidence of an increased risk of suicidal behaviour in young people under 25 years of age taking SSRIs
- Clinical monitoring of response and side-effects is particularly important in this group
- Table 2. outlines general medications used for anxiety while Table 3. summarises management of specific anxiety disorders
### Table 2. General medications for anxiety disorders

<table>
<thead>
<tr>
<th>Class</th>
<th>Recommended drugs</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Serotonin selective reuptake inhibitors (SSRIs)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fluoxetine 10 mg mane up to 80 mg daily</td>
<td>Adverse effects include nausea, diarrhoea, constipation, insomnia, orthostatic hypotension, dizziness, hyponatraemia, increased risk of GI bleeding and sedation</td>
<td></td>
</tr>
<tr>
<td>Fluvoxamine 50 mg mane up to 300 mg daily (or b.d. for &gt; 150 mg)</td>
<td>Weight gains of more than 6 kgs may occur</td>
<td></td>
</tr>
<tr>
<td>Escitalopram 5 mg mane up to 20 mg daily</td>
<td>Sexual dysfunction, including loss of libido, anorgasmia and ejaculatory disturbance, may also occur</td>
<td></td>
</tr>
<tr>
<td>Paroxetine 10 mg mane up to 60 mg daily</td>
<td>Use with caution in pregnancy</td>
<td></td>
</tr>
<tr>
<td>Sertraline 25 mg mane up to 200 mg daily</td>
<td>Compatible with breastfeeding</td>
<td></td>
</tr>
<tr>
<td>Citalopram 10 mg mane up to 40 mg daily</td>
<td>If drowsiness occurs give in the evening</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Careful titration and follow up is required</td>
<td></td>
</tr>
<tr>
<td><strong>Serotonin and noradrenaline reuptake inhibitors (SNRIs)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Duloxetine 30 mg daily up to 120 mg daily</td>
<td>Adverse effects as above, plus tachycardia, hypertension</td>
<td></td>
</tr>
<tr>
<td>Venlafaxine CR 75 mg mane (after food) up to 225 mg</td>
<td>Useful when other treatments have been unsuccessful or for severe anxiety disorders</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Not to be used in children and adolescents</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Careful titration and follow up is required</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Consider SSRI as an alternative in pregnancy</td>
<td></td>
</tr>
<tr>
<td><strong>Tricyclic antidepressants (TCAs)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Imipramine 25 - 75 mg nocte up to 75 - 150 mg daily</td>
<td>Not considered first line treatment due to adverse effects</td>
<td></td>
</tr>
<tr>
<td>Clomipramine 25 - 75 mg nocte up to 75 - 150 mg daily</td>
<td>Use with caution if co-existing depression or ideas of self-harm as toxic in overdose quantities</td>
<td></td>
</tr>
<tr>
<td><strong>Benzodiazepines</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use only for treatment during crises or if anxiety is causing the client unnecessary distress</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oxazepam</td>
<td>Addictive quality, ensure no previous history of problem drug or alcohol use</td>
<td></td>
</tr>
<tr>
<td>Alprazolam</td>
<td>For short-term use only</td>
<td></td>
</tr>
<tr>
<td>Diazepam</td>
<td>Long-term use is associated with dependence, motor vehicle accidents and memory problems</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prescribe in small quantities</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ensure regular review of the client</td>
<td></td>
</tr>
<tr>
<td></td>
<td>At the end of a treatment course taper off over several weeks to avoid withdrawal symptoms</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Reduces tension and increases relaxation</td>
<td></td>
</tr>
</tbody>
</table>
### Table 3. Management for specific anxiety disorders

<table>
<thead>
<tr>
<th>Condition</th>
<th>Psychotherapy</th>
<th>Pharmacotherapy</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• CBT is the treatment of choice</td>
<td></td>
</tr>
<tr>
<td>Generalised anxiety disorder</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Psychotherapy</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• CBT is the treatment of choice</td>
<td></td>
</tr>
<tr>
<td><strong>Pharmacotherapy</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>First line</strong></td>
<td>• SSRI OR</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Duloxetine 30 mg orally daily up to 120 mg daily OR</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Venlafaxine CR 75 mg orally mane after food up to 225 mg daily</td>
<td></td>
</tr>
<tr>
<td><strong>Second line</strong></td>
<td>• Diazepam 2 - 5 mg daily where appropriate</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• As a short-term measure only, during crises or for severe or disabling anxiety</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Treatment should be for 2 weeks only with a gradual reduction in dose over 4 - 6 weeks</td>
<td></td>
</tr>
<tr>
<td>Panic Disorder</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Psychotherapy</strong></td>
<td>• CBT is the treatment of choice</td>
<td></td>
</tr>
<tr>
<td><strong>Pharmacotherapy</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>First line</strong></td>
<td>• SSRI OR</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Venlafaxine CR 75 mg orally mane after food up to 225 mg daily</td>
<td></td>
</tr>
<tr>
<td><strong>Second line</strong></td>
<td>• Clomipramine 50 - 75 mg nocte up to 300 mg nocte OR</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Imipramine 50 - 75 mg nocte up to 300 mg nocte</td>
<td></td>
</tr>
<tr>
<td>Post traumatic stress disorder</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Psychotherapy</strong></td>
<td>• Trauma focused CBT OR</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Eye movement desensitisation and reprocessing</td>
<td></td>
</tr>
<tr>
<td><strong>Pharmacotherapy</strong></td>
<td>• SSRI</td>
<td></td>
</tr>
<tr>
<td><strong>First line</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Second line</strong></td>
<td>• Mirtazapine 15 mg nocte up to 60 mg nocte OR</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Amitriptyline 50 - 75 mg nocte up to 250 mg nocte</td>
<td></td>
</tr>
<tr>
<td>Obsessive compulsive disorder</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Psychotherapy</strong></td>
<td>• CBT is the treatment of choice</td>
<td></td>
</tr>
<tr>
<td><strong>Pharmacotherapy</strong></td>
<td>• Doses of medications may be higher than those required for depression and may take between 6 - 12 weeks before a response is noted</td>
<td></td>
</tr>
<tr>
<td><strong>First line</strong></td>
<td>• SSRI OR</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Venlafaxine CR 75 mg orally mane after food up to 225 mg daily</td>
<td></td>
</tr>
<tr>
<td><strong>Second line</strong></td>
<td>• Clomipramine 50 - 75 mg nocte up to 300 mg nocte</td>
<td></td>
</tr>
</tbody>
</table>

(continued)
Table 3. Management for specific anxiety disorders (continued)\(^4,7,12,13,14,15,16\)

<table>
<thead>
<tr>
<th>Social anxiety disorder</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Psychotherapy</strong></td>
</tr>
<tr>
<td>• CBT should incorporate exposure based therapy along with social skills training</td>
</tr>
<tr>
<td><strong>Pharmacotherapy</strong></td>
</tr>
<tr>
<td><strong>First line</strong></td>
</tr>
<tr>
<td>• SSRI OR Venlafaxine CR 75 mg orally mane after food up to 225 mg daily</td>
</tr>
<tr>
<td><strong>Control of physiological symptoms</strong></td>
</tr>
<tr>
<td>• Propranolol 10 - 40 mg, 30 - 60 minutes prior to social event</td>
</tr>
</tbody>
</table>

**Specific phobias**

**Psychotherapy**
• For all specific phobias, psychological interventions are the treatment of choice

**Pharmacotherapy**
• Should not be considered for treatment of specific phobias on an ongoing basis

5. Care plan

Table 4. Care plan for clients with anxiety disorders

<table>
<thead>
<tr>
<th>Action</th>
<th>Dx</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full physical health check</td>
<td>✓</td>
<td>12 mthly</td>
</tr>
<tr>
<td>TFT, FBC, LFTs, UEC venous glucose, syphilis serology, fasting lipids</td>
<td>✓</td>
<td>Dependent on any underlying medical condition and medication use</td>
</tr>
<tr>
<td>MSE</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>BP</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Medication review</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Lifestyle modification</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Electrocardiogram</td>
<td>✓</td>
<td>Repeat at frequency determined by clinical condition on advice of MO</td>
</tr>
<tr>
<td>Self harm risk</td>
<td>✓</td>
<td>At each review</td>
</tr>
<tr>
<td>Medication recall</td>
<td>✓</td>
<td>As prescribed</td>
</tr>
<tr>
<td>ATODs service review</td>
<td>✓</td>
<td>As required</td>
</tr>
<tr>
<td>Mental Health Worker Review</td>
<td>✓</td>
<td>Wkly until stable</td>
</tr>
<tr>
<td>Mental Health team</td>
<td>✓</td>
<td>As required</td>
</tr>
<tr>
<td>MO/NP</td>
<td>✓</td>
<td>Wkly until stable and with medication review</td>
</tr>
<tr>
<td>Psychiatrist</td>
<td>✓</td>
<td>For moderate/severe anxiety disorders or immediately if self-harm is an issue</td>
</tr>
</tbody>
</table>
6. References


7. Resources


Asthma (adult and child over 12)

**High risk groups**
- Adults and children over 12 years of age with a diagnosis of asthma

**Considerations for women of child-bearing age**
- Asthma in pregnant women increases the risk of pre-eclampsia, preterm labour, low birth weight and babies small for gestational age
- Acute exacerbations should be treated aggressively to avoid fetal hypoxia

**Urgent referral**
- For any acute asthmatic episode see *Acute asthma adult/child* in the current edition of the PCCM and refer immediately to the MO/NP

**Abbreviations**
- ICS: Inhaled corticosteroids
- OCS: Oral glucocorticosteroids
- SABA: Short acting β₂ agonist (reliever puffers)
- LABA: Long acting β₂ agonist (preventer puffers)
- MDI: Metered dose inhaler
- DPI: Dry powder inhaler
- LTRA: Leukotriene receptor antagonist

1. **What is asthma?**
- Asthma is a chronic inflammatory disorder of the airways which can be triggered by a wide range of factors
- Asthma is defined by a variation in lung function (especially expiratory airflow) and episodic respiratory symptoms such as wheezing, shortness of breath, cough and tight chest as a result of inflammation
- These episodes are usually associated with airflow obstruction (excessive airway narrowing) that is often reversible either spontaneously or with treatment
- Airflow obstruction is due to swelling of the airway wall including oedema and mucus production
- Asthma is strongly associated with allergies such as eczema and allergic rhinitis
- After teenage years, asthma is more common in women than in men
- Asthma is more common among Indigenous Australians, particularly adults, than among other Australians

2. **Diagnosis of asthma**
- The first step to managing asthma is confirming the diagnosis as 25 - 35% of people with a diagnosis of asthma may not actually have asthma
- A prior diagnosis of asthma reported by a client should be corroborated by documentation of how the diagnosis was confirmed at the time, or by current evidence
Wheezing, airflow limitation demonstrated on spirometry and other respiratory symptoms do not always mean a person has asthma\(^2\)^\(^4\)

Table 1 outlines findings that increase or decrease the likelihood of asthma

Diagnosis is based on history, physical examination, consideration of other diagnoses and documented changes in airflow (spirometry) (see Resources 1 and 2)

---

**Table 1. Findings that increase or decrease the probability of asthma in adults and children over 12**

<table>
<thead>
<tr>
<th>Asthma is more likely to explain the symptoms if any of these apply</th>
<th>Asthma is less likely to explain the symptoms if any of these apply</th>
</tr>
</thead>
</table>
| More than one of these symptoms
- Wheeze
- Breathlessness
- Chest tightness
- Cough | • Dizziness, light-headedness, peripheral tingling
• Isolated cough with no other respiratory symptoms
• Chronic sputum production
• No abnormality detected on physical examination of chest when symptomatic (over several visits) |
| AND | • Change in voice
• Symptoms only present during URTI
• Heavy smoker (now or in past)
• Cardiovascular disease
• Normal spirometry or peak expiratory flow (PEF) when symptomatic (despite repeated tests) |
| Any of these
- Symptoms recurrent or seasonal
- Symptoms worse at night or in the early morning
- History of smoking
- Symptoms obviously triggered by exercise, cold air, irritants, medicines (e.g. aspirin or beta blockers), allergies, viral infections, laughter
- Family history of asthma or allergies (e.g. allergic rhinitis, atopic dermatitis)
- Symptoms began in childhood
- Widespread wheeze audible on chest auscultation
- FEV\(^1\) or PEF lower than predicted, without other explanation
- Eosinophilia or raised blood IgE level, without other explanation
- Symptoms rapidly relieved by a SABA bronchodilator | • Symptoms only present during URTI
• Heavy smoker (now or in past)
• Cardiovascular disease
• Normal spirometry or peak expiratory flow (PEF) when symptomatic (despite repeated tests) |

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Differential diagnoses include
- poor cardiopulmonary fitness
- other respiratory conditions e.g. bronchiectasis, chronic obstructive pulmonary disease, inhaled foreign body, large airway stenosis, pleural effusion, pulmonary fibrosis, rhinitis/rhinosinusitis, lung cancer
- cardiovascular disease e.g. chronic heart failure
- co-morbid conditions e.g. obesity, gastro-oesophageal reflux

Figure 1. illustrates the steps to confirm an asthma diagnosis
3. Management of asthma

3.1 Factors complicating management

In managing asthma the following co-morbidities and screening must be considered and treated where appropriate:

- Allergic rhinitis is reported in over 75% of people with asthma and is associated with worse asthma control.
- Gastro-oesophageal reflux disease (GORD) is reported by the majority of people with asthma which may contribute to bronchoconstriction by hyperresponsiveness, microaspiration and inflammation.
- Depression (see Depression, page 172), anxiety and panic disorders (see Anxiety disorders, page 62) are shown to be more common in people with asthma and is attributed to a client’s asthma symptom perception and medication adherence.
• Obesity (BMI ≥ 30 kg/m²) is associated with an increased prevalence of asthma via mechanical, inflammatory and genetic/developmental factors²,⁴,⁸ (see Overweight and obesity in adults, page 260 and Overweight and obesity in children, page 270).

• Obstructive sleep apnoea is higher among people with asthma and is associated with upper and lower airway inflammation².

3.2 Support client self management

• Provide culturally appropriate resources about asthma and support services details (see Resource 3).

• Identify and discuss asthma triggers (see Table 2).

• At each visit ensure the client and family members are aware
  – of symptoms that indicate that the asthma is worsening
  – of what to do when symptoms worsen
  – to seek medical intervention sooner rather than later.

• At each visit ensure the client has developed and uses or follows an asthma action plan (asthma first aid) (see Resource 4).

• Clients who accept their chronic asthma symptoms as the norm, or do not recognise that they have symptoms, are known as poor perceivers⁹.

• Poor perceivers live with under-treated asthma which puts them at risk of severe attacks and poor quality of life and as such require added information to show that symptoms and quality of life will improve with correct bronchodilator use and regular monitoring (see Resource 3)⁹.

• See Smoking cessation, page 44 and Diet and nutrition, page 14.

• Encourage the client to identify barriers to adequate lifestyle modification and medical adherence and goals to overcome those barriers based on their capacity and understanding.

3.3 Social emotional support

• Depression and anxiety can be screened for by using a self- or clinician-rated mood scale (see Resource 5, for examples). To make a diagnosis, rating scales should be supplemented by a clinical assessment by a suitably qualified clinician.

• Acknowledge any client concerns and reassure them that good adherence to appropriate treatment can improve the symptoms of their condition.
3.4 Smoking cessation

- Regularly encourage the client to quit smoking
- Remind the client of the dangers of passive smoking, particularly in homes and cars
- Schedule planned checkups every 6 months to assess recent asthma symptom control for people who smoke, due to increased risk of flare-ups and increased rate of decline in lung function over time
- Offer the client Quitline details (see Resource 6)

<table>
<thead>
<tr>
<th>Avoidable triggers</th>
<th>Unavoidable triggers</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Always avoid</strong></td>
<td><strong>Do not avoid</strong></td>
</tr>
<tr>
<td>- Cigarette smoke</td>
<td>- Exercise</td>
</tr>
<tr>
<td></td>
<td>- Laughter</td>
</tr>
<tr>
<td><strong>Avoid or reduce if possible</strong></td>
<td></td>
</tr>
<tr>
<td>Allergens</td>
<td>Respiratory tract infections</td>
</tr>
<tr>
<td>- Animal allergens e.g. pets, animals</td>
<td></td>
</tr>
<tr>
<td>- Cockroaches</td>
<td></td>
</tr>
<tr>
<td>- House dust mite</td>
<td></td>
</tr>
<tr>
<td>- Moulds</td>
<td></td>
</tr>
<tr>
<td>- Workplace allergens</td>
<td></td>
</tr>
<tr>
<td>- Pollens</td>
<td></td>
</tr>
<tr>
<td>Airborne/environmental irritants</td>
<td>Certain medicines</td>
</tr>
<tr>
<td>- Cold/dry air</td>
<td>- Aspirin (when given for purpose of desensitisation)</td>
</tr>
<tr>
<td>- Fuel combustion e.g. gas heaters</td>
<td>- Anticholinesterases and cholinergic agents</td>
</tr>
<tr>
<td>- Home renovation materials</td>
<td>- Beta blockers</td>
</tr>
<tr>
<td>- Household aerosols</td>
<td></td>
</tr>
<tr>
<td>- Moulds (airborne)</td>
<td></td>
</tr>
<tr>
<td>- Workplace irritants</td>
<td></td>
</tr>
<tr>
<td>- Outdoor industrial and traffic pollution</td>
<td></td>
</tr>
<tr>
<td>- Perfumes/scents/incense</td>
<td></td>
</tr>
<tr>
<td>- Smoke e.g. any bushfires and camp fires</td>
<td></td>
</tr>
<tr>
<td>Allergens</td>
<td>Co-morbid medical conditions</td>
</tr>
<tr>
<td>- Animal allergens e.g. pets, animals</td>
<td>- Allergic rhinitis/rhinosinusitis</td>
</tr>
<tr>
<td>- Cockroaches</td>
<td>- Gastro-oesophageal reflux disease</td>
</tr>
<tr>
<td>- House dust mite</td>
<td>- Nasal polyposis</td>
</tr>
<tr>
<td>- Moulds</td>
<td>- Obesity</td>
</tr>
<tr>
<td>- Workplace allergens</td>
<td>- Upper airway dysfunction</td>
</tr>
<tr>
<td>- Pollens</td>
<td></td>
</tr>
<tr>
<td>Airborne/environmental irritants</td>
<td></td>
</tr>
<tr>
<td>- Cold/dry air</td>
<td></td>
</tr>
<tr>
<td>- Fuel combustion e.g. gas heaters</td>
<td></td>
</tr>
<tr>
<td>- Home renovation materials</td>
<td></td>
</tr>
<tr>
<td>- Household aerosols</td>
<td></td>
</tr>
<tr>
<td>- Moulds (airborne)</td>
<td></td>
</tr>
<tr>
<td>- Workplace irritants</td>
<td></td>
</tr>
<tr>
<td>- Outdoor industrial and traffic pollution</td>
<td></td>
</tr>
<tr>
<td>- Perfumes/scents/incense</td>
<td></td>
</tr>
<tr>
<td>- Smoke e.g. any bushfires and camp fires</td>
<td></td>
</tr>
<tr>
<td>Certain medicines</td>
<td></td>
</tr>
<tr>
<td>- Aspirin and NSAIDs (in patients with aspirin-</td>
<td></td>
</tr>
<tr>
<td>- Bee products e.g. pollen, propolis, royal jelly</td>
<td></td>
</tr>
<tr>
<td>- Echinacea</td>
<td></td>
</tr>
<tr>
<td>Dietary triggers</td>
<td></td>
</tr>
<tr>
<td>- Food chemicals/additives (if person is intolerant)</td>
<td></td>
</tr>
<tr>
<td>- Thermal effects e.g. cold drinks</td>
<td></td>
</tr>
</tbody>
</table>

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3.5 Nutrition

- While people with demonstrated food allergies should avoid food triggers, routine dietary restrictions are not beneficial in people with asthma.
- Weight reduction in overweight or obese people with asthma may reduce asthma symptoms.
- There is no medical foundation for the widely held view that dairy products increase mucous secretions.
- The following has been observed to reduce the risk of asthma flare-ups:
  - a diet high in fresh fruits and vegetables
  - regular consumption of oily fish
- The following has been observed to increase the risk of developing asthma:
  - consumption of fast foods
  - a ‘Westernised’ diet compared with an ‘Asian’ diet
  - high soft drink consumption
  - reduction in fresh fruit intake

3.6 Good sleep patterns

- Medications, difficulty with breathing, anxiety and depression may prevent people with asthma from sleeping well at night.
- Measure a client’s daytime sleepiness by doing the Epworth Sleepiness Scale (see Resource 7)
- If they score highly refer to a sleep specialist or MO/NP to exclude obstructive sleep apnoea

3.7 Special considerations

- The clinician and client should be alert to and address the following risk factors for asthma flare-ups:
  - exposure to cigarette smoke
  - socioeconomic disadvantage
  - access to health care
  - use of alcohol or illegal substances
  - social isolation
  - depression and anxiety
  - inadequate treatment
  - side effects or euphoria of OCS use
  - 2 or more hospitalisations in the last 12 months
  - 3 or more hospital presentations due to asthma in the last 3 months
  - use of more than 2 canisters of SABA per month
  - cardiovascular disease
3.8 Asthma control

- Ascertain the client’s recent level of asthma symptom control using Table 3.
- Recent asthma symptom control is based on symptoms over the previous 4 weeks
- When counting the times a client uses their puffer (SABA) do not include times taken before exercise

**Table 3. Definition of levels of recent asthma symptom control in adults and children over 12**

| Good control | All of
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Daytime symptoms ≤ 2 days per week</td>
</tr>
<tr>
<td></td>
<td>• Need for reliever ≤ 2 days per week†</td>
</tr>
<tr>
<td></td>
<td>• No limitation of activities</td>
</tr>
<tr>
<td></td>
<td>• No symptoms during night or on waking</td>
</tr>
</tbody>
</table>

| Partial control | One or two of
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Daytime symptoms &gt; 2 days per week</td>
</tr>
<tr>
<td></td>
<td>• Need for reliever &gt; 2 days per week†</td>
</tr>
<tr>
<td></td>
<td>• Any limitation of activities</td>
</tr>
<tr>
<td></td>
<td>• Any symptoms during night or on waking</td>
</tr>
</tbody>
</table>

| Poor control | Three or more of
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Daytime symptoms ≥ 2 days per week</td>
</tr>
<tr>
<td></td>
<td>• Need for reliever ≥ 2 days per week†</td>
</tr>
<tr>
<td></td>
<td>• Any limitation of activities</td>
</tr>
<tr>
<td></td>
<td>• Any symptoms during night or on waking</td>
</tr>
</tbody>
</table>

**Sample questions for reviewing asthma control (adults and children over 12)**

- How many weeks does the person’s reliever puffer last?
- How often does the person wheeze, become short of breath or cough?
- Does the person wake during the night due to wheezing, shortness of breath or coughing? How many times per month?
- How often does the person need to take reliever puffer? How many puffs?
- Has the person needed to use oral corticosteroids? How often and how much?
- Does the person use a preventer puffer? What dose? How many puffs per day?
- How often does the person need a new prescription for preventer medicine?
- Has the person missed time from school, work or sport due to asthma?
- How often does the person get colds?
- Is the person using other medicines for respiratory symptoms e.g. oral or intranasal antihistamines or intranasal corticosteroids?
- How many times has the person visited the GP/hospital emergency room for asthma symptoms? Specify time period, e.g. In the last year/month/2 weeks

† Not including SABA taken prophylactically before exercise (Record this separately and take into account when assessing management)

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4. Medications

4.1 Correct inhaler use

- Check inhaler instructions in the product packaging for specific instructions
- Monitor medication adherence and correct inhaler technique
- Video and printable instructions for correct inhaler use are available at the National Asthma Council Australia website (see Resource 8)

4.2 Medication precautions in asthma

- Whenever clients obtain new medicines, prescriptions or over the counter drugs, they should check with the pharmacist or MO/NP about its safety with asthma
- Sedatives are contraindicated during an acute asthma attack
- Complementary preparations like echinacea and royal jelly can precipitate life threatening anaphylaxis in predisposed individuals with asthma
- Bronchoconstriction may occur when treating co-morbidities (such as hypertension and coronary heart disease) with beta-blockers
- NSAIDs and aspirin can cause exacerbation of asthma

4.3 Medication initiation and management

- Use Figure 2. to assist with the steps to determine practical management and optimal medications for the client with asthma

4.4 Medication review

- Clients should be reviewed
  - 2 - 4 weeks after an episode of exacerbation of their asthma OR
  - 1 - 3 months after an initial visit with preference given to 3 months to ascertain the effectiveness of the medication to control the asthma OR
  - every 3 months
- If client’s asthma is poorly controlled after 1 - 3 months step up treatment
- If good control is achieved for 3 months step down treatment to the least medication required to maintain control
- Ongoing monitoring is necessary once good control is achieved so that adjustments can be made in response to worsening symptoms or episodes of exacerbations3
**Address asthma management factors**

**Co-morbidities**
- GORD
- Depression
- Obesity
- Obstructive sleep apnoea

**Lifestyle modification**
- Smoking
- Nutrition
- Alcohol

**Triggers**
- Address triggers found in Table 2.

**Assign the client’s level of asthma control (Table 3) to a treatment step (Figure 3) and treat accordingly (Table 4)**

**For a newly diagnosed client not on medications consider**
- Starting at Step 2. (Figure 3)
- If very symptomatic then Step 3. (Figure 3)

**Review (Table 5)**
- In 2 - 4 weeks if after an exacerbation OR
- In 1 - 3 months if after an initial visit OR
- Every 3 months

**If good control is achieved then step down using Figure 3.**

**Control achieved**
Continue to monitor asthma and adjust medication until **good control** is achieved at the lowest medication dose and treatment

Review every 3 - 6 months once **good control** is maintained for 3 months

**If asthma is partially or poorly controlled then step up using Figure 3, until control is achieved.**

**Control NOT achieved**
REFER TO SPECIALIST

---

*Figure 2. Intervention flowchart to achieve asthma control*
Section 2: Management of diagnosed conditions

**Asthma (adult and child over 12)**

- **Most clients**
  - ICS (low dose)
  - OR
  - *LTRA

- **Some clients**
  - ICS / LABA (low dose)
  - OR
  - *ICS (low dose) + LTRA

- **Few clients**
  - ICS / LABA (medium to high dose)
  - consider referral

- **Referral**

All clients use a reliever SABA as needed

- **Step 1.**
- **Step 2.**
- **Step 3.**
- **Step 4.**
- **Step 5.**

Step up or down with worsening or improving condition

*With regular review of recent control and triggers (see Tables 2 and 3)*

*LTRA can be used in children aged 12 - 14 years or in adults with exercise induced asthma*

**Figure 3. Stepped approach to adjusting asthma medication in adults and children over 12**

\[1,4,10\]
Table 4. Medications for adults and children over 12 with asthma

<table>
<thead>
<tr>
<th>Class</th>
<th>Suggested drug</th>
<th>Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>SABA (reliever)</td>
<td>• Salbutamol (MDI) • Terbutaline (turbuhaler)</td>
<td>• 100 - 200 micrograms (1 puff) PRN • 500 micrograms (1 puff) PRN</td>
</tr>
<tr>
<td>LABA</td>
<td>Always used with ICS never used as monotherapy</td>
<td>• Eformoterol (turbuhaler) • Salmeterol (accuhaler)</td>
</tr>
<tr>
<td>ICS</td>
<td>Specific doses are tailored to the client’s level of asthma control</td>
<td>• Beclomethasone dipropionate (MDI) • Ciclesonide (MDI) • Fluticasone propionate (MDI or accuhaler)</td>
</tr>
<tr>
<td>Combined ICS/LABA</td>
<td>• Budesonide and eformoterol (Turbuhaler) • Budesonide and eformoterol (Rapihaler)</td>
<td>• Low 100/6 micrograms 1 - 2 puffs b.d. • Medium 200/6 micrograms 1 - 2 puffs b.d. • High 400/12 micrograms 1 - 2 puffs b.d. • Low 50/3 micrograms 2 - 4 puffs b.d. • Low 100/6 micrograms 2 puffs b.d. • Medium 100/3 micrograms 2 - 4 puffs b.d. • Medium 200/6 micrograms 2 puffs b.d. • Low 50/5 micrograms 2 puffs b.d. • Medium 125/5 micrograms 2 puffs b.d. • High 250/10 micrograms 2 puffs b.d.</td>
</tr>
<tr>
<td>LTRA (for 12 - 14 years)</td>
<td>• Montelukast (oral)</td>
<td>• 5 mg for 12 - 14 years • An alternative to ICS (low dose)</td>
</tr>
</tbody>
</table>
### Table 5. Reviewing and adjusting asthma preventer treatment for adults and children over 12\textsuperscript{1,3,4}

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Review</th>
<th>Treatment response</th>
</tr>
</thead>
</table>
| **SABA**                      | 4 weeks| • Continue SABA use  
• Review in 3 months  
• If asthma management factors optimal then **Step up**  
• Add ICS (low dose)  
• Review in 4 weeks |
| **ICS (low dose)**            | 4 weeks| • If asthma management factors optimal then continue treatment and review in 3 months  
• After 3 months **Step down**  
• If asthma management factors optimal then **Step up**  
• Increase ICS/LABA (low dose)  
• Review in 4 weeks |
| **ICS/LABA (low dose)**       | 4 weeks| • If asthma management factors optimal then continue treatment and review in 3 months  
• After 3 months **Step down**  
• If asthma management factors optimal then **Step up**  
• Increase ICS/LABA (medium to high dose)  
• Review in 4 weeks |
| **ICS/LABA (medium to high dose)** | 4 weeks | • If asthma management factors optimal then continue treatment and review in 3 months  
• After 3 months **Step down**  
• If asthma management factors optimal then **Refer for specialist review** |
## 5. Care plan

### Table 6. Care plan for adults and children over 12 with asthma

<table>
<thead>
<tr>
<th>Action</th>
<th>Dx</th>
<th>Good control</th>
<th>Partial control</th>
<th>Poor control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td>✓</td>
<td>Annually until client stops growing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>✓</td>
<td>12 mthly</td>
<td>6 mthly</td>
<td>6 mthly</td>
</tr>
<tr>
<td>Inhaler technique</td>
<td>✓</td>
<td>12 mthly</td>
<td>6 mthly</td>
<td>3 mthly</td>
</tr>
<tr>
<td>Spirometry</td>
<td>✓</td>
<td>12 mthly</td>
<td>6 mthly</td>
<td>3 mthly</td>
</tr>
<tr>
<td>Social emotional wellbeing</td>
<td>✓</td>
<td>12 mthly</td>
<td>6 mthly</td>
<td>3 mthly</td>
</tr>
<tr>
<td>Lifestyle modification</td>
<td>✓</td>
<td>12 mthly</td>
<td>6 mthly</td>
<td>3 mthly</td>
</tr>
<tr>
<td>Self manage education</td>
<td>✓</td>
<td>12 mthly</td>
<td>6 mthly</td>
<td>3 mthly</td>
</tr>
<tr>
<td>Asthma action plan and asthma first aid</td>
<td>✓</td>
<td>At each visit</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Symptom review</td>
<td>✓</td>
<td>4 wkly when changing drugs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medication R/V</td>
<td>✓</td>
<td>4 wkly when changing drugs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MO/NP R/V</td>
<td>✓</td>
<td>12 mthly</td>
<td>6 mthly</td>
<td>3 mthly</td>
</tr>
<tr>
<td>RN/IHW R/V</td>
<td>✓</td>
<td>12 mthly</td>
<td>6 mthly</td>
<td>3 mthly</td>
</tr>
<tr>
<td>Specialist MO</td>
<td>✓</td>
<td>Any uncontrolled or difficult to treat asthma</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Influenza vaccine</td>
<td></td>
<td>Annually</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pneumococcal vaccine</td>
<td></td>
<td>Recommended - see the current edition of the <em>Australian Immunisation Handbook</em> for schedule</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Co-morbidity management</td>
<td></td>
<td>Each time client is assessed for asthma control</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
6. References


7. Resources


Asthma (child 12 and under)

High risk groups
• Children 12 and under with a diagnosis of asthma

Urgent referral
• For any acute asthmatic episode see *Acute asthma adult/child* in the current edition of the PCCM and refer immediately to the MO/NP

Abbreviations
ICS  Inhaled corticosteroids
OCS  Oral glucocorticosteroids
SABA  Short acting β₂ agonist (reliever puffers)
LABA  Long acting β₂ agonist (preventer puffers)
MDI  Metered dose inhaler
DPI  Dry powder inhaler
LTRA  Leukotriene receptor antagonist

1. What is asthma?
• Asthma is a chronic inflammatory disorder of the airways which can be triggered by a wide range of factors
  • Asthma is defined by a variation in lung function (especially expiratory airflow) and episodic respiratory symptoms such as wheezing, shortness of breath, cough and tight chest as a result of inflammation
  • Airflow obstruction is due to swelling of the airway wall including oedema and mucus production
  • Asthma is strongly associated with allergies such as eczema and allergic rhinitis

2. Diagnosis of asthma
• The first step to managing asthma is confirming the diagnosis
  • A prior diagnosis of asthma reported by a client or carer should be corroborated by documentation of how the diagnosis was confirmed at the time, or by current evidence
  • There is no single reliable test for diagnosing asthma
  • In children asthma diagnosis is based primarily on clinical symptoms and frequency of exacerbations
  • Diagnosing children with asthma is difficult because in this age group
    – spirometry can be difficult
    – respiratory symptoms such as cough and wheeze are common
    – the younger the child the greater the likelihood that an alternative diagnosis explains
a recurrent wheeze
– those who respond to inhalers often do not have asthma when older

Table 1. outlines findings that increase or decrease the likelihood of asthma

<table>
<thead>
<tr>
<th>Asthma more likely</th>
<th>Asthma less likely</th>
</tr>
</thead>
</table>
| More than one of these symptoms  
• Wheeze  
• Difficulty breathing  
• Feeling of tightness in the chest  
• Cough | |  
| AND |  
| Any of  
• Symptoms recur frequently  
• Symptoms worse at night and in the early morning  
• Symptoms triggered by exercise, exposure to pets, cold air, damp air, emotions, laughing  
• Symptoms occur when child doesn’t have a cold  
• History of allergies e.g. allergic rhinitis, atopic dermatitis  
• Family history of allergies  
• Family history of asthma  
• Widespread wheeze heard on auscultation  
• Symptoms respond to treatment trial of reliever, with or without a preventer  
• Lung function measured by spirometry increases in response to rapid-acting bronchodilator  
• Lung function measured by spirometry increases in response to a treatment trial with inhaled corticosteroid (where indicated) | Any of  
• Symptoms only occur when child has a cold, but not between colds  
• Isolated cough in the absence of wheeze or difficulty breathing  
• History of moist cough  
• Dizziness, light-headedness or peripheral tingling  
• Repeatedly normal physical examination of chest when symptomatic  
• Normal spirometry when symptomatic (children old enough to perform spirometry)  
• No response to a trial of asthma treatment  
• Clinical features that suggest an alternative diagnosis |

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Figure 1. illustrates the steps to confirm an asthma diagnosis in children 12 and under

A marked improvement in a child's condition during a trial of short-acting bronchodilators (SABAs) and inhaled corticosteroids (ICSs) can help confirm an asthma diagnosis.

Alternative causes of a recurrent wheeze in children include: viral lower respiratory tract infections (in infants), viral upper respiratory tract infections (in older children), aspiration of a foreign body, rhino-sinusitis, tuberculosis, cystic fibrosis, bronchopulmonary dysplasia, congenital malformation of the airways, immune deficiency or congenital heart disease.
Figure 1. Steps in the diagnosis of asthma in children 12 and under

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3. Management of asthma

3.1 Factors complicating management

- In managing asthma the following co-morbidities and screening must be considered:
  - Allergic rhinitis is common in children with asthma and is associated with poor asthma control.
  - Obesity is associated with an increased prevalence of asthma via mechanical, inflammatory and genetic/developmental factors in children (see Overweight and obesity in children, page 270).

3.2 Support client self management

- Management of asthma in children involves building a therapeutic partnership with parents or caregivers to support children to live productive and active lives by:
  - helping the child avoid risk factors
  - ensuring the child understands and takes medication correctly
  - monitoring asthma level of control
  - supporting the child to recognise when the asthma is getting worse and when to seek medical help

- See Lifestyle modification section with particular reference to avoiding cigarette smoke (see Smoking cessation, page 44) and improving nutrition (see Diet and nutrition, page 14).

- Provide culturally appropriate resources about asthma and support services details (see Resource 1).

- Identify and discuss asthma triggers (see Table 2).

- At each visit ensure the client and family members are aware:
  - of symptoms that indicate that the asthma is worsening
  - of what to do when symptoms worsen
  - to seek medical intervention sooner rather than later

- At each visit ensure the client has developed and uses or follows an asthma action plan (see Resource 2).

- Clients who accept their chronic asthma symptoms as the norm, or do not recognise that they have symptoms are known as poor perceivers.

- Poor perceivers live with under-treated asthma which puts them at risk of severe attacks and poor quality of life and as such require added information to show that symptoms and quality of life will improve with correct bronchodilator use and regular monitoring (see Resource 1).

- Encourage the child, family or carers to identify barriers to adequate lifestyle modification and clinical adherence and to set goals to overcome those barriers based on their capacity and understanding.
Table 2. Summary of asthma triggers

<table>
<thead>
<tr>
<th>Available triggers</th>
<th>Unavoidable triggers</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Always avoid</strong></td>
<td><strong>Do not avoid</strong></td>
</tr>
<tr>
<td>• Cigarette smoke</td>
<td>• Exercise</td>
</tr>
<tr>
<td>• Laughter</td>
<td></td>
</tr>
<tr>
<td><strong>Avoid or reduce if possible</strong></td>
<td><strong>Manage</strong></td>
</tr>
<tr>
<td><strong>Allergens</strong></td>
<td></td>
</tr>
<tr>
<td>• Animal allergens e.g. pets, animals</td>
<td></td>
</tr>
<tr>
<td>• Cockroaches</td>
<td></td>
</tr>
<tr>
<td>• House dust mite</td>
<td></td>
</tr>
<tr>
<td>• Moulds</td>
<td></td>
</tr>
<tr>
<td>• Allergens at school/daycare</td>
<td></td>
</tr>
<tr>
<td>• Pollens</td>
<td></td>
</tr>
<tr>
<td><strong>Airborne/environmental irritants</strong></td>
<td></td>
</tr>
<tr>
<td>• Cold/dry air</td>
<td></td>
</tr>
<tr>
<td>• Fuel combustion e.g. gas heaters</td>
<td></td>
</tr>
<tr>
<td>• Home renovation materials</td>
<td></td>
</tr>
<tr>
<td>• Household aerosols</td>
<td></td>
</tr>
<tr>
<td>• Moulds (airborne)</td>
<td></td>
</tr>
<tr>
<td>• Irritants at school/daycare</td>
<td></td>
</tr>
<tr>
<td>• Outdoor industrial and traffic pollution</td>
<td></td>
</tr>
<tr>
<td>• Perfumes/scents/Incense</td>
<td></td>
</tr>
<tr>
<td>• Smoke e.g. any bushfires and camp fires</td>
<td></td>
</tr>
<tr>
<td><strong>Certain medicines</strong></td>
<td></td>
</tr>
<tr>
<td>• Aspirin and NSAIDs (in patients with aspirin-exacerbated respiratory disease)</td>
<td></td>
</tr>
<tr>
<td>• Bee products e.g. pollen, propolis, royal jelly</td>
<td></td>
</tr>
<tr>
<td>• Echinacea</td>
<td></td>
</tr>
<tr>
<td><strong>Dietary triggers</strong></td>
<td></td>
</tr>
<tr>
<td>• Food chemicals/additives (if person is intolerant)</td>
<td></td>
</tr>
<tr>
<td>• Thermal effects e.g. cold drinks</td>
<td></td>
</tr>
<tr>
<td><strong>Respiratory tract infections</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Certain medicines</strong></td>
<td></td>
</tr>
<tr>
<td>• Aspirin (when given for purpose of desensitisation)</td>
<td></td>
</tr>
<tr>
<td>• Anticholinesterases and cholinergic agents</td>
<td></td>
</tr>
<tr>
<td>• Beta blockers</td>
<td></td>
</tr>
<tr>
<td><strong>Co-morbid medical conditions</strong></td>
<td></td>
</tr>
<tr>
<td>• Allergic rhinitis/rhinosinusitis</td>
<td></td>
</tr>
<tr>
<td>• Gastro-oesophageal reflux disease</td>
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<tr>
<td>• Nasal polyposis</td>
<td></td>
</tr>
<tr>
<td>• Obesity</td>
<td></td>
</tr>
<tr>
<td>• Upper airway dysfunction</td>
<td></td>
</tr>
<tr>
<td><strong>Physiological and psychological changes</strong></td>
<td></td>
</tr>
<tr>
<td>• Extreme emotions</td>
<td></td>
</tr>
<tr>
<td>• Hormonal changes e.g. menstrual cycle</td>
<td></td>
</tr>
<tr>
<td>• Pregnancy</td>
<td></td>
</tr>
<tr>
<td>• Sexual activity</td>
<td></td>
</tr>
</tbody>
</table>

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3.3 Social emotional support

• Carers and parents of children with chronic conditions often experience high levels of stress and anxiety and should be:
  – assessed for anxiety and depression
  – referred to a social worker or psychologist to provide tools and skills for self care
  – offered behavioural or attachment based parenting support as children with chronic conditions often exhibit higher emotional and behavioural disturbances

• Carer or parent depression and anxiety can be screened for by using a self- or clinician-rated mood scale (see Resource 3 for examples). Rating scales should be
3.4 Cigarette smoke avoidance

- Children should not be subjected to cigarette smoke as this has been identified as a primary trigger for developing and exacerbating asthma symptoms.\(^5\)\(^,\)\(^3\)\(^,\)\(^4\)
- Repeatedly support the parent or carer to quit smoking, whether or not the person shows interest in quitting (see Smoking cessation, page 44).
- Remind the parent or carer of the dangers of passive smoking, particularly in homes and cars.
- When assessing a child’s recent asthma symptom control do so in conjunction with a parent or carer’s smoking behaviour and frequency.\(^1\)\(^,\)\(^4\)
- Offer the parent or carer Quitline details (see Resource 4).

3.5 Nutrition

- While people with demonstrated food allergies should avoid food triggers, routine dietary restrictions are not beneficial in people with asthma.\(^1\)\(^,\)\(^2\)
- Weight reduction in overweight or obese people with asthma may reduce asthma symptoms.\(^5\)\(^,\)\(^2\) (see Diet and nutrition, page 14).
- There is no medical evidence to suggest dairy products increase mucous secretions.\(^1\)\(^,\)\(^2\)
- The following has been observed to reduce the risk of asthma flare-ups:
  - a diet high in fresh fruits and vegetables
  - regular consumption of oily fish
- The following has been observed to increase the risk of developing asthma:
  - consumption of fast foods.\(^1\)
  - a ‘Westernised’ diet compared with an ‘Asian’ diet.\(^1\)
  - high soft drink consumption
  - reduction in fresh fruit intake.\(^1\)

3.6 Special considerations

- Document and address risk factors for flare-ups, life-threatening asthma, decline in lung function and treatment related to adverse events including:
  - exposure to cigarette smoke
  - socioeconomic disadvantage and poor access to health care
  - psychosocial problems such as social isolation
  - inadequate treatment
  - side effects or euphoria of OCS use
  - 2 or 3 hospitalisations in the last 12 months
  - 3 or more hospital presentations due to asthma in the last 3 months
  - use of more than one SABA inhaler per month.
– ease of access to health care as part of management plan for clients living remotely
– cardiovascular disease

3.7 Client asthma control

- Ascertain the client’s recent level of asthma symptom control using Table 3.
- Recent asthma symptom control is based on symptoms over the previous 4 weeks
- When counting the times a client uses their puffer (SABA) do not include times taken before exercise

### Table 3. Definition of levels of recent asthma symptom control in children 12 and under (regardless of current treatment regimen)\(^1\,^3\)

<table>
<thead>
<tr>
<th>Level</th>
<th>Definition</th>
</tr>
</thead>
</table>
| Good control   | All of
|                | - Daytime symptoms ≤ 2 days per week (lasting only a few minutes and rapidly relieved by SABA)        |
|                | - Need for reliever ≤ 2 days per week†                                                              |
|                | - No limitation of activities                                                                         |
|                | - No symptoms during night or on waking                                                              |
| Partial control| Any of
|                | - Daytime symptoms > 2 days per week (lasting only a few minutes and rapidly relieved by SABA)        |
|                | - Need for reliever > 2 days per week†                                                               |
|                | - Any limitation of activities                                                                        |
|                | - Any symptoms during night or on waking                                                              |
| Poor control   | Either of
|                | - Daytime symptoms > 2 days per week (lasting from minutes to hours or recurring, and partially or fully relieved by SABA) |
|                | - ≥ 3 features of partial control within the same week                                               |

**Sample questions for reviewing asthma control in children 12 and under**

- How many weeks does the child’s reliever puffer last?
- How often does the child wheeze, become short of breath or cough?
- Does the child wake during the night due to wheezing, shortness of breath or coughing? How many times per month?
- How often does the child need to take reliever puffer? How many puffs?
- Has the child needed to use oral corticosteroids? How often and how much?
- Does the child use a preventer puffer? What dose? How many puffs per day?
- How often does the child need a new script for preventer medicine?
- Has the child missed time from childcare, school and/or sport due to asthma?
- How often does the child get colds?
- Is the child using other medicines for respiratory symptoms e.g. oral or intranasal antihistamines or intranasal corticosteroids?
- How many times has the child visited the GP/hospital emergency room for asthma symptoms? Specify time period, e.g. In the last year/month/2 weeks

† Not including SABA taken prophylactically before exercise (record this separately and take into account when assessing management).

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4. Medications

- The medications should be reviewed by the MO or pharmacist according to above recommendations, client’s response and current condition

4.1 Correct inhaler use

- Inhaler technique in this age group may be poor and should be taught, illustrated and monitored regularly

- For all inhaled medications for children
  - under 4 years use a MDI plus a spacer with face mask
  - over 4 years use a MDI plus spacer with a spacer mouthpiece

- Check inhaler instructions in the product packaging for specific instructions

- Video and printable instructions for correct inhaler use are available at the National Asthma Council Australia website (see Resource 5)

4.2 Medication precautions in asthma

- Whenever clients obtain new medicines, prescriptions or over the counter drugs, they should check with the pharmacist or MO about its safety with asthma

- Sedatives are contraindicated during an acute asthma attack

- Complementary preparations like echinacea and royal jelly can precipitate life threatening anaphylaxis in predisposed individuals with asthma

4.3 Medication management of asthma in children 12 and under

- Use Figure 2. to assist with the process to determine optimal medication use for the child with asthma

4.4 Medication review

- Children should be reviewed
  - 2 - 4 weeks after an episode of exacerbation of their asthma OR
  - 1 - 3 months after an initial visit with preference given to 3 months to ascertain the medication’s effectiveness to control the asthma OR
  - every 3 months

- If client’s asthma is poorly controlled within 1 - 3 months step up treatment

- If good control is achieved for 3 months then step down treatment to the least medication required to maintain control

- Ongoing monitoring is necessary every 3 - 6 months once good control is achieved so that adjustments can be made in response to worsening symptoms or episodes of exacerbations

- Children should be reviewed 3 - 6 weeks after asthma therapy has been discontinued to assess for persistent symptoms

- Overuse of SABA requires review as this is a sign of poor control
Assign the client's level of asthma control (Table 3) to a treatment step (Figure 3) and treat accordingly (Table 4)

**Address asthma management factors**

**Co-morbidities**
- Allergic rhinitis
- Obesity

**Triggers**
- Address triggers found in Table 2.

**Lifestyle modification**
- Exposure to smoke
- Nutrition

**Review inhaler technique**

---

**Review (Table 5)**
- in 2 - 4 weeks if after an exacerbation OR
- in 1 - 3 months after an initial visit (preferably 3 months to establish medication effectiveness in reaching control) OR
- every 3 months

---

**Control achieved**
Continue to monitor asthma and adjust medication until **good control** is achieved at the lowest medication dose and treatment

**Review**
Review every 3 - 6 months once **good control** is maintained for 3 months

---

**Consider addressing asthma management factors**

---

**Figure 2. Intervention flowchart to achieve asthma control**
Section 2: Management of diagnosed conditions

Asthma (child 12 and under)

Referral

Few children

- *A regular preventer ICS (high dose)
  - OR
  - ICS (low dose) plus LTRA
  - OR
  - ICS/LABA (low dose)
  - OR
  - Consider a referral

Some children

- *A regular preventer ICS (low dose)
  - OR
  - LTRA
  - OR
  - A cromone

All clients use a reliever SABA as needed


Step up or down with worsening or improving condition

"With regular review of recent control and risks (see Table 2. and Table 3)

* Preferred treatment option

**Figure 3. Stepped approach to adjusting asthma medication in children 12 and under**[^1-3,4]
Table 4. Medications for children 12 and under with asthma

<table>
<thead>
<tr>
<th>Class</th>
<th>Suggested drug and dose</th>
<th>Tips</th>
</tr>
</thead>
</table>
| SABA (reliever) | • Salbutamol (MDI) 100 - 200 micrograms (1 - 2 puffs) PRN  
• Terbutaline (DPI) 500 micrograms (1 puff) PRN | • Terbutaline requires adequate inspiratory flow to work  
• Not suitable for under 8 years old or during acute asthma |
| LRTA (2 - 12 years only) | • Montelukast (oral)  
• 4 micrograms once daily for 2 - 5 years of age  
• 5 micrograms for 6 - 12 years | • An alternative to ICS (low dose) |
| ICS (preventer) Specific doses are tailored to the client’s level of asthma control | • Beclomethasone dipropionate (MDI)  
• 50 micrograms b.d. up to 400 micrograms daily | • Can only be used with some small volume spacers without perfect seal  
• Only for use in children over 5 years |
|             | • Budesonide (DPI)  
• 100 - 200 micrograms b.d. up to 800 micrograms daily | • Requires an adequate inspiratory flow to work  
• Not suitable for children under 8 years |
|             | • Fluticasone propionate  
• 50 - 100 micrograms b.d. up to 500 micrograms daily | • Can only be used with some small volume spacers without perfect seal  
• Only for use in children over 6 years |
|             | • Ciclesonide (MDI)  
• Low 80 - 160 micrograms once daily |                                                                   |

Table 5. Reviewing and adjusting asthma preventer treatment for children 12 and under ¹,³,⁴

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Review</th>
<th>Treatment response</th>
</tr>
</thead>
</table>
| SABA      | 4 weeks | • Continue SABA use  
• Review in 3 - 6 months                                                                 |
|           |        | • If asthma management factors optimal then Step up  
• Add ICS (low dose)  
• Review in 2 - 4 weeks                                                                 |
| ICS (low dose) | 4 weeks | • If asthma management factors optimal then continue treatment and review in 3 months  
• After 3 months Step down                                                                 |
|           |        | • If asthma management factors optimal then Step up  
• Increase ICS (high dose) or  
• Add leukotriene to ICS (low dose)  
• Review in 2 - 4 weeks                                                                 |
| ICS (high dose) or ICS (low dose) plus LTRA | 4 weeks | • If asthma management factors optimal then continue treatment and review in 3 months  
• After 3 months Step down                                                                 |
|           |        | • If asthma management factors and inhaler technique optimal then Refer for specialist review |
### 5. Care plan

#### Table 6. Care plan for children 12 and under with asthma

<table>
<thead>
<tr>
<th>Action</th>
<th>Dx</th>
<th>Good control</th>
<th>Partial control</th>
<th>Poor control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td>✓</td>
<td>3 mthly until 2 years of age for high risk groups otherwise as per child health check</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>✓</td>
<td>As above</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inhaler technique</td>
<td>✓</td>
<td>12 mthly</td>
<td>6 mthly</td>
<td>3 mthly</td>
</tr>
<tr>
<td>Spirometry</td>
<td>✓</td>
<td>12 mthly</td>
<td>6 mthly</td>
<td>3 mthly</td>
</tr>
<tr>
<td>Social emotional wellbeing</td>
<td>✓</td>
<td>12 mthly</td>
<td>6 mthly</td>
<td>3 mthly</td>
</tr>
<tr>
<td>Lifestyle modification</td>
<td>✓</td>
<td>12 mthly</td>
<td>6 mthly</td>
<td>3 mthly</td>
</tr>
<tr>
<td>Self management education</td>
<td>✓</td>
<td>12 mthly</td>
<td>6 mthly</td>
<td>3 mthly</td>
</tr>
<tr>
<td>Asthma action plan and asthma first aid</td>
<td>✓</td>
<td>At each visit</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Symptom review</td>
<td>✓</td>
<td>4 wkly when changing drugs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medication R/V</td>
<td>✓</td>
<td>4 wkly when changing drugs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MO/NP R/V</td>
<td>✓</td>
<td>12 mthly</td>
<td>6 mthly</td>
<td>3 mthly</td>
</tr>
<tr>
<td>RN/IHW R/V</td>
<td>✓</td>
<td>12 mthly</td>
<td>6 mthly</td>
<td>3 mthly</td>
</tr>
</tbody>
</table>
| Specialist MO                                    | ✓      | • Any uncontrolled or difficult to treat asthma  
• Any child under 2 years of age requiring a SABA |                 |              |
| Influenza vaccine                                |        | Recommended - see the current edition of the *Australian Immunisation Handbook* for schedule |                 |              |
| Pneumococcal vaccine                             |        |                               |                 |              |
| Co-morbidity management                          |        | Each time client is assessed for asthma control |                 |              |
6. References


7. Resources

Chronic heart failure

**High risk groups**

- Clients with a diagnosis of chronic heart failure (CHF)
- Those with a cardiac history including hypertension, valvular or coronary heart disease, left ventricular hypertrophy and cardiomyopathy
- Those with diabetes
- People who smoke cigarettes and/or drink alcohol above recommended limits
- People who lead sedentary lifestyles or are overweight
- Those with shortness of breath, fatigue or oedema

**Considerations for women of child-bearing age**

- CHF greatly increases the risk of maternal and neonatal morbidity and mortality
- Fertility planning
- CHF may worsen as medication is altered and fluid volume changes with pregnancy
- Many CHF medications are contraindicated in pregnancy

**Urgent referral**

- MO/NP, cardiologist, or refer to the current edition of the *Primary Clinical Care Manual* for any
  - increasing dyspnoea (breathlessness) at rest and/or sudden onset dyspnoea
  - weight gain or loss of 2 kg or more over 48 hours

**Special considerations**

- In managing CHF the following co-morbidities must be considered
  - Diabetes type 2, page 196
  - Hypertension, page 228
  - Coronary heart disease, page 142

---

**1. What is chronic heart failure (CHF)?**

- CHF is a complex clinical syndrome caused by the heart’s inability to provide adequate circulation
- Characterised by a structural abnormality or cardiac dysfunction that impairs the ability of the left ventricle (LV) to fill with or eject blood, particularly during physical activity
- This results in congestive symptoms such as breathlessness with or without physical activity (exertional dyspnoea), fatigue and peripheral oedema (see Table 1)
- The most well understood form of CHF is heart failure with reduced ejection fraction (HFREF) which is a weakened ability of the left ventricle to contract and eject blood
- Heart failure with preserved ejection fraction (HFPEF) sometimes called diastolic heart failure, is the inability of the left ventricle to adequately fill due to slow early relaxation or myocardial stiffness resulting in poor stroke volume
Section 2: Management of diagnosed conditions

2. Chronic Heart Failure

- HFREF (LVEF < 40%) and HFPEF (LVEF > 40%) often occur together but the distinction between them is relevant to the therapeutic approach.\(^1,2\)
- Common causes of CHF include coronary heart disease, hypertension, and diabetes.\(^1,3\)
- The New York Heart Association (NYHA) functional classification provides a simple way of classifying the extent of functional disability in heart failure.\(^1,3\)

### Table 1. NYHA grading of symptoms in CHF

<table>
<thead>
<tr>
<th>NYHA grading</th>
<th>Clinical features</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class I</td>
<td>Asymptomatic LV dysfunction</td>
</tr>
<tr>
<td>Class II (Mild)</td>
<td></td>
</tr>
<tr>
<td>Class III (Moderate)</td>
<td></td>
</tr>
<tr>
<td>Class IV CHF (Severe)</td>
<td></td>
</tr>
</tbody>
</table>

2. Diagnosis of CHF

- Diagnosis is often difficult as symptoms of CHF have many differential diagnoses and as such many cases go undetected until the condition is well advanced.\(^2,3\)
- The clinician should always have a high index of suspicion in clients who have risk factors for CHF (see Figure 1).
- Clinical diagnosis of CHF is often unreliable in obese clients, those with pulmonary disease and the elderly.\(^1\)
- Initial diagnosis is based on clinical features and confirmed by evidence of structural abnormality and/or cardiac dysfunction with an echocardiogram, chest x-ray, and ECG.\(^1,2\) (see Figure 1)
- Where the availability of echocardiography is limited, measuring B-type natriuretic peptide (BNP or NT-pro-BNP) blood concentrations is an alternative approach to diagnosis (non Medicare rebateable). This group of hormones are secreted in large amounts in response to ventricular stretch.\(^2,3\)
- Investigations and client response to treatment helps determine diagnosis, prognosis, and management.
- Early diagnosis and management of LV dysfunction is the key to prevent or slow disease progression.
Risk factors of CHF
- Angina/MI
- Hypertension
- Diabetes
- Valvular heart disease
- Coronary heart disease
- LV hypertrophy
- FHx cardiomyopathy
- Alcohol/tobacco use
- Medications
- Sedentary lifestyle
- Overweight

Clinical history
- Dyspnoea
- Orthopnoea
- Paroxysmal nocturnal dyspnoea
- Fatigue
- Oedema
- Palpitations/syncope

Examinations
- Pulse rate and rhythm
- Blood pressure
- Elevated JVP
- Cardiomegaly
- Cardiac murmurs
- Lung crepitations
- Hepatomegaly

Investigations
- Full blood count
- Electrolytes
- Renal function
- Liver function
- Thyroid function
- Consider B-type natriuretic peptide (BNP or NT-pro-BNP)
- Electrocardiogram
- Chest x-ray

If fluid overloaded refer to Acute pulmonary oedema in the PCCM

Confirm diagnosis with an echocardiogram

Structural abnormality e.g. myopathic, valvular

Pathophysiological diagnosis
- Systolic dysfunction (LVEF < 40%)
- Diastolic dysfunction (LVEF > 40%)

Specialist referral for further investigation

Begin treatment see Figure 2.

Adapted with permission from Diagnosis Guidelines for the prevention, detection and management of chronic heart failure in Australia. © 2014 National Heart Foundation of Australia.

Figure 1. Diagnosis of CHF
3. Management

3.1 Factors complicating management

- In managing CHF the following co-morbidities must be considered
  - Coronary heart disease, page 142
  - Hypertension, page 228
  - Diabetes type 2, page 196
- It is important to check for these complications along with calculation of absolute cardiovascular risk using Appendix 1: Australian cardiovascular risk charts, page 494

3.2 Support client self management

- See Lifestyle modification section
- Discuss what CHF is and how it progresses
- Support client to monitor fluid and dietary sodium intake
- Explain the signs of worsening CHF (e.g. weight gain, breathlessness, breathlessness while laying flat, swelling of feet) and advise to seek timely access to health services
- Provide CHF resources (see Resources 1 to 5)
- Encourage the client to identify barriers to adequate lifestyle modification and clinical adherence and to set goals to overcome those barriers based on their capacity and understanding

3.3 Social emotional support

- Depression and anxiety can be screened for by using a self- or clinician-rated mood scale (for examples see Resource 6). Rating scales should be supplemented by a clinical assessment by a suitably qualified clinician to make a diagnosis
- Acknowledge any client concerns and reassure them that good adherence to appropriate treatment can improve the symptoms of their condition

3.4 Fluid management

- Determine the client’s ideal ‘dry’ or ‘euvolaemic’ weight i.e. the client’s steady weight with no remaining signs of overload after treatment with a diuretic
- Using this ideal weight as a goal, encourage client to keep a daily weight and fluid intake diary (see Resource 7)
- A steady weight gain over a number of days indicates fluid retention, weight loss below the dry weight indicates dehydration due to over-diuresis
- If a client gains or loses more than 2 kg over 2 days they should seek medical help and be referred to the MO/NP
- Generally fluids should be limited to < 2 litres/day but during episodes of fluid retention limit fluids to < 1.5 litres/day
- Discuss symptoms of fluid overload including dyspnoea, oedema and bloating (see Resource 8)
- Alcohol should be avoided as it is a direct myocardial toxin and may impair cardiac contractility, contribute to fluid intake, increase body weight due to its caloric
load and alter metabolism of some medicines used in heart failure

- Caffeine intake should be limited to 1 - 2 cups per day as it may exacerbate arrhythmias, increase heart rate and blood pressure, contribute to fluid intake and alter plasma electrolyte levels in clients taking diuretics

### 3.5 Physical activity

- Regular physical activity for clients with CHF leads to overall reduction in mortality and reduction in hospitalisation
- Physical activity improves functional capacity, symptoms and neurohormonal abnormalities
- When medically stable, all clients should be referred to a specifically designed physical activity program
- Functional ability of clients with CHF varies greatly and a program should be initiated under the supervision of a suitably trained professional, who provides direction according to clinical features (see Table 1)
  - NYHA class I or II symptoms - progress gradually to at least 30 minutes of physical activity (continuously or in 10 minute bouts) of up to moderate intensity on most, if not all, days of the week
  - NYHA class III symptoms - short intervals of low intensity activity, with frequent rest days
  - NYHA class IV symptoms - requires gentle mobilisation as symptoms allow

### 3.6 Nutrition

- Being overweight places increased demands upon the heart and obesity increases the risk of developing CHF
- Weight reduction in morbidly obese (BMI > 35) clients with CHF should be considered in order to prevent progression of CHF, decrease symptoms, and improve wellbeing
- Intentional weight loss is not recommended in NYHA class III or IV since anorexia and unintentional weight loss are common consequences
- Constipation, caused by gastrointestinal hypoperfusion, is common in CHF clients, and should be reviewed and managed by a dietitian
- For clients with severe CHF, frequent small meals may avoid shunting of the cardiac output to the gastrointestinal tract, thus reducing the risk of angina, dizziness, dyspnoea or bloating
- Malnutrition, cardiac cachexia (wasting) and anaemia contributes to debilitating weakness and fatigue, and is associated with a poor prognosis and should be investigated by a dietitian for nutritional support
- Because excessive dietary sodium intake contributes to fluid overload and is a major cause of preventable hospitalisation the client requires a referral to a dietitian to optimise the following (see Resource 9)
  - NYHA class I or II symptoms - limiting sodium intake to 3000 mg per day is sufficient to control extracellular fluid volume
  - NYHA class III or IV symptoms - a diuretic regimen as required and a restricted sodium intake of 2000 mg per day should be applied
3.7 Obstructive sleep apnoea (OSA)

- OSA occurs due to upper airway collapse and is likely to aggravate CHF\(^1\)
- There is a strong relationship between obesity and OSA, both conditions being common in clients with CHF\(^1\)
- Weight loss in obese clients (BMI > 30), smoking cessation, alcohol abstinence, continuous positive airway pressure (CPAP) therapy and medication treatment are the accepted effective treatments for OSA in CHF\(^1,6,7\)
- Measure the client’s daytime sleepiness by doing the Epworth Sleepiness Scale (see Resource 10). If they score highly refer to sleep specialist to exclude OSA

3.8 Palliation support

- Palliative care should be considered in all clients with advanced NYHA class IV symptoms resistant to pharmacological and non-pharmacological treatments where the possibility of death within 12 months is high\(^1\)
- In conjunction with the client and the multidisciplinary team assess the impact of CHF and arrange for visiting physiotherapist and/or occupational therapist for home assessment and other support such as wheelchairs and bedding
- Assess impact of CHF on activities of daily living, physical activity, employment, finances, family routines and emotions
- Assess for in home falls risk (see Resource 11)
- Refer eligible clients to Home and Community Care (HACC) services and Medical Aid Subsidy Scheme (MASS) (see Resource 12)

4. Medications

- Support clients to continue taking medications to avoid exacerbation of CHF
- Avoid over counter medications without medical consult
- Do not use sildenafil citrate (Viagra\(^\text{®}\)) if the client has used any nitrate preparation (GTN/isosorbide) in the last 24 hours or is hypotensive
- Avoid taking diuretics close to sleep times to minimise sleep disruption\(^8\)
- Medications that exacerbate CHF include NSAIDs, COX-2 inhibitors, thiazolidinediones, tyrosine kinase inhibitors, trastuzumab and moxonidine\(^8\)
- Caution should be exercised in the use of DPP-4 inhibitors (sitagliptin, vidagliptin, linagliptin and saxagliptin) which may increase risk of fluid retention\(^8,9\)
- Caution should be exercised with calcium channel blocker use especially the dihydropyridines (amlodipine, felodipine, lercandipine, nifedipine) as they can exacerbate peripheral and occasionally pulmonary oedema\(^8,9\)
- A client on multiple medications should be reviewed by a pharmacist
- Use a medication heart failure titration plan (see Resource 13) to assist with medication therapy
- Use Figure 2. to assist with the management of CHF
Chronic Heart Failure

**Identify and manage factors**

**Co-morbidities**
- Diabetes type 2, page 196
- Hypertension, page 228
- Coronary heart disease, page 142

**Exacerbations**
- Avoid drugs that worsen CHF
- Address non-adherence
- Manage cardiac ischaemia

**Lifestyle modification**
- Physical activity program
- Low salt diet
- Fluid intake management
- Healthy eating
- Smoking cessation
- Sleep apnoea
- Alcohol reduction

**Figure 2. Management of chronic heart failure**

* Use an ARB if client does not tolerate an ACEi
### Table 2. Recommended medications for chronic heart failure\(^3,8,9,10,11\)

<table>
<thead>
<tr>
<th>Class</th>
<th>Drug</th>
<th>Starting and maintenance dosages</th>
<th>Tips and monitoring</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ACEi</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ramipril</td>
<td>• Start at 1.25 mg daily</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Perindopril arginine</td>
<td>• Start at 2.5 mg daily</td>
<td>Used as first line agent</td>
</tr>
<tr>
<td></td>
<td>Lisinopril</td>
<td>• Start at 2.5 mg daily</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Captopril</td>
<td>• Start at 6.25 mg b.d.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Enalapril</td>
<td>• Start at 2.5 mg daily</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Quinapril</td>
<td>• Start at 2.5 mg daily</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Perindopril erbumine</td>
<td>• 2 mg daily</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fosinopril</td>
<td>• 5 mg daily</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Trandolapril</td>
<td>• Start at 0.5 mg daily</td>
<td></td>
</tr>
<tr>
<td><strong>ARB</strong></td>
<td></td>
<td>• Start at 20 mg b.d.</td>
<td>For ACEi intolerant clients</td>
</tr>
<tr>
<td></td>
<td>Valsartan</td>
<td>• Up to 40 - 160 mg b.d.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Candesartan</td>
<td>• Start at 2 mg daily</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Carvedilol</td>
<td>• Start at 3.125 mg b.d.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Nebivolol</td>
<td>• Start at 1.25 mg daily</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Metoprolol succinate CR</td>
<td>• Start at 23.75 mg daily</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bisoprolol</td>
<td>• Start at 1.25 mg daily</td>
<td></td>
</tr>
</tbody>
</table>

(continued)
<table>
<thead>
<tr>
<th>Class</th>
<th>Drug and dosage</th>
<th>Tips and monitoring</th>
</tr>
</thead>
</table>
| Aldosterone antagonists | Spironolactone 12.5 - 50 mg daily                                                • For clients with sitting systolic BP > 85 mmHg  
• Start with low doses and increase slowly  
• Do not use as first line diuretic therapy during acute decompensation  
• Has improved survival rates and reduced hospitalisations in CHF clients  
• For clients with NYHA Class II or worse symptoms despite beta-blocker, ACEi and diuretic therapy  
• Side effects of severe hyperkalemia and gynaecomastia  
• Check K⁺ levels 1 week, 1, 2, 3, 6, 9 and 12 months or if unwell or dehydrated  
• Eplerenone must be started within 14 days of MI for PBS benefits |
|                  | Eplerenone 25 - 50 mg daily                                                     • First line treatment of fluid retention and breathlessness  
• Dose titrated against client’s symptoms of heart failure and weight gain  
• Monitor electrolytes, renal function, daily if very unwell  
• Increase dose if weight gain, decrease dose if weight loss  
• Assess fluid and bloods 3 - 7 days post reduction  
• Hydrochlorothiazide recommended in clients with persistent peripheral oedema  
• Ethacrynic acid is only approved for clients with an allergy to frusemide  
• Monitor for hypotension |
| Diuretics        | Frusemide 20 - 40 mg daily                                                        • First line treatment of fluid retention and breathlessness  
• Dose titrated against client’s symptoms of heart failure and weight gain  
• Monitor electrolytes, renal function, daily if very unwell  
• Increase dose if weight gain, decrease dose if weight loss  
• Assess fluid and bloods 3 - 7 days post reduction  
• Hydrochlorothiazide recommended in clients with persistent peripheral oedema  
|                  | Hydrochlorothiazide 25 - 100 mg daily man or 3 to 5 days each week             |                                                                                                                                                                                                                                                                                                                                                      |
|                  | Ethacrynic acid 50 mg daily                                                       • Ethacrynic acid is only approved for clients with an allergy to frusemide  
• Monitor for hypotension                                                                                                                                                                                                                                                                                                                        |
|                  | Bumetanide 1 - 8 mg daily                                                        |                                                                                                                                                                                                                                                                                                                                                      |
|                  | In divided doses higher than 1 mg                                                |                                                                                                                                                                                                                                                                                                                                                      |
| Other Drugs      | Digoxin                                                                          • 62.5 - 250 micrograms daily, according to age, eGFR and plasma digoxin concentration  
• For CHF not controlled by optimal doses of beta blocker, ACEi, diuretic and aldosterone antagonists  
• For AF to control rapid ventricular rate  
• Assess renal function prior to use  
• Assess levels 2 weeks after starting then 6 monthly to yearly unless increasing dose  
• Mortality benefit when digoxin levels from 0.5 - 0.9 micrograms/L  
|                  | Ivabradine                                                                       • 2.5 - 7.5 mg twice daily, with dose adjusted according to heart rate  
• Direct sinus node inhibitor that reduces heart rate  
• Recommended for impaired systolic function and heart rate (sinus rhythm) > 77 bpm despite maximum tolerated dose of beta blockers  

## 5. Care plan

<table>
<thead>
<tr>
<th>Table 3. Care plan for chronic heart failure</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Action</strong></td>
</tr>
<tr>
<td>Height</td>
</tr>
<tr>
<td>BMI</td>
</tr>
<tr>
<td>Weight</td>
</tr>
<tr>
<td>Waist circumference</td>
</tr>
<tr>
<td>Pulse rate and rhythm</td>
</tr>
<tr>
<td>Blood pressure</td>
</tr>
<tr>
<td>Urinalysis</td>
</tr>
<tr>
<td>Fasting blood glucose</td>
</tr>
<tr>
<td>Chest x-ray</td>
</tr>
<tr>
<td>Thyroid function</td>
</tr>
<tr>
<td>BNP</td>
</tr>
<tr>
<td>Echocardiogram</td>
</tr>
<tr>
<td>UEC</td>
</tr>
<tr>
<td>eGFR</td>
</tr>
<tr>
<td>Digoxin level</td>
</tr>
<tr>
<td>ECG</td>
</tr>
<tr>
<td>Social emotional wellbeing</td>
</tr>
<tr>
<td>Lifestyle modification</td>
</tr>
<tr>
<td>Self management education</td>
</tr>
<tr>
<td>Self weight and fluid monitoring</td>
</tr>
<tr>
<td>Fluid management</td>
</tr>
<tr>
<td>Cardiac rehabilitation</td>
</tr>
<tr>
<td>Influenza vaccine</td>
</tr>
<tr>
<td>Pneumococcal vaccine</td>
</tr>
<tr>
<td>Dietitian</td>
</tr>
<tr>
<td>Medication R/V</td>
</tr>
<tr>
<td>Dentist</td>
</tr>
<tr>
<td>MO/NP R/V</td>
</tr>
<tr>
<td>RN/IHW R/V</td>
</tr>
<tr>
<td>Specialist MO</td>
</tr>
<tr>
<td>Palliation support</td>
</tr>
<tr>
<td>Assess falls risk</td>
</tr>
</tbody>
</table>
6. References

1. National Heart Foundation of Australia and the Cardiac Society of Australia and New Zealand (Chronic Heart Failure Guidelines Expert Writing Panel). Guidelines for the prevention, detection and management of chronic heart failure in Australia. Updated October 2011


7. Resources

1. National Heart Foundation Heart Failure information available at www.heartfoundation.org.au/your-heart/cardiovascular-conditions/Heart-failure/Pages/default.aspx

2. Living well with chronic heart failure available at www.heartfoundation.org.au/SiteCollectionDocuments/Living%2owell%2owith%2ochronic%2oheart%2ofailure.pdf

3. Heart Support Australia available at http://heartnet.org.au


Section 2: Management of diagnosed conditions

Chronic heart failure
Chronic kidney disease

High risk groups
- 60 years or older
- Those with diabetes
- Those with a family history of kidney disease
- Those with established cardiovascular disease
- Those with hypertension
- Obese clients (body mass index ≥ 30)
- Smokers
- Aboriginal and Torres Strait Islander peoples
- Maori and Pacific Islander peoples
- Those at severe socioeconomic disadvantage
- Those with evidence of kidney damage (albuminuria, proteinuria, haematuria after exclusion of urological causes)

Abbreviations
CKD       Chronic kidney disease
eGFR      estimated glomerular filtration rate

Considerations for women of child-bearing age
- Women with early CKD with preserved renal function (eGFR > 60 mL/min/1.73 m²) are advised they can fall pregnant if they wish to do so provided their blood pressure is well controlled¹
- Pregnancy with CKD is associated with increased risks of gestational hypertension, pre-eclampsia, eclampsia, maternal death, premature births, intra-uterine growth retardation, small-for-gestational age, neonatal mortality, stillbirth and low birth weight¹
- Angiotensin receptor blockers (ARBs) and ACEi are contraindicated in pregnancy and alternatives should be discussed with the obstetrician

Urgent referral
- Anyone with signs of acute nephritis (oliguria, haematuria, acute hypertension or oedema) should be regarded as a medical emergency and referred to the emergency department without delay²,³
- Referral to a specialist renal service or nephrologist should be considered in the following situations²,³
  - eGFR < 30 mL/min/1.73m²
  - persistent significant albuminuria (urine ACR ≥ 30 mg/mmol)
  - a consistent decline in eGFR from a baseline of < 60 mL/min/1.73m² (a decline > 5 mL/min/1.73m² over a 6 month period which is confirmed on at least 3 separate readings)
  - glomerular haematuria with macroalbuminuria
  - CKD with uncontrolled hypertension despite at least 3 antihypertensive agents
1. What is chronic kidney disease (CKD)?
   - When kidneys are working properly, excess minerals, fluids and waste products leave the body in urine
   - Many waste products are toxic if they are not removed from the body
   - Healthy kidneys filter creatinine (a waste product made by the muscles) from blood and excrete it in urine
   - When kidneys are not working well, creatinine builds up in the blood
   - To determine the flow rate of filtered fluid through the kidney, the glomerular filtration rate (GFR) can be calculated by a blood test
   - CKD is defined as a GFR < 60 mL/min/1.73m² or evidence of kidney damage that is present for ≥ 3 months

2. Diagnosis of CKD
   - All individuals in the high risk group should be offered a kidney check test
   - Irrespective of the cause, diagnosis is made on any of the following features being present on at least 2 occasions over at least a 3 month period
     - an eGFR or measured glomerular filtration rate (GFR) < 60 mL/min/1.73 m² (see Table 1) or
     - with or without evidence of kidney damage i.e.
       - presence of protein and/or blood in the urine on urinalysis or microscopic examination, where sexually transmitted infection (STI) and urinary tract infection (UTI) have been excluded
       - haematuria after exclusion of urological or menstrual causes
       - structural abnormalities e.g. on kidney imaging tests
       - pathological abnormalities e.g. renal biopsy
   - Clinical presentation is commonly asymptomatic but may include: tiredness, anaemia, puffiness around eyes and ankles, shortness of breath, anorexia, nausea, vomiting, changes in the amount and frequency of urination especially at night, high blood pressure, itching, restless legs and chest pain
   - Early detection and management of kidney disease may slow progression to end-stage renal failure

2.1 Albumin creatinine ratio (ACR-urine test)
   - A large amount of protein in the urine is a key marker of kidney damage
   - Urine ACR is an accurate and sensitive test in predicting the level of risk of damage to the kidneys and heart
   - ACR is performed on a single urine sample (most accurate first morning void)
   - Normal values are < 3.5 mg/mmol for women and < 2.5 mg/mmol for men
   - A positive ACR test (exceeds normal values) should be repeated to confirm the presence of albuminuria
   - Albuminuria is present when 2 out of the 3 ACR tests are positive
   - CKD is present if albuminuria is persistent for 3 or more months
Table 1. Risks of progressive CKD

<table>
<thead>
<tr>
<th>Kidney function stage</th>
<th>GFR (mL/min/1.73m²)</th>
<th>Normo albuminuria</th>
<th>Microalbuminuria</th>
<th>Macroalbuminuria</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>ACR (mg/mmol)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>≥ 90 Normal</td>
<td>• &lt; 2.5 (M)</td>
<td>• 2.5 - 25 (M)</td>
<td>• &gt; 25 (M)</td>
</tr>
<tr>
<td>2</td>
<td>60 - 89 Mild</td>
<td>• &lt; 3.5 (F)</td>
<td>• 3.5 - 35 (F)</td>
<td>• &gt; 35 (F)</td>
</tr>
<tr>
<td>3A</td>
<td>45 - 59 Mild-moderate</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3B</td>
<td>30 - 44 Moderate-severe</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>15 - 29 Severe</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>&lt; 15 or dialysis End stage</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Not CKD unless haematuria, structural or pathological abnormalities present
- Low risk of CKD progressing
- Moderate risk of CKD progressing
- High risk of CKD progressing

2.2 Glomerular filtration rate (GFR-blood test)

- GFR is the best measure of kidney function
- GFR is written as mL/min/1.73m² which refers to the amount of blood filtrated through the glomerulus in 1 minute per surface area of the client
- Normal GFR is > 90 mL/min/1.73m² but further investigations based on GFR are only done if the GFR value drops below 60
- A GFR < 60 mL/min/1.73m² should be considered in the context of other clinical situations and be retested in 14 days. These include:
  - acute changes in renal function
  - dialysis clients
  - certain diets (vegetarian, high protein, recent ingestion of cooked meat)
  - extremes of body size
  - muscles diseases (may overestimate) or high muscle mass (may underestimate)
  - children < 18 years of age
  - severe liver disease
- A GFR below 60 in the elderly, although common, should be treated as significant and
not considered physiological

- Calculated GFR along with ACR is used to stage kidney function (see Table 1)

**3. Management**

- All newly diagnosed clients with CKD should be evaluated by a renal physician/nephrologist to develop a management action plan

- Managing CKD primarily focuses on diet, nutrition and medication interventions targeting cholesterol and blood pressure as well as glycaemic control to improve renal and cardiovascular outcomes\(^6\)

- Management targets for CKD are outlined in Table 2.

### Table 2. Management targets for CKD\(^{3,8,9}\)

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blood pressure</td>
<td>≤ 140 mmHg/90 mmHg</td>
</tr>
<tr>
<td></td>
<td>≤ 130 mmHg/80 mmHg in all people with diabetes and all people with micro/macro albuminuria (see Table 1)</td>
</tr>
<tr>
<td>Proteinuria</td>
<td>≥ 50% reduction of baseline value of urine ACR</td>
</tr>
<tr>
<td>Lipids</td>
<td>TC &lt; 4.0 mmol/L</td>
</tr>
<tr>
<td></td>
<td>LDL &lt; 2.5 mmol/L</td>
</tr>
<tr>
<td>Blood glucose (if diabetic)</td>
<td>Pre-prandial 4.0 mmol/L to 6.0 mmol/L</td>
</tr>
<tr>
<td></td>
<td>HbA1c &lt; 7.0%</td>
</tr>
<tr>
<td>Parathyroid hormone (PTH)</td>
<td>2 - 9 times upper limit of normal</td>
</tr>
<tr>
<td>Serum albumin</td>
<td>≥ 35 g/L</td>
</tr>
<tr>
<td>Vitamin D (25-hydroxyvitamin D)</td>
<td>≥ 75 nmol/L</td>
</tr>
<tr>
<td>Bicarbonate level (HCO(_3))</td>
<td>≥ 20 mmol/L</td>
</tr>
<tr>
<td>Iron studies</td>
<td>Hb 100 - 115 g/L</td>
</tr>
<tr>
<td></td>
<td>Serum ferritin &gt; 100 micrograms/L</td>
</tr>
<tr>
<td></td>
<td>Transferrin saturation (TSAT%) &gt; 20%</td>
</tr>
<tr>
<td>Phosphate (PO(_4))</td>
<td>0.8 - 1.5 mmol/L</td>
</tr>
<tr>
<td>Potassium (K(^+))</td>
<td>≤ 6.0 mmol/L</td>
</tr>
<tr>
<td>Calcium (Ca)</td>
<td>2.2 - 2.6 mmol/L</td>
</tr>
</tbody>
</table>

### 3.1 Factors complicating management

- In managing CKD the following co-morbidities must be considered
  - Diabetes type 2, page 196
  - Hypertension is both a cause and a complication of CKD which increases the progression of CKD\(^1\) (see Hypertension, page 228)
  - Coronary heart disease, page 142
  - It is important to check for these complications along with calculation of absolute cardiac risk see Appendix 1: Australian cardiovascular risk charts, page 494
3.2 Support client self management

- See Lifestyle modification with particular regard to Diet and nutrition, page 14
- Discuss what CKD is and how it progresses
- Explain the signs of worsening CKD and advise to seek timely access to health services
- Provide CKD resources (see Resources 1)
- Encourage the client to identify barriers to adequate lifestyle modification and medical adherence and to set goals to overcome those barriers based on their capacity and understanding

3.3 Staging and classification of CKD

- The stages of CKD are based and reported on the combination of kidney function (GFR) and kidney damage (ACR) irrespective of the underlying diagnosis, which will determine management
- The risk of CKD progressing can be determined by correlating kidney function with kidney damage (see Table 1)

3.4 Social emotional support

- Depression can affect 1 in 5 people with CKD, and 1 in 3 individuals on dialysis
- Depression in people with CKD has detrimental affects on mortality, rates of hospitalisation, medication and treatment adherence, nutrition and overall quality of life
- Depression and anxiety can be screened for by using self- or clinician-rated mood scale (for examples see Resource 2). Rating scales should be supplemented by a clinical assessment by a suitably qualified clinician to make a diagnosis
- Acknowledge any client concerns and reassure them that good adherence to appropriate treatment can improve the symptoms and rate of progression of their condition

3.5 Nutrition and diet

- All clients diagnosed with progressive CKD should have an individualised dietary plan developed by a dietitian
- Clients with early CKD (stages 1 to 3) should be encouraged to
  - reduce any excessive protein intake and consume a normal protein diet
  - avoid a low protein diet to slow CKD progression as this is not recommended due to the risk of malnutrition
  - restrict their dietary sodium (salt) intake to reduce their blood pressure and albuminuria
  - avoid salt substitutes that contain high amounts of potassium salts
  - restrict dietary potassium intake (bananas, dark leafy greens, baked potatoes, dried apricots, salmon, avocados and mushrooms) for those with persistent hyperkalaemia
  - consume a Mediterranean diet high in fruits, vegetables, fish and fibre to improve dyslipidemia and hypertension and reduce mortality in clients with CKD
Section 2: Management of diagnosed conditions

3.6 Palliation support

- When the client has end stage kidney disease (stage 5) it may be necessary to consider end of life decisions including
  - advanced care directives (wills, guardianship etc.) to outline wishes for future health and personal care
  - non-dialysis treatment (no dialysis or transplantation) and
  - palliative care arrangements

- In conjunction with the client and the multidisciplinary team, assess the impact of CKD and arrange for visiting physiotherapist and/or occupational therapist for home assessment and other support such as wheel chairs and bedding

- Assess impact of CKD on activities of daily living, physical activity, employment, finances, family routines and emotions

- Assess for home falls risk (see Resource 3)

- Refer eligible clients to Home and Community Care (HACC) services and Medical Aid Subsidy Scheme (MASS) (see Resource 4)

- Refer for palliative care as required

4. Medications

4.1 Calculating CKD medication dosage

- Both eGFR and Creatinine Clearance (CrCl) can be used to estimate renal drug clearance

- The measure to use when determining drug dosages is at the discretion of the clinician

- If eGFR is used for drug dosing it is important to consider the client's body size as well as referring to the drug product information

- This is particularly relevant where clients may be very large or very small and the normalised body surface area (BSA) of 1.73 m² may not be applicable. In these circumstances eGFR should be calculated to the client's BSA

- For the purposes of this manual CrCl is used

- CKD medication dosing recommendations are based on the degree of renal impairment and fall into three categories
  - Mild impairment - CrCl 25 - 50 mL/min
  - Moderate impairment - CrCl 10 - 25 mL/min
  - Severe impairment - CrCl < 10m L/min

- CrCl is calculated using the Cockcroft-Gault Formula (see Table 3)
### Table 3. CKD medication dosage calculators

**Calculation of CrCl using the Cockcroft-Gault Formula**

\[
\text{CrCl (mL/minute) = } \frac{(140 - \text{age}) \times (\text{ideal weight in kg})}{0.815 \times \text{serum Cr (micromol/L)}}
\]

For females multiply the above result by 0.85

**Calculation of ideal body weight**

- Males: \((\text{Height in cm} - 152 \text{ cm}) \times 0.9) + 50 \text{ kg}\)
- Females: \((\text{Height in cm} - 152 \text{ cm}) \times 0.9) + 45.5 \text{ kg}\)
- Add 10% for a heavy frame and subtract 10% for a light frame

Both these Australian Medicines Handbook calculators are available online (see Resource 5)

#### 4.2 Special considerations

- Clients with CKD should have their medication and dose requirements reviewed by a nephrologist or pharmacist
- Careful consideration and followup should be given to medication dosages when CrCl is < 10 mL/min
- Aspirin therapy should not be routinely recommended as the risk/benefit for primary prevention of cardiovascular disease in clients with early (stage 1 to 3) CKD is uncertain
- Use of some uric acid lowering agents (such as allopurinol) is not routinely recommended in people with early CKD (stages 1 to 3) who have asymptomatic hyperuricaemia

The combination of an ACE inhibitor (or ARB) with a diuretic and NSAID (except low-dose aspirin) in clients with CKD can result in a potentially serious interaction, the “triple whammy”

- Antimicrobials and/or their metabolites that are excreted totally or in part by the kidneys may accumulate and rapidly reach toxic concentrations, and dosage adjustment may be required e.g. aminoglycosides
- NSAIIDs increase renal impairment and risk of bleeding in CKD
- Metformin should
  - not exceed 2 g daily when CrCl is 60 - 90 mL/min
  - not exceed 1 g daily when CrCl is 30 - 60 mL/min and
  - be ceased if CrCl < 30 mL/min
- Radio-contrast material should be avoided in renal disease, however the risks need to be weighed against benefits for each individual
- Figure 1. illustrates medication management of hypertension in clients with CKD
Figure 1. Management of hypertension in people with CKD

- If K+ < 6.0 (ACEi/ARB tolerated)
  - Review antihypertension medication and dose
  - Continue to monitor BP and address lifestyle risk factors
  - If K+ < 6.0 mmol/L?
    - NO: Is BP ≤ 140/90 or ≤ 130/80 with diabetes or albuminuria?
      - NO: Stop ACEi, ARB or spironolactone
      - YES: Consider adding
        - Ca²⁺ channel blocker or
        - Diuretic or
        - β-blocker
      - Check K+ after 7 days
    - YES: Increase ACEi or ARB
      - Check eGFR and K+ after 7 days
      - If K+ > 6.5 mmol/L then emergency referral
      - If eGFR falls by more than 25% below baseline then
        - Stop medications
        - Refer to nephrologist
      - If K+ ≤ 6.5 mmol/L then
        - Reduce dose of ACEi or ARB
        - Start K+ wasting diuretic
        - Restrict dietary K+
  - NO: Is BP ≤ 140/90 or ≤ 130/80 with diabetes or albuminuria?
    - NO: Stop ACEi, ARB or spironolactone
      - Check K+ after 7 days
    - YES: Continue to monitor BP and address lifestyle risk factors
    - Review antihypertension medication and dose

- If K+ > 6.5 mmol/L then emergency referral
- If K+ 6 - 6.5 mmol/L then
  - Reduce dose of ACEi or ARB
  - Start K+ wasting diuretic
  - Restrict dietary K+
- Address lifestyle risk factors
  - Co-morbidities
    - Diabetes type 2, page 196
    - Hypertension, page 228
    - Coronary heart disease, page 142
  - Lifestyle modification
    - Physical activity program
    - Low salt diet
    - Fluid intake management
    - Healthy eating
- Does the client have diabetes or albuminuria?
  - YES: Start ACEi or ARB
    - Check eGFR and K+ after 7 days
  - NO: Review antihypertension medication and dose
### Table 4. Suggested medications and doses for CKD

#### ACEi

- **Used as first line agent**
- **Cautiously titrate upwards to target dose and response**
- **Side effects include dry cough, hypotension, impaired renal function, hyperkalaemia, rarely angioedema (stop immediately)**
- **Monitor BP, U&E, eGFR**
- **ACEi and ARB not to be used together**
- **Clients on high dose diuretics should reduce dose 24 - 48 hours before starting ACEi**
- **Beware of first dose hypotension**

#### Ramipril
- If CrCl 20 - 50 mL/min then 1.25 - 2.5 mg daily
- If CrCl 10 - 20 mL/min then 1.25 mg daily
- If CrCl < 10 mL/min or dialysis then 1.25 mg daily

#### Perindopril arginine
- If CrCl 30 - 60 mL/min then 2.5 mg daily
- If CrCl 15 - 30 mL/min then 2.5 mg on alternate days
- If CrCl < 15 mL/min then 2.5 mg on day of dialysis

#### Perindopril erbumine
- If CrCl 30 - 60 mL/min then 2 mg daily
- If CrCl 15 - 30 mL/min then 2 mg on alternate days
- If CrCl < 15 mL/min then 2 mg on alternate days or on day of dialysis

#### Lisinopril
- If CrCl 30 - 70 mL/min then 2.5 - 5 mg daily
- If CrCl 10 - 30 mL/min then 2.5 - 5 mg daily
- If CrCl < 10 mL/min or dialysis then 2.5 mg daily

#### Captopril
- Start at 6.5 mg according to CrCl
  - If CrCl 30 - 60 mL/min then 2 - 3 times daily
  - If CrCl 10 - 30 mL/min then twice daily
  - If CrCl < 10 mL/min or dialysis then once to twice daily

#### Enalapril
- If CrCl 30 - 60 mL/min then 2.5 - 5 mg daily
- If CrCl 10 - 30 mL/min then 2.5 mg daily
- If CrCl < 10 mL/min or dialysis then 2.5 mg daily or on dialysis days

#### Fosinopril
- If CrCl 30 - 60 mL/min then 5 - 10 mg daily
- If CrCl 10 - 30 mL/min then 5 mg daily
- If CrCl < 10 mL/min then 5 mg daily or on dialysis days

#### Quinapril
- If CrCl 30 - 60 mL/min then 2.5 - 5 mg daily
- If CrCl 10 - 30 mL/min then 2.5 mg daily
- If CrCl < 10 mL/min then 2.5 mg daily

#### Trandolapril
- If CrCl 30 - 60 mL/min then 0.5 - 1 mg daily
- If CrCl 10 - 30 mL/min then 0.5 mg daily
- If CrCl < 10 mL/min then 0.5 mg daily
Table 4. Suggested medications and doses for CKD (continued) 8,9,12,17,18,19,20

<table>
<thead>
<tr>
<th>ARB</th>
<th>Use ARB when ACEi intolerant</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Irbesartan</strong></td>
<td></td>
</tr>
<tr>
<td>• If CrCl 30 - 60 mL/min then 75 - 150 mg once daily</td>
<td></td>
</tr>
<tr>
<td>• If CrCl 10 - 30 mL/min then 75 mg once daily</td>
<td></td>
</tr>
<tr>
<td>• If CrCl &lt; 10 mL/min or dialysis then 75 mg once daily</td>
<td></td>
</tr>
<tr>
<td><strong>Candesartan</strong></td>
<td></td>
</tr>
<tr>
<td>• If CrCl 30 - 60 mL/min then 4 - 8 mg once daily</td>
<td></td>
</tr>
<tr>
<td>• If CrCl 10 - 30 mL/min then 4 mg once daily</td>
<td></td>
</tr>
<tr>
<td>• If CrCl &lt; 10 mL/min or dialysis then 4 mg once daily</td>
<td></td>
</tr>
<tr>
<td><strong>Losartan</strong></td>
<td></td>
</tr>
<tr>
<td>• If CrCl 30 - 60 mL/min then 25 - 50 mg once daily</td>
<td></td>
</tr>
<tr>
<td>• If CrCl 10 - 30 mL/min then 25 - 50 mg once daily</td>
<td></td>
</tr>
<tr>
<td>• If CrCl &lt; 10 mL/min or dialysis then 25 - 50 mg once daily</td>
<td></td>
</tr>
<tr>
<td><strong>Olmesartan</strong></td>
<td></td>
</tr>
<tr>
<td>• If CrCl 30 - 60 mL/min then 20 mg once daily</td>
<td></td>
</tr>
<tr>
<td>• If CrCl &lt; 30 mL/min contraindicated</td>
<td></td>
</tr>
<tr>
<td><strong>Valsartan</strong></td>
<td></td>
</tr>
<tr>
<td>• If CrCl 30 - 60 mL/min then 80 mg once daily</td>
<td></td>
</tr>
<tr>
<td>• If CrCl 10 - 30 mL/min then 40 - 80 mg once daily</td>
<td></td>
</tr>
<tr>
<td>• If CrCl &lt; 10 mL/min or dialysis then 40 mg once daily</td>
<td></td>
</tr>
<tr>
<td><strong>Beta blockers</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Atenolol</strong></td>
<td></td>
</tr>
<tr>
<td>• If CrCl 35 - 60 mL/min then 25 - 50 mg once daily</td>
<td></td>
</tr>
<tr>
<td>• If CrCl 15 - 35 mL/min then 25 mg once daily or 50 mg on alternate days</td>
<td></td>
</tr>
<tr>
<td>• If CrCl &lt; 15 mL/min then 25 mg once daily or 25 - 50 mg on alternate days</td>
<td></td>
</tr>
<tr>
<td><strong>Metoprolol</strong></td>
<td></td>
</tr>
<tr>
<td>• If CrCl 30 - 60 mL/min then normal dose</td>
<td></td>
</tr>
<tr>
<td>• If CrCl 10 - 30 mL/min then normal dose (may initiate at 12.5 - 25 mg b.d.)</td>
<td></td>
</tr>
<tr>
<td>• If CrCl &lt; 10 mL/min or dialysis then 12.5 - 25 mg</td>
<td></td>
</tr>
<tr>
<td><strong>Diuretics</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Fruosemide</strong></td>
<td></td>
</tr>
<tr>
<td>• If CrCl 30 - 60 mL/min then normal dose</td>
<td></td>
</tr>
<tr>
<td>• If CrCl 10 - 30 mL/min then normal dose (range 120 - 500 mg/day)</td>
<td></td>
</tr>
<tr>
<td>• If CrCl &lt; 10 mL/min or dialysis then normal dose (range 120 mg - 1 g daily)</td>
<td></td>
</tr>
<tr>
<td><strong>Hydrochlorothiazide</strong></td>
<td></td>
</tr>
<tr>
<td>• If CrCl 30 - 60 mL/min then normal dose</td>
<td></td>
</tr>
<tr>
<td>• If CrCl 10 - 30 mL/min then 12.5 - 25 mg daily</td>
<td></td>
</tr>
<tr>
<td>• If CrCl &lt; 10 mL/min or dialysis then 12.5 - 25 mg daily</td>
<td></td>
</tr>
<tr>
<td><strong>Indapamide</strong></td>
<td></td>
</tr>
<tr>
<td>• If CrCl 30 - 60 mL/min then normal dose</td>
<td></td>
</tr>
<tr>
<td>• If CrCl 10 - 30 mL/min then normal dose</td>
<td></td>
</tr>
<tr>
<td>• If CrCl &lt; 10 mL/min or dialysis then normal dose</td>
<td></td>
</tr>
</tbody>
</table>

• Ensure sitting systolic BP > 85 mm/Hg before starting
• Begin only when the client’s heart failure is stable
• Nebivolol used in the elderly
• Monitor BP and HR

• Individual dose range of frusemide is large, doses are determined by individual client requirements
• Second line therapy for hypertension in CKD
• Avoid using hydrochlorothiazide and indapamide as diuretics if CrCl < 30 mL/min, as they are less effective as diuretics (but they retain some antihypertensive effect)
### Table 4. Suggested medications and doses for CKD (continued) 8,9,12,17,18,19,20

<table>
<thead>
<tr>
<th>Calcium channel blockers</th>
<th></th>
</tr>
</thead>
</table>
| **Amlodipine** | • 2.5 - 5 mg daily  
• Up to 10 mg daily  
• Normal doses for calcium channel blockers apply, but they should be used in caution in clients with impaired renal and liver function  
• Second line therapy for hypertension in CKD  
• Severe bradycardia and heart block when used with beta-blockers |
| **Diltiazem** | • For angina, AF, atrial flutter 180 - 360 mg CR once daily  
• For hypertension 180 - 240 mg CR once daily  
• Second line therapy for hypertension in CKD  
• Severe bradycardia and heart block when used with beta-blockers |
| **Verapamil** | • Start at 40 - 80 mg immediate release 2 - 3 times daily |

<table>
<thead>
<tr>
<th>Statin</th>
</tr>
</thead>
</table>
| **Atorvastatin** | • 10 mg daily  
• Up to 80 mg daily  
• Recomended in CKD to reduce the risk of atherosclerotic events  
• +/- ezetimibe below |
| **Simvastatin** | • 10 mg daily  
• Up to 80 mg daily |
| **Pravastatin** | • 10 - 20 mg daily  
• Up to 80 mg daily |
| **Rosuvastatin** | • Start at 5 mg according to CrCl  
• If ≥ 30 mL/min then once daily up to a max of 40 mg  
• If ≤ 30 mL/min then once daily up to a max of 10 mg  
• For clients with early CKD who are not exposed to direct sunlight for at least 1 to 2 hours per week  
• Contraindicated in hypercalcaemia  
• May suppress development of secondary hyperparathyroidism  
• Beware of hypercalcaemia especially when taken in conjunction with thiazides |

<table>
<thead>
<tr>
<th>Vitamin D supplement</th>
</tr>
</thead>
</table>
| **Calcitriol** | • 0.25 micrograms daily titrated to response  
• For diagnosed iron deficiency  
• Parenteral preferred to oral as more likely to achieve Hb target level |
| **Ferrous sulphate** | • 100 - 200 mg daily oral  
• See CPI for parenteral use  
• Normal dosing applies |

<table>
<thead>
<tr>
<th>Iron</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cholesterol absorption inhibitor</strong></td>
</tr>
<tr>
<td><strong>Ezetimibe</strong></td>
</tr>
</tbody>
</table>
### Table 4. Suggested medications and doses for CKD (continued)\(^8,9,12,17,18,19,20\)

<table>
<thead>
<tr>
<th>Phosphate binder</th>
<th></th>
</tr>
</thead>
</table>
| **Calcium carbonate** | - Calcium salts should be the initial choice when serum $\text{Ca}^{2+} < 2.4 \text{mmol/L}$ and parathyroid hormone (PTH) is in the target range  
- Beware of additional intake of calcium from vitamin D analogues  
- Aluminium salts should be avoided when PTH is lower than the target range  
- Aluminium salts may accumulate in tissues and should be avoided unless target phosphate levels cannot be achieved using maximal tolerated doses of calcium based binders  |
| • 600 - 3000 mg (240 - 1200 mg elemental calcium) with meals |  |
| **Aluminium hydroxide** |  |
| • 600 - 1200 mg with food  
• Up to 3600 mg daily |  |
## 5. Care plan

<table>
<thead>
<tr>
<th>Table 5. Care plan for people with chronic kidney disease</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>eGFR with microalbuminuria OR eGFR with normoalbuminuria</strong></td>
</tr>
<tr>
<td><strong>Action</strong></td>
</tr>
<tr>
<td>BMI</td>
</tr>
<tr>
<td>Height</td>
</tr>
<tr>
<td>Weight</td>
</tr>
<tr>
<td>Waist circumference</td>
</tr>
<tr>
<td>Blood pressure</td>
</tr>
<tr>
<td>Calcium (Ca²⁺)</td>
</tr>
<tr>
<td>Vitamin D</td>
</tr>
<tr>
<td>Aluminium salts</td>
</tr>
<tr>
<td>Phosphate (PO₄³⁻)</td>
</tr>
<tr>
<td>Vitamin B12 and folate</td>
</tr>
<tr>
<td>FBC</td>
</tr>
<tr>
<td>Parathyroid hormone (PTH)</td>
</tr>
<tr>
<td>UEC</td>
</tr>
<tr>
<td>HbA1c (for people with diabetes)</td>
</tr>
<tr>
<td>Fasting blood glucose</td>
</tr>
<tr>
<td>eGFR</td>
</tr>
<tr>
<td>Urine ACR</td>
</tr>
<tr>
<td>Fasting lipids</td>
</tr>
<tr>
<td>Iron studies</td>
</tr>
<tr>
<td>Client self management support</td>
</tr>
<tr>
<td>Lifestyle modification</td>
</tr>
<tr>
<td>Diet modification</td>
</tr>
<tr>
<td>Social emotional wellbeing</td>
</tr>
<tr>
<td>Assess falls risk</td>
</tr>
<tr>
<td>Influenza vaccine</td>
</tr>
<tr>
<td>Pneumococcal vaccine</td>
</tr>
<tr>
<td>Dietitian</td>
</tr>
<tr>
<td>Dentist</td>
</tr>
<tr>
<td>Medication review</td>
</tr>
<tr>
<td>HW/RN review</td>
</tr>
<tr>
<td>MO/NP review</td>
</tr>
<tr>
<td>Nephrologist</td>
</tr>
<tr>
<td>Palliation support</td>
</tr>
</tbody>
</table>
6. References


15. Renal impairment and antimicrobial dosing [revised June 2010]. In: eTG complete [Internet]. Melbourne: Therapeutic Guidelines Limited; March 2014


7. Resources


1. What is chronic obstructive pulmonary disease (COPD)?
   - A preventable and treatable disease of the lungs and airways resulting in worsening shortness of breath on exertion\(^1\)
   - The main underlying disease process is non-reversible airways obstruction and/or emphysema, in which the air sacs in the lungs are destroyed and the lungs are less able to move air
   - As a result people have difficulty breathing because
     - lung tissue is damaged
     - the airways narrow, becoming obstructed and
     - air is trapped
   - The major contributing factor is smoking
   - A major problem associated with COPD is the occurrence of exacerbations, or periodic worsening of symptoms and lung function
   - Symptoms during exacerbations include
     - increased shortness of breath
     - increased cough
     - increased sputum volume and/or increased sputum purulence
     - general malaise
     - reduced exercise tolerance

2. Diagnosis of COPD
   - A clinical diagnosis of COPD should be considered in any client who has
     - shortness of breath or worsening shortness of breath

High risk groups
- Adults with risk factors or symptoms of shortness of breath\(^1\)
- All people who are smokers or ex-smokers over 35 years of age
- People with stable chronic obstructive pulmonary disease (COPD)
- People exposed to occupational and environmental dusts, chemicals and airborne hazards
- Aboriginal and Torres Strait Islander peoples and people from culturally and linguistically diverse backgrounds

Considerations for women of child-bearing age
- Pregnant women with airways disease should be seen by a specialist

Urgent referral
- For acute exacerbation of COPD refer to the MO/NP and the current edition of the Primary Clinical Care Manual (PCCM)
- recurrent chest infections
- chronic cough and/or sputum production
- a history of or exposure to the main risk factor, smoking

- In clinical practice, diagnosis is usually based on
  - a history of smoking, or exposure to other noxious agents
  - FEV1/FVC ratio < 0.7 post-bronchodilator

- Some people do not experience cough, sputum production or dyspnoea and only present when breathing gets worse with a respiratory tract infection

- One third of COPD clients present with bronchiectasis which should be excluded with early chest imaging which will also rule out pulmonary malignancy

- Bronchiectasis presents as
  - a productive cough for more than 8 weeks
  - recurrent chest infections
  - sinusitis and fatigue
  - haemoptysis (blood stained sputum)
  - less commonly wheezing and weight loss

- Exclude bronchiectasis with high resolution computerised tomography (e.g. if symptoms include: haemoptysis, chronic sinusitis, dental disease) as treatment is very different

- See Table 1. for the stages of COPD according to airflow obstruction and severity of symptoms

### 2.1 Identify risk factors

- Smoking history i.e. age started and stopped and cigarettes per day

- Medical history, including: asthma, allergy, sinusitis or nasal polyps, respiratory infections in childhood, and other respiratory diseases

- Family history of COPD or other chronic respiratory diseases or lung cancer

- History of exacerbations or previous hospitalisations for respiratory disorders

#### Table 1. Classification of COPD according to airflow obstruction\(^2\,^3\)

<table>
<thead>
<tr>
<th>Stages</th>
<th>Airflow obstruction and severity of symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mild</td>
<td>• The individual may not be aware that his or her lung function is abnormal</td>
</tr>
<tr>
<td></td>
<td>• Airflow limitation (FEV(_1) ≈ 60 - 80% predicted)</td>
</tr>
<tr>
<td>Moderate</td>
<td>• People usually seek medical attention because of chronic respiratory symptoms or an exacerbation of their disease</td>
</tr>
<tr>
<td></td>
<td>• Worsening airflow limitation (FEV(_1) = 40 - 59% predicted)</td>
</tr>
<tr>
<td>Severe</td>
<td>• Greater shortness of breath, reduced exercise capacity, and repeated exacerbations which have an impact on the person's quality of life</td>
</tr>
<tr>
<td></td>
<td>• Airflow limitation (FEV(_1) &lt; 40% predicted)</td>
</tr>
</tbody>
</table>
3. Management

3.1 Factors complicating management
- In managing COPD the following must be considered
  - Chronic heart failure, page 100
  - Rheumatic heart disease, page 290
  - Smoking (see Smoking cessation, page 44)

3.2 Support client self management
- Support the client with lifestyle modification with particular attention to Smoking cessation, page 44 and pulmonary rehabilitation (see 3.13 Pulmonary rehabilitation program)
- Discuss COPD and
  - provide supportive resources (see Resource 1)
  - controlling breathlessness and anxiety
  - airway clearance and breathing techniques (see Resource 2)
  - medication usage, effects and compliance
- Refer client to The COACH Program, a free phone coaching service which helps clients manage their condition (see Resource 3)
- Encourage the client to identify barriers to adequate lifestyle modification and clinical adherence and to set goals to overcome those barriers based on their capacity and understanding

3.3 Social emotional wellbeing
- Depression and anxiety can be screened for by using a self- or clinician-rated mood scale (see Resource 4). Rating scales should be supplemented by a clinical assessment by a suitably qualified clinician to make a diagnosis
- Acknowledge any client concerns and reassure them that good adherence to appropriate treatment can improve the symptoms of their condition

3.4 Monitor health status
- Temperature, pulse, respiration rate, blood pressure, weight and body mass index (BMI)
- Breathlessness and amount and colour of sputum
- Perform regular spirometry before and 10 - 15 minutes after salbutamol 4 puffs with spacer, and establish client’s best attainable lung function (see Resources 5. and 6)
- Oxygen saturation at rest and after a short walk on a level surface
- FBC for polycythaemia and anaemia
- ECG for heart failure or ischaemic heart disease
- Chest x-ray for evidence of bronchiectasis, emphysema, lung hyperinflation, heart failure
- Appropriateness of current medical treatments
- Use the COPD Assessment Test (CAT) to measure the impact of COPD on the client, and
how this changes over time (see Resource 7)

- Monitor any swallowing difficulties and refer to the speech pathologist if required

### 3.5 Smoking cessation

- See *Smoking cessation, page 44*

- Clients who stop smoking give themselves the best opportunity to prevent the development and progression of COPD

- Education about exposure to risk factors e.g. smoking, occupational dust and chemicals, indoor and outdoor pollutants

- Perform spirometry on all adults who are smokers or ex-smokers with recurrent episodes of acute respiratory infections and frequent and unusual sputum production

- This can be done by using the Piko-6 spirometer to make an objective assessment of the client’s level of broncho-constriction (see Resource 8)

- Educate that giving up smoking is the most effective means of preventing the development of COPD

- Refer to ATODs worker or other smoking cessation facilitator to assist with strategies to give up smoking

- Refer to MO/NP for nicotine replacement therapy (see Table 2)

- Ensure client is fully vaccinated for preventable respiratory diseases i.e. influenza and pneumonia

### 3.6 Improvement in physical activity tolerance

- See *Physical activity, page 26*

- Encourage client to keep as active as possible

- Incidental daily physical activity such as walks or vacuuming

- Pace activities of daily living

- Attend special events such as family and friend gatherings

- Encouragement of regular supported, monitored exercise with plenty of rests to recover breath

- Refer to physical activity groups such as pulmonary rehabilitation programs

### 3.7 Nutrition

- See *Diet and nutrition, page 14*

- Lung disease increases the risk of poor nutrition, weight loss and reduced muscle strength because of

  - increased energy needs

  - changes in appetite (decrease or if on steroids an increased appetite)

  - lack of energy to shop, cook and eat meals

  - an increased need for certain vitamins, minerals and antioxidants
• Refer to MO or dietitian if there is unintended weight loss or weight gain

3.8 Good sleep patterns
• Medications, difficulty with breathing, anxiety and depression may prevent people with COPD from sleeping well at night
• Assess how well the client is sleeping by doing the Epworth Sleepiness Scale (see Resource 9)
• If they score highly refer to sleep specialist to exclude obstructive sleep apnoea

3.9 Prevent respiratory infections
• Influenza vaccine annually
• Pneumovax as per the current edition of the *Australian Immunisation Handbook*
• dTpa vaccine at age 50 years and above

3.10 COPD action plan
• Helps client to self-monitor and intervene early to prevent exacerbations
• Helps client to stay well and know what to do when symptoms get worse, what to do during a severe attack, and how to recognise danger signs
• Ensure client is well trained and confident in its implementation (see Resource 10)

3.11 Home oxygen
• Oxygen is beneficial for clients who have
  – PaO₂ ≤ 55 mmHg or SaO₂ ≤ 88%
  – PaO₂ between 55 mmHg and 60 mmHg or SaO₂ of 88% with evidence of cardiac failure, pulmonary hypertension, oedema
• Evaluation for use of home O₂ should be made when the person has stable COPD not during exacerbation
• Medical Aids Subsidy Scheme (MASS) can supply home oxygen to eligible clients (see Resource 11)

3.12 Prevention of complications
• Identify risk status for osteoporosis by assessing
  – vitamin D levels
  – mobilisation
  – use of high dose corticosteroids
  – underlying decreased bone mineral density
  – bone densitometry where appropriate
  – see Osteoporosis, page 250
• Assess cardiac disease risk by using the Absolute Cardiovascular Risk Assessment tool (see appendix 1: *Australian cardiovascular risk charts, page 494*)
3.13 Pulmonary rehabilitation program

- Ideally offered to all people with moderate and severe COPD
- Symptomatic clients with more than 2 exacerbations per year, should be referred to pulmonary rehabilitation as an important hospital avoidance strategy
- If there is no program in your community advocate for a service or refer to the Pulmonary Rehabilitation Toolkit (see Resource 12)
- Contact your local district chronic disease coordinator or the Lung Foundation for rehabilitation program details and/or training (see Resource 13)

3.14 Active cycle of breathing technique (ACBT) (see Resource 2)

- Used to help clear secretions from the lungs, especially with chest infections
  1. Start with 5 deep abdominal breaths. Expand chest fully, starting with the diaphragm and lower ribs. Avoid lifting or shrugging shoulders
  2. Do 30 - 60 seconds of relaxed breathing. Breathe from the diaphragm. With their hand the client should feel their stomach rising and falling with each breath. Shoulders should be kept as relaxed as possible
  3. Do another 5 deep abdominal breaths
  4. Follow this with 30 - 60 seconds of relaxed breathing
  5. Take a medium sized breath in and huff the air out a little more forcefully
  6. Start with 3 cycles of gentle huffs. Finish with 2 cycles of more forceful huffs
  7. Finish with a cough to clear any secretions left in the main airways
  8. Repeat the cycle 2 - 3 times or until no more secretions can be removed
- Refer to the physiotherapist for further assistance if client is unable to clear lung secretions

3.15 Falls prevention

- Screen for individual falls risk (see Resource 14)
- Refer to a physiotherapist and a balance and strength group
- Refer to an occupational therapist to assess whether home modifications are required to minimise slip and fall hazards

3.16 Palliation support

- Palliative care should be considered in all clients where the possibility of significant deterioration is high
- In conjunction with the client and the multidisciplinary team arrange for a visiting physiotherapist and/or occupational therapist for home assessment and other supports such as wheel chairs and bedding
- Assess impact of the client’s function on employment, finances, family routines and emotions
- Feelings of grief and loss need to be anticipated from the time of diagnosis to death and grief and bereavement counselling should be available to client, family and carers.
A conference with the family can provide an opportunity to discuss end of life issues.

The use of advance care planning (i.e. enduring powers of attorney or advanced health directives) will assist the client retain some control over their care and personal lives.

Refer eligible clients to Home and Community Care (HACC) services and Medical Aid Subsidy Scheme (MASS) (see Resource 11).

4. Medications

- The MO/NP or pharmacist will review medications according to above recommendations, client’s response and current condition.
- Check inhaler instructions in the packaging for specific instructions.
- Monitor medication adherence and correct inhaler technique.
- Video and printable instructions for correct inhaler use are available at the National Asthma Council Australia website (see Resource 15).
- Use Figure 1. as a guide to manage stable COPD.
- For acute presentations of COPD refer to the current edition of the PCCM.

To improve medication efficacy using spacers is now the preferred option when providing clients with inhalers.
Section 2: Management of diagnosed conditions

Chronic obstructive pulmonary disease

**Symptom Relief**

- LAMA and/or LABA
  - CEase Ipratropium bromide once LAMA commenced

**Pharmacological Interventions**

- Consider low dose theophylline
  - Montotherapy
  - maintenance of combined ICS/LABA, Cease LABA

**Exacerbation Prevention**

- When FEV₁ < 50% predicted

**Non-pharmacological Interventions**

- Consider O₂ therapy, surgery and palliative support (see 3.16 Palliation support)

**Check Inhaler Usage**

- Technique and adherence to medication

**Reliever Medication**

- SABA or SAMA

**Exacerbation Prevention**

- When FEV₁ < 50% predicted and client has had 2 or more exacerbations in the last 12 months

**Symptom Relief**

- LABA and/or LAMA

**Address Risk Factors**

- See Lifestyle modification sections, Smoking cessation, page 44, Physical activity, page 26, Diet and nutrition, page 14, Alcohol reduction, page 4, and Social emotional wellbeing, page 46

**Address comorbidities**

- Osteoporosis, page 256, Chronic heart failure, page 100, Anxiety disorders, page 62, Depression, page 172, Lung cancer

**Lung Function**

- FEV₁ < 50% predicted

**Typical Symptoms**

- Moderate or Severe: Cough, chest tightness, wheeze, shortness of breath

**Address Risk Factors**

- See Pulmonary rehabilitation (see 3.15 Pulmonary rehabilitation)

**Figure 1. Stepwise management of stable COPD**
### Table 2. Medications for all stages of COPD<sup>6,7,8</sup>

<table>
<thead>
<tr>
<th>Class</th>
<th>Suggested drug and dose</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Short-acting bronchodilators</strong></td>
<td></td>
</tr>
</tbody>
</table>
| **ß2-agonists (SABA)** | • Salbutamol MDI 100 - 200 micrograms 1 - 2 puffs PRN  
|  | • Terbutaline sulphate turbuhaler 500 micrograms 1 puff PRN  
|  | • Best used with spacer  
|  | • Takes effect immediately  |
| **Short-acting anti-cholinergic bronchodilators (SAMA)** | • Ipratropium bromide MDI 42 micrograms 1 - 2 puffs PRN  
|  | • Best used with spacer  
|  | • 20 minutes to take effect but longer lasting than above  |
| **Long-acting antimuscarinic antagonist (LAMA)** | • Tiotropium bromide DPI 18 micrograms 1 puff daily  
|  | • Umeclidinium bromide 55 micrograms 1 puff daily  
|  | • Glycopyrronium 50 micrograms 1 puff daily  
|  | • Aclidinium 322 micrograms 1 capsule inhaled b.d.  
|  | • Teach and check technique  
|  | • Cease ipratropium bromide to avoid double dosing  
|  | • May cause dry mouth, blurred vision, dizziness and urinary retention  
|  | • May precipitate acute angle-closure crisis  |
| **Long-acting bronchodilators ß2-agonists (LABA)** | • Eformoterol 12 micrograms 1 puff b.d.  
|  | • Salmeterol 50 micrograms 1 puff b.d.  
|  | • Indacaterol 150 - 300 micrograms 1 capsule daily  |
| **Combination long-acting ß2-agonists + inhaled corticosteroids (ICS/LABA)** | |  |
|  | • Salmeterol/Fluticasone  
|  | • 125 micrograms/25 micrograms MDI 2 puffs b.d.  
|  | • 250micrograms/25 micrograms MDI 2 puffs b.d.  
|  | • 500 micrograms/50 micrograms Accuhaler 1 puff b.d.  
|  | • 100 micrograms/25 micrograms Accuhaler 1 puff b.d.  
|  | • Use with spacer to reduce local side effects  
|  | • Cease other LABA puffers to avoid double dosing  
|  | • LAMA with combination ICS/LABA is tolerated  |
| **Combination LABA/LAMA** | • Indacaterol/glycopyrronium 100 micrograms/50 micrograms 1 capsule inhaled daily  
|  | • Vilanterol/umeclidinium 25 micrograms/62.5 micrograms 1 puff daily  |
| **Theophylline** | • SR tablets 100 - 300 mg b.d.  
|  | • Monitor plasma concentrations to ensure safe therapeutic levels  |
Table 2. Medications for all stages of COPD (continued)\textsuperscript{6,7,8}

<table>
<thead>
<tr>
<th>Class</th>
<th>Suggested drug and dose</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Smoking cessation</strong> (see Smoking cessation, page 44 for further details)</td>
<td></td>
</tr>
<tr>
<td>Nicotine receptor antagonist blocker</td>
<td>• Bupropion and varenicline tartrate but not available on QH List of Approved Medicines (LAM)</td>
</tr>
</tbody>
</table>
| Nicotine replacement therapy (NRT) | • Transdermal patches  
• Consider combination therapies e.g. nicotine chewing gum, nicotine inhalers or nicotine minitabs |

**Complementary medications**

- **Oxygen therapy**
  - Used to improve blood oxygen levels in clients who have chronically low blood oxygen (SpO\textsubscript{2} < 88%) with the aim of reducing cardiac workload and eventually heart strain (heart failure)  
  - Long-term low flow oxygen (> 16 hours per day, between 1 - 3 L/m via nasal prongs) increases survival for clients with chronic respiratory failure  
  - Exercise caution in clients with PaCO\textsubscript{2} > 45 mmHg  
  - For clients with stable COPD when breathing air at rest and awake, and who have partial pressure of oxygen (PaO\textsubscript{2}) on arterial blood gases consistently < 55 mmHg  
  - For clients with stable COPD and evidence of either polycythaemia, pulmonary hypertension, or right-sided heart failure, and with PaO\textsubscript{2} ≤ 60 mmHg  
  - Where access to arterial blood gases is not possible a pulse oximetry O\textsubscript{2} reading of 88% or less on room air

- **Oral ti-costeroids**
  - A short course is useful in exacerbations to shorten duration of episode for clients with stable COPD  
  - Long term monotherapy with oral corticosteroids is not recommended in COPD because of an unfavourable benefit-to-risk ratio

- **Antibiotics**
  - Useful for treating exacerbations of COPD due to bacterial infections  
  - Used in frequent relapses/exacerbators with high sputum volume and concomitant bronchiectasis/asthma

- **Anti-tussives**
  - Trial of antitussive/expectorant for chronic sputum producers e.g. Bromhexine (Bisolvon, non PBS)  
  - Regular use of antitussives is contraindicated in stable COPD

- **Symptom relief**
  - Nebulised saline 5 - 10 mL QID prn
5. Care plans

Table 3. Care plan for people at high risk of COPD

<table>
<thead>
<tr>
<th>Action</th>
<th>Review frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Dx</td>
</tr>
<tr>
<td>Height</td>
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</tr>
<tr>
<td>Smoking cessation</td>
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<tr>
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</tr>
<tr>
<td>Lifestyle modification</td>
<td>✓</td>
</tr>
<tr>
<td>Influenza vaccine</td>
<td>✓</td>
</tr>
<tr>
<td>Pneumococcal vaccine</td>
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Table 4. Care plan summary for people with COPD

<table>
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<tr>
<th>Action</th>
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<th>Moderate</th>
<th>Severe</th>
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<td>Height</td>
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</tr>
<tr>
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<td>6 mthly</td>
<td></td>
</tr>
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<td>Weight</td>
<td>✓</td>
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<td>12 mthly</td>
<td>6 mthly</td>
<td></td>
</tr>
<tr>
<td>Smoking cessation</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
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<td>Pulse rate</td>
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<td>Lifestyle modification education</td>
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<td></td>
<td></td>
<td></td>
</tr>
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<td>Social emotional support</td>
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<td>12 mthly</td>
<td>12 mthly</td>
<td>6 mthly</td>
<td></td>
</tr>
<tr>
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<td>12 mthly</td>
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<td></td>
<td></td>
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<td>Pneumococcal vaccine</td>
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<td>Recommended - see the current edition of the <em>Australian Immunisation Handbook</em> for schedule</td>
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<td></td>
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<tr>
<td>FBC</td>
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<td>ECG</td>
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<tr>
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<tr>
<td>Self monitoring</td>
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<tr>
<td>HW/RN review</td>
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<td>6 mthly</td>
<td>6 mthly</td>
<td>2 mthly</td>
<td></td>
</tr>
<tr>
<td>MO/NP review</td>
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<td>6 mthly</td>
<td>6 mthly</td>
<td></td>
</tr>
<tr>
<td>Medication review</td>
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<td></td>
<td>12 mthly</td>
<td>12 mthly</td>
<td></td>
</tr>
<tr>
<td>Pulmonary rehabilitation</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td>Attend</td>
</tr>
<tr>
<td>Physiotherapist</td>
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</tr>
<tr>
<td>Specialist MO</td>
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<td>2 yrl</td>
<td>12 mthly</td>
<td>12 mthly</td>
<td></td>
</tr>
</tbody>
</table>
6. References
1. NACCHO, Evidence base to a preventive health assessment Aboriginal and Torres Strait Islander peoples in Preventive health assessment in Aboriginal and Torres Strait Islander peoples. 2012, RACGP: Melbourne

7. Resources

Coronary heart disease

High risk groups
- People with diagnosed coronary artery disease such as stable or unstable angina, myocardial infarction (MI), heart failure or other vascular or heart disease

Considerations for post-menopausal women
- Oestrogen and progestin agents should not be prescribed for primary or secondary prevention of coronary heart disease (CHD)\(^1\)
- If hormone replacement therapy is prescribed for other conditions, risks and benefits must be considered\(^1\)

Urgent referral
- For acute cardiovascular conditions (e.g. MI) or a sudden deterioration in condition, refer to Cardiovascular emergencies in the current edition of the PCCM, the MO/NP or cardiologist

Special considerations
- In managing CHD the following co-morbidities and screening must be considered
  - Dyslipidaemia, page 210
  - Hypertension, page 228
  - Diabetes type 2, page 196
  - Chronic kidney disease, page 112

1. What is coronary heart disease (CHD)?
- Also called coronary artery disease (CAD) and ischaemic heart disease (IHD)
- An inflammatory disorder involving the slow build-up of fatty cholesterol-containing deposits (plaque) in the inner wall of one or more of the heart's arteries (coronary arteries)
- The narrowing of the coronary arteries prevents oxygenated blood from reaching heart muscle causing ischaemia and pain (angina pectoris)
- When there is partial narrowing of the coronary arteries, chest pain may occur that lasts several minutes and is relieved with rest and nitroglycerine medication. This is known as stable angina\(^2\)
- Pain lasting longer than 15 minutes or occurring at rest is more likely to be a sign of an acute coronary syndrome\(^3\)
- Acute coronary syndrome is a term used collectively to describe acute myocardial infarction or unstable angina and is diagnosed by electrocardiogram (ECG), blood test results and clinical history
- Myocardial infarctions occur when the plaque ruptures and a clot forms to completely block blood flow to part of the heart muscle. This is a life-threatening situation which requires immediate management
- Heart failure can occur because of poor left ventricular function due to CHD
• Sudden death may occur from arrhythmias

2. Diagnosis of CHD

• Based on history, clinical presentation and risk factors
• May be confirmed with changes on the resting 12 lead ECG, and/or elevation of the cardiac enzymes (blood results)
• Further assessment may include a cardiac stress test or coronary angiography
• Many women report an ache, tightness, pressure or fatigue, not pain

3. Management

3.1 Factors complicating management

• In managing CHD the following co-morbidities and screening must be considered
  – Dyslipidaemia, page 210
  – Hypertension, page 228
  – Acute coronary syndromes often unmask pre-diabetes or type 2 diabetes. These people may not experience chest pain due to poor sensation (neuropathy) but may have symptoms such as shortness of breath, feeling ‘unwell’, clamminess and poor colour (see Diabetes type 2, page 196)
  – Chronic kidney disease, page 112
  – Assess for asthma, peripheral vascular disease, anaemia and thyroid disease

3.2 Support client self management

• Evidence links depression and social isolation with CHD
• Particular regard must be made to lifestyle modification to meet target management goals (see Table 1)
• Provide culturally appropriate information to the client about CHD and its risk factors
• Encourage the client to identify barriers to adequate lifestyle modification and medical adherence and to set goals to overcome those barriers based on their capacity and understanding
• Support the client to monitor any chest pain: how often they get it, when it occurs (rest or activity) or any changes to the pattern of pain (frequency, intensity and duration)
• Provide client with a CHD action plan (see Resource 1)
• Refer client to The COACH Program, a free phone coaching service which helps clients manage their condition (see Resource 2)
• Start a newly diagnosed CHD client on a Cardiac Rehabilitation care plan supplied by the Physiotherapist of the discharging facility
4. Medication

Table 1. Target management goals for risk factors

<table>
<thead>
<tr>
<th>Risk factor</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smoking</td>
<td>• Cease smoking completely and avoid secondhand smoke</td>
</tr>
</tbody>
</table>
| Diet and nutrition | • Limiting saturated fats to < 7% and trans fats to < 1% of total energy intake  
|                  | • Limiting salt intake ≤ 4g/day (1550 mg sodium)                      |
| Alcohol         | • ≤ 2 standard alcoholic drinks per day                                |
| Physical activity | • At least 30 minutes of moderate intensity (that which causes a noticeable increase in depth and rate of breathing) physical activity on most, if not all, days |
| Weight          | • Healthy waist circumference for men is < 94 cm                        |
|                 | • Healthy waist circumference for women is < 80 cm                      |
|                 | • BMI of 18.5 kg/m² - 24.9 kg/m² is considered a healthy weight range  |
| Lipids          | • LDL-C ≤ 2.0 mmol/L (< 1.8 mmol/L in stented clients)                  |
|                 | • Triglyceride (TG) < 2.0 mmol/L                                       |
|                 | • HDL-C > 1.0 mmol/L                                                   |
|                 | • NHDL-C ≤ 2.5 mmol/L                                                  |
| Blood pressure  | • < 130/80 mmHg                                                        |
| Diabetes        | • Fasting blood glucose level between 4.0 and 6.0 mmol/L                |
|                 | • HbA1c ≤ 7%                                                           |

3.3 Social emotional wellbeing

- Depression is approximately three times more common in clients after an MI than in the rest of the population
- Prognosis is worse for clients with both CHD and major depression or elevated depressive symptoms, than in clients with CHD alone
- Depression is also associated with decreased adherence to medicines and reduces the chances of successful modification of other risk factors and participation in cardiac rehabilitation
- Assess the client’s level of social support, as a lack of social support is a significant risk factor for CHD
- Depression and anxiety can be screened for by using a self- or clinician-rated mood scale. (for examples see Resource 3) Rating scales should be supplemented by a clinical assessment by a suitably qualified clinician to make a diagnosis
- Acknowledge any client concerns and reassure them that good adherence to appropriate treatment can improve the symptoms of their condition

3.4 After significant cardiac event

- Eligible clients include those who have had a myocardial infarction and unstable angina, exertional angina, controlled heart failure, revascularisation procedures or any other cardiac surgical procedures
- Provide education and counselling around the cardiac event, the need for heart rehabilitation, lifestyle changes, medications, how to manage CHD and the need for
ongoing monitoring
• Suspend CHD care plan and begin a cardiac rehabilitation care plan
• This written plan outlines staged resumption of exercise and activities
• Assigned by referring hospital by referral or on electronic information system
• Cardiologist/cardiac rehabilitation nurse review at 6 - 8 weeks
• Cardiothoracic surgeon review 6 - 8 weeks post surgery

4. Medications
• The aim of drug treatment is to reduce the risk of MI or death and to provide relief from symptoms
• A selective serotonin reuptake inhibitor (SSRI) is safe and effective to manage depression in people with comorbid CHD\(^1\) (potential interaction with Warfarin)
• All clients with CHD should be on statin medication to control cholesterol\(^2\)
• Do not use sildenafil citrate if the client has used any nitrate preparation (GTN) isosorbide in the last 24 hours or is hypotensive
• Consider GTN spray for a client who has recently experienced chest pain
• Encourage client to identify any barriers and solutions to taking medications
• MO/NP or pharmacist to review medications
Table 2. Medications for coronary heart disease\textsuperscript{1,6}

<table>
<thead>
<tr>
<th>Suggested medications</th>
<th>Tips</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Antiplatelet</strong></td>
<td></td>
</tr>
</tbody>
</table>
| • Aspirin              | • 75 - 100 mg unless contraindicated  
|                        | • If aspirin is contraindicated use Clopidogrel  
|                        | • After stenting 300 mg daily for 4 weeks then as above  
| • Clopidogrel           | Recommended in combination with Aspirin for  
|                        | • 1 year after all Acute Coronary Syndrome (ACS)  
| • Ticagrelor            | • 1 year after drug eluting stent implant and 6 weeks after bare metal stenting  

| **ACE inhibitors (ACEi)** |      |
| • Perindopril           | Recommended in combination with Aspirin for  
| • Ramipril              | • 1 year after all ACS  
| • Lisinopril            | • 1 year after drug eluting stent implant and 6 weeks after bare metal stenting  

| **Beta-blockers**       |      |
| • Atenolol              | In all clients unless contraindicated\textsuperscript{1}  
| • Metoprolol            | • For high risk clients including those with left ventricular (LV) systolic dysfunction, persistent evidence of ischaemia and ventricular arrhythmias\textsuperscript{4}  
| • Carvedilol            | • Maximise dose against heart rate  
| • Bisoprolol            | • Change to these beta-blockers in clients with left ventricular (LV) dysfunction  
| • Metoprolol XL         |      |

| **Statin**              |      |
| • Atorvastatin          | Statin therapy is recommended for all people with CHD and primary prevention in clients at high risk of coronary disease  
| • Simvastatin           | • High dose atorvastatin 80 mg nocte in clients who have had ACS  
| • Pravastatin           |      
| • Rosuvastatin          |      |

| **Anticoagulant**       |      |
| • Warfarin              | Should be considered in clients who have atrial fibrillation. Indicated for clients with ventricular thrombus as complication of ACS. Can be combined with Aspirin but should be monitored closely  
|                        | • For those with AF, where warfarin is inappropriate, consider Dabigatran, Rivaroxaban or Apixaban  

| **Calcium channel blockers** |      |
| • Amlodipine            | Diltiazem and Verapamil may be used instead of beta blockers as anti-anginal agents when beta blockers are contra-indicated  
| • Diltiazem             | • Amlodipine may be added to a beta blocker if symptoms are not controlled  
| • Verapamil             | • Diltiazem and Verapamil may cause severe bradycardia and heart block when used with beta-blockers  
|                        | • Amlodipine may cause palpitations and tachycardia  

| **Anti-anginal medications** |      |
| • GTN spray or tablets or patches | These medications are of no prognostic benefit – symptomatic relief only  
| • Isosorbide-Mononitrate |      
| • Nicorandil            |      
| • Ivabradine            |      |
## 5. Care plan

### Table 3. Coronary heart disease care plan

<table>
<thead>
<tr>
<th>Action</th>
<th>Dx</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
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<td>Once</td>
</tr>
<tr>
<td>BMI</td>
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<td>3 mthly</td>
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<tr>
<td>Weight</td>
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<td>3 mthly</td>
</tr>
<tr>
<td>Waist circumference</td>
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<tr>
<td>Heart rate</td>
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<tr>
<td>BP</td>
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<td>3 mthly</td>
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<tr>
<td>FBC</td>
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</tr>
<tr>
<td>UEC</td>
<td>✓</td>
<td>12 mthly</td>
</tr>
<tr>
<td>Fasting lipids</td>
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<td>12 mthly</td>
</tr>
<tr>
<td>Fasting blood glucose</td>
<td>✓</td>
<td>12 mthly or more frequently if not on target or if medications recently altered</td>
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<td>Urinalysis</td>
<td>✓</td>
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<tr>
<td>ACR</td>
<td>✓</td>
<td>12 mthly</td>
</tr>
<tr>
<td>ECG</td>
<td>✓</td>
<td>12 mthly</td>
</tr>
<tr>
<td>Risk factor education</td>
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<td>3 mthly</td>
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<tr>
<td>Lifestyle modification</td>
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<tr>
<td>Influenza vaccine</td>
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</tr>
<tr>
<td>Pneumococcal vaccine</td>
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<td>Recommended - see the current edition of the <em>Australian Immunisation Handbook</em> for schedule</td>
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<tr>
<td>CV risk assessment</td>
<td>✓</td>
<td>3 mthly</td>
</tr>
</tbody>
</table>
6. References

2. The State of Queensland (Queensland Health) and the Royal Flying Doctor Service (Queensland Section) 2013. Primary Clinical Care Manual. Cairns

7. Resources

Dementia

High risk groups
- Aboriginal and Torres Strait Islander people > 45 years
- Non-Indigenous Australians > 60 years
- Those at risk of stroke (see Stroke and transient ischaemic attack, page 300)

Urgent referral
- Geriatrician, geriatric psychiatrist, psychiatrist or neurologist for
  - early onset before the age of 65
  - uncharacteristic presenting signs and symptoms including focal neurological and Parkinson-like symptoms or features
  - violent, depressive or suicidal signs and symptoms

1. What is dementia?
- Dementia is a clinical syndrome characterised by a progressive and irreversible deterioration in cognition (which can include language, memory, perception and personality) resulting in overall functional decline
- It is not a normal part of ageing and typically affects people over the age of 65
- Consciousness is not impaired
- Impairment of cognitive function is commonly accompanied by deterioration in emotional control, social behaviour and motivation
- Signs and symptoms include
  - memory loss, especially of recent events
  - difficulty performing familiar tasks
  - confusion about time and place
  - language problems
  - problems with abstract thinking
  - poor or decreased judgement
  - problems misplacing things
  - personality or behavioural change
  - loss of initiative
- The rate of dementia in Aboriginal and/or Torres Strait Islander peoples is up to 5 times higher than non-Indigenous Australians
- There is considerable evidence to suggest lifestyle modification (see Lifestyle modification section) to manage vascular risk factors may also reduce the risk of developing dementia
- Common types of dementia include
  - Alzheimer's disease (50 - 75%)
  - vascular dementia (20 - 30%)
– dementia with Lewy Bodies (5 - 10%)
– frontotemporal dementia (up to 5%)

- The course of dementia is characterised in 3 stages\(^2\)
  – mild or early stage dementia where deficits such as self care and memory changes may become evident
  – moderate or middle stage dementia where deficits usually become obvious and the person requires assistance to maintain function
  – severe or late stage dementia characterised by high dependence

- An increased risk of dying prematurely amongst those with dementia\(^2\)

2. Diagnosis

- Dementia is a clinical diagnosis that has no single test to categorically confirm its presence or absence\(^2\) (see Figure 1)

- Initial screening may include the use of tools such as
  - the Kimberley Indigenous Cognitive Assessment (KICA) Screen or KICA Carer can be used for Aboriginal and Torres Strait Islander people from 45 years of age and should be followed by cognitive assessment using the KICA-Cog tool\(^7,9\) (see Resource 1)
  - the General Practitioner (GP) assessment of cognition (GPCOG) is designed for use by GPs for the general population\(^7\) (see Resource 2)
  - other screening tools include the Mini Mental State Examination (MMSE) and the Rowland Universal Dementia Assessment Scale (RUDAS) (see Resource 3)
  - functional assessment tools, such as the Functional Activities Questionnaire (FAQ) or the Barthel Index, assess a person’s activity of daily living function and level of disability\(^7\)

- Routine laboratory investigations along with evaluation of thyroid hormone levels, vitamin B12, folate and calcium should be undertaken to identify other potential co-morbidities and exclude differential diagnoses

- Neurological imaging should be undertaken to exclude intracranial pathology

- Differential diagnosis may include: drug or alcohol factors, thyroid disease, vitamin deficiency, medication side effects or mental illness such as severe depression, all of which could result in cognitive impairment\(^2,7\)

- Since dementia, delirium and depression have overlapping features and can co-exist, it is important to distinguish between these conditions using validated scales (see Resource 4) such as
  - the Confusion Assessment Method (CAM) to distinguish delirium from dementia and
  - the Geriatric Depression Scale (GDS) or the Cornell Scale for Depression in Dementia (CSDD) to distinguish depression from dementia

- Comprehensive assessment by a specialist is required to confirm the diagnosis and classify the dementia type\(^2,7\)
Identification of cognitive decline reported by the individual or carer through screening

Refer to MO

- **Cognitive assessment**
  - KICA tool
  - GPCog tool
  - other tools

- **Laboratory**
  - FBC, TSH, Chem20, B12, folate, MSU & BGL

- **Activities of daily living (ADL) assessment**
  - e.g. Functional Activities Questionnaire (FAQ)

- **Assess**
  - co-morbidities: depression, delirium, others

- **Neurological imaging**
  - to identify sub-type and exclude intracranial pathology

**Is delirium, depression or other pathology excluded?**

- **NO**
  - Treat delirium, depression or other pathology and reassess in 6 - 12 months

- **YES**
  - **Likely diagnosis of dementia**
    - Refer to geriatrician/specialist for confirmation of diagnosis and sub-type and advice concerning appropriate medications
  
  - **Provide client and carer education**
    - Signs and symptoms
    - Course and prognosis of sub-type
    - Treatments
    - Local care/support services/transport
    - Financial, legal and advocacy advice

  - Refer to community and access support services. See useful resources at end of guide

*Figure 1. Recognition, assessment and diagnosis care pathway*
3. **Management**

- Dementia is a stigmatising diagnosis
- All individuals with dementia have a life history and they are often aware when they are not consulted or valued as experts in their own health and lifestyle
- An understanding of the person with dementia is important, and inclusive language is one key element in reducing stigma and facilitating best care
- It is essential that people with dementia be respected and supported to maximise their involvement in their own care
- Management of dementia involves building a therapeutic partnership with the individual and the caregiver(s) who will support the person to live a productive and active life

3.1 **Support client self management**

- Provide resources to the individual with dementia (see Resource 5)
- Maximise independent living by supporting initiatives such as counselling, education, behaviour modification and exercise training as appropriate
- Utilise community support services to enhance safety, reduce risk and support the person to stay in their own home (e.g. Home and Community Care) (see Resource 6)
- Promote safety through awareness of hazards such as trips, slips, burns, fires and security doors
- Encourage the person, family and/or carers to identify barriers to adequate lifestyle modification and clinical adherence and to set goals to overcome those barriers based on their capacity and understanding

3.2 **Social emotional support**

- Individuals are often already aware there is something wrong and diagnosis may provide some relief
- Providing diagnosis will allow individuals to plan for future issues such as advanced care directives, financial control, enduring powers of attorney and guardianship
- Be alert for signs and symptoms of depression and anxiety noting that major depression may be difficult to detect in people with dementia (see Resource 4)
- Acknowledge concerns of the person with dementia or their carers and provide reassurance and support

3.3 **Behavioural changes**

- Unless there is imminent risk of harm, understanding behavioural changes due to medical factors (e.g. pain, constipation and incontinence), poor carer communication and unmet emotional needs is recommended before commencing medication
- As a consequence of brain changes a person with dementia may show signs of changing, and sometimes concerning, behaviours
- Behaviours may resolve on their own or escalate as the disease progresses
• A concerning behaviour is that which causes stress, worry, risk of or actual harm to the person, their carers, staff, family members or those around them and may include:
  – verbal or physical aggression
  – repetitive actions or questions
  – resistance or refusal of personal care or services
  – sexually inappropriate behaviour
  – problems associated with eating
  – socially inappropriate behaviour
  – intrusiveness, disorientation or agitation/frustration
  – sleep disturbance

• Concerning behaviours are an obstacle to achieving the best quality of life for the person with dementia and need to be addressed

• Discuss behaviour changes as they can be distressing for both the individual and carer (see Resource 7)
  – identify triggers to negative behavioural exacerbations
  – advise carers not to take behaviour personally and to recognise inappropriate behaviour as a symptom of dementia
  – use behavioural modification techniques, routine and medication to manage behavioural changes if required
  – music therapy has been successful with behavioural changes
  – avoid conflict by listening to the person's perspective whenever possible
  – use distraction only after empathetically listening and addressing concerns
  – maintain routine with regular activities and tasks
  – invest time in enjoyable activities that help soothe and calm the person with dementia
  – communicate quietly and calmly

3.4 Client functional capacity

• A referral to an occupational therapist should be made to regularly assess individual and carer ADLs (activities of daily living) and IADLs (instrumental activities of daily living) to ensure individual health, safety and support

3.5 Carer support

• Dementia is an increasing source of carer stress and burden
  – Over 80% of carers of people with dementia are family members
  – Provide the carer with resources to assist with their own needs (see Resources 5 and 8)
  – Ensure the carer is provided opportunities for support and is referred to all available service co-ordination and interventions
  – Encourage active participation in educational interventions for caregivers
  – Refer carers in remote areas to visiting services, telephone or online support
  – Carers may experience isolation and abuse if the person with dementia has become violent or agitated
• Referral to respite allows carers to have a break and for the person with dementia to stay in their home longer7 (see Resource 9)

• Tips for the carer of a person with dementia include12
  – depending on the severity of the dementia, explain to the person who you are, what you want to do and why
  – the person is likely to take cues from you and will mirror your relaxed and positive body language and tone of voice
  – move slowly and be mindful of fast hurried movements which might convey agitation
  – if the person is resistant or aggressive but is not causing harm, leave them alone to provide time to settle down
  – distract the person by talking about things they enjoyed in the past, and by giving them a non threatening item, such as a face washer, to hold while you are providing care
  – avoid arguing with the person
  – maintaining a quiet comfortable environment by regularly reducing noise levels (e.g. turning off the radio and television) and avoiding invasion of personal space may reduce agitation and the risk of assault and aggression
  – provide orienting cues such as a clock and calendar
  – provide reassurance when providing care, lower yourself to the person’s level and make eye contact, maintaining personal safety if the person becomes aggressive (e.g. provide care from the side to avoid being hit or kicked)
  – monitor food and fluid intake and elimination as dehydration and/or constipation can exacerbate confusion
  – walk with the person or engage them in an activity to help maintain mobility and physical activity
  – monitor compliance with medication and general physical health

3.6 Physical activity

• See Physical activity, page 26

• Attention to cardiovascular risk factors may improve cognitive function and/or reduce dementia risk6

• Consider increased physical activity as early intervention for dementia6

• Depending on client capability, encourage weekly11
  – 150 - 300 minutes of moderate intensity physical activity or
  – 75 - 150 minutes of vigorous intensity physical activity

• Be active on most, preferably all, days every week

• Be mindful of the risk of falling during exercise, especially in combination with medications

• Do muscle strengthening activities on at least 2 days each week to maintain strength, prevent falls, and to reduce risk factors for cardiovascular disease and type 2 diabetes11

• Refer to a strength and balance group
• Avoid long periods of sitting as much as possible\textsuperscript{11}

3.7 Diet and nutrition

• See Diet and nutrition, page 14

• Ensure the person has regular access and ability to find food and fluids

• Engage dietitian and speech pathologist assistance if required

• People with dementia may need to be encouraged to eat and drink orally for as long as possible\textsuperscript{7}

3.8 Palliation support

• Feelings of grief and loss need to be anticipated from the time of diagnosis to death and grief and bereavement counselling should be available to people with dementia and carers\textsuperscript{7}

• A conference with involved clinicians and the family can provide an opportunity to discuss end-of-life issues\textsuperscript{7}

• The use of advance care planning will help the person with dementia to retain some control over their care and personal life and should be considered where the possibility of death within 12 months is high\textsuperscript{7}

• The MO/NP in conjunction with the person should assess the impact of dementia on ADLs, arrange for visiting physiotherapist and/or occupational therapist for home assessment and other support such as wheel chairs and bedding

• Assess for home falls risk (see Resource 10)

• Individuals should be assessed for the risk of developing pressure ulcers using The Waterlow Pressure Ulcer Risk Assessment Tool (see Resource 11)

• Management of pressure ulcers involves
  -- addressing contributing factors e.g. continence, diabetes, age and immobility
  -- wound care
  -- use of pressure beds, mattresses or cushions
  -- regular mobilisation and repositioning

• If consenting, refer eligible people to community support services e.g. HACC and MASS (see Resource 6. and 12)

4. Medications

• Use of medications may slow cognitive decline but does not halt disease progression\textsuperscript{13}

• Minimise or eliminate medications that contribute to cognitive impairment

• Simplify medication regime by using blister/webster packs, electronic dispensers or provide medication prompting (by clinician or third party service)

• Table 1. provides specific medications for the treatment of dementia

• Consider anti-psychotics for behavioural or psychological symptoms such as anxiety, depression or agitation where there has been poor response to psychosocial interventions and for people who have a low to moderate risk of stroke\textsuperscript{14}
Section 2: Management of diagnosed conditions

- second generation anti-psychotics are safer than first generation
- always start on the lowest dose with gradual dosing increases as tolerated
- benzodiazepines should not be used for longer than 2 weeks
- be mindful of the falls risk when prescribing benzodiazepines

- Table 2. provides medication choices for the treatment of mood and behavioural changes in the person with dementia

- Treatment of depression in people with dementia should focus on non-drug therapies and carer interventions

- Ensure regular review of medications and the person’s response to them

### Table 1. Medications for dementia treatment

<table>
<thead>
<tr>
<th>Class</th>
<th>Suggested drug and dose</th>
</tr>
</thead>
</table>
| Cholinesterase inhibitors | • Donepezil 5 mg orally nocte for 4 weeks up to 10 mg nocte  
• Galantamine PR 8 mg orally mane for 4 weeks up to 16 mg (if deterioration after initial good response increase dose to 24 mg daily if tolerated)  
• Rivastigmine 4.6 mg transdermally, applied daily for 24 hours for 4 weeks up to 9.5 mg  
• Rivastigmine 1.5 mg orally b.d. for 2 weeks up to 3 mg b.d. with further increases to 4.5 mg and 6 mg b.d. may be considered every 4 weeks as tolerated |
|                      | • Requires specialist approval  
• May stabilise cognitive and functional decline in early stages  
• Side effects include gastrointestinal symptoms, insomnia, lethargy, depression, drowsiness, vivid dreams and weight loss  
• Use with caution in clients with asthma, COPD, peptic ulcer disease and cardiac conduction abnormalities |
| Glutamate blocker    | • Memantine 5 mg orally mane 1st week; 5 mg b.d. 2nd week; 10 mg mane and 5 mg nocte in 3rd week, thereafter 10 mg b.d. |
|                      | • Requires specialist approval  
• For advanced dementia  
• May be used in conjunction with a cholinesterase inhibitor  
• Side effects include confusion, dizziness, drowsiness, headaches, insomnia, agitation and hallucinations  
• Should be used with care in clients with renal impairment |
### Table 2. Medications for mood and behavioural changes in dementia\(^{6,11,13,14,15}\)

<table>
<thead>
<tr>
<th>Class</th>
<th>Recommended drug and dose</th>
</tr>
</thead>
</table>
| **Antipsychotic**      | • Risperidone 0.25 mg orally b.d. gradually increasing by 0.25 mg every 2 days if needed up to 2 mg daily  
                         | • Olanzapine 2.5 mg orally daily gradually increasing by 2.5 mg every 2 days if needed up to 10 mg daily in single or 2 divided doses (non PBS)  
                         | • Sometimes effective for psychotic symptoms (hallucinations and delusions) and behavioural symptoms (physical aggression)  
                         | • Avoid in people with a history of Parkinson's disease or who respond with strong extrapyramidal effects (muscle rigidity, tremor and Parkinsonism) and in those who have dementia with Lewy bodies  
                         | • Favour those with sedating qualities  
                         | • Where appropriate, seek informed consent from the client or caregiver  
                         | • Use of antipsychotics may increase the risk of stroke |
| **Benzodiazepines**    | • Temazepam 5 - 10 mg orally before bedtime  
                         | • Oxazepam 7.5 mg orally, 1 - 3 times daily  
                         | • Benzodiazepines may be useful for anxiety  
                         | • Shorter acting temazepam and oxazepam are preferred over longer-acting agents  
                         | • May increase confusion, sedation, increased falls risk, immobility, hypotension and reduced engagement  
                         | • Not recommended for severe aggression |
| **Antidepressants**    | • Citalopram  
                         | • Mirtazapine  
                         | • Sertraline  
                         | • For details see Depression, page 172 |
5. Care plan

### Table 3. Dementia care plan

<table>
<thead>
<tr>
<th>Action</th>
<th>Dx</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td>✔</td>
<td>Once</td>
</tr>
<tr>
<td>Weight</td>
<td>✔</td>
<td>6 mthly</td>
</tr>
<tr>
<td>BMI</td>
<td>✔</td>
<td>6 mthly</td>
</tr>
<tr>
<td>Waist circumference</td>
<td>✔</td>
<td>6 mthly</td>
</tr>
<tr>
<td>BP</td>
<td>✔</td>
<td>6 mthly</td>
</tr>
<tr>
<td>ECG</td>
<td>✔</td>
<td>12 mthly</td>
</tr>
<tr>
<td>FBC, TSH, Chem2o (E/LFT's), B12, Folate</td>
<td>✔</td>
<td>12 mthly</td>
</tr>
<tr>
<td>Urinalysis</td>
<td>✔</td>
<td>Each visit to assess for infection</td>
</tr>
<tr>
<td>Continenence</td>
<td>✔</td>
<td>Each visit</td>
</tr>
<tr>
<td>Carer education and support</td>
<td>✔</td>
<td>3 mthly</td>
</tr>
<tr>
<td>Nutrition</td>
<td>✔</td>
<td>3 mthly</td>
</tr>
<tr>
<td>Social emotional wellbeing</td>
<td>✔</td>
<td>Each visit</td>
</tr>
<tr>
<td>Influenza vaccine</td>
<td>✔</td>
<td>12 mthly</td>
</tr>
<tr>
<td>Pneumococcal vaccine</td>
<td></td>
<td>Recommended - see the current edition of the <em>Australian Immunisation Handbook</em> for schedule</td>
</tr>
<tr>
<td>Lifestyle modification</td>
<td>✔</td>
<td>Each visit</td>
</tr>
<tr>
<td>Medication R/V</td>
<td>✔</td>
<td>6 mthly</td>
</tr>
<tr>
<td>HW/RN review</td>
<td>✔</td>
<td>3 mthly</td>
</tr>
<tr>
<td>MO/NP review</td>
<td>✔</td>
<td>6 mthly</td>
</tr>
<tr>
<td>Occupational therapist</td>
<td>✔</td>
<td>Referral as required</td>
</tr>
<tr>
<td>Dentist</td>
<td>✔</td>
<td>12 mthly</td>
</tr>
<tr>
<td>Dietitian</td>
<td>✔</td>
<td>Referral as required</td>
</tr>
<tr>
<td>Specialist review</td>
<td>✔</td>
<td>Referral as required</td>
</tr>
<tr>
<td>HACC</td>
<td>✔</td>
<td>Referral as required</td>
</tr>
<tr>
<td>MASS</td>
<td>✔</td>
<td>Referral as required</td>
</tr>
<tr>
<td>Falls risk assessment</td>
<td>✔</td>
<td>As required</td>
</tr>
<tr>
<td>Palliation</td>
<td>✔</td>
<td>As required</td>
</tr>
</tbody>
</table>
6. References

1. Dementia: Diagnosis and Features (revised June 2013). In: eTG complete [Internet]. Melbourne: Therapeutic Guidelines Limited; March 2014; Accessed on 25/09/2014
7. Abbey J, et al., Clinical Practice Guidelines and Care Pathways for People with Dementia Living in the Community. 2008, Brisbane: Queensland University of Technology

7. Resources

Dental caries and periodontal disease

**High risk groups**
- People with poor diets due to poor choices or limited access to fresh foods
- People with diabetes, cardiovascular disease and other chronic conditions\(^1,2\)
- Pregnant women
- People with intellectual or physical impairment
- People living in areas without fluoridated tap water
- People living in rural and remote locations\(^3\)
- Aboriginal and Torres Strait Islander peoples
- Low income and socially disadvantaged persons

**Considerations for women of child-bearing age**
- Periodontal disease is a risk factor for pre-term and low birth weight babies\(^2\)

**Urgent referral**
- A MO/NP or dentist should review any client with facial swelling, avulsed (knocked out) teeth or significant soft tissue trauma
- For acute periodontal disease and toothache see the current edition of the *Primary Clinical Care Manual* (PCCM)

1. **What is dental caries and periodontal disease?**

- The two main oral diseases experienced by Australians are dental caries (tooth decay) and periodontal disease (gum disease)\(^4\)

- Dental caries is a pathological process resulting from localised destruction of tooth tissue\(^6\)
  - the process begins with demineralisation of the hard tissue by acids originating from plaque bacteria metabolising carbohydrates (from sugary foods and drinks)
  - in the presence of acid, calcium and phosphate ions that make up the tooth surface diffuse out of the tooth enamel (demineralisation). The enamel eventually breaks down to form a hole or cavity (dental caries or decay)
  - saliva plays an important role in the remineralisation of the tooth surface
  - the risk of dental caries is increased by any medical condition, medication or behaviour that causes a dry mouth

- Periodontal disease is a chronic inflammation of the gums and structures that support the teeth\(^5\)
  - caused by plaque bacteria which results in deep inflammation of the gums
  - progresses slowly and is often painless
  - the teeth loosen and may eventually be lost
  - if left untreated, may destroy the attachment that holds the tooth in the bone leaving a space or ‘pocket’ where more bacteria can collect and cause permanent bone loss

- Oral diseases impact on other disease processes, such as diabetes and heart disease\(^1\)
2. Diagnosis of dental caries and periodontal disease

• Identification of dental caries and periodontal disease is usually a simple case of gaining a brief history and examining the mouth

• Dental caries can be identified by
  – holes/cavities or structural damage which can be brown or black in appearance
  – early non-cavitated lesions which are white or frosty in appearance
  – symptoms such as pain or sensitivity
  – bad breath or a bad taste in the mouth
  – x-rays by a dental practitioner

• Periodontal disease can be identified by
  – gums that spontaneously bleed or bleed during brushing
  – inflamed and swollen or receding gums
  – pain or tenderness
  – bad breath or a bad taste in the mouth
  – sensitive, loose or lost teeth

3. Management

• The most effective way of improving and maintaining oral health is through effective oral hygiene, a healthy diet and regular dental visits

• While the use of fluoride is an important strategy in the prevention of dental caries, it is important for dental practitioners and health professionals to encourage evidence-based behaviours which promote and maintain oral health, namely
  – practise good oral hygiene
  – choose healthy snacks like fruits, cheese and vegetables
  – limit sugary foods and drinks
  – chew sugar free gum
  – do not smoke (see Smoking cessation, page 44)
  – breasfeed where possible
  – wear a mouthguard when playing contact sports
  – seek regular dental care
  – arrange for children to have a dental assessment by 2 years of age
  – drink plenty of tap water

3.1 Support client self management

• See Lifestyle modification section with particular reference to Smoking cessation, page 44, Alcohol reduction, page 4 and Diet and nutrition, page 14

• Encourage the client to identify barriers to adequate lifestyle modification and clinical adherence and provide goals to overcome those barriers based on their capacity and understanding

• Provide educational material regarding dental caries and periodontal disease and how they progress (Resource 1)
3.2 Social emotional support

- Depression and anxiety can be screened for by using a self- or clinician-rated mood scale (for examples see Resource 2). Rating scales should be supplemented by a clinical assessment by a suitably qualified clinician to make a diagnosis.
- Acknowledge any client concerns and reassure them that good adherence to appropriate treatment can improve the symptoms of their condition.

3.3 Diet and nutrition

- See Diet and nutrition, page 14
- The frequency of exposure to sugars and acids is the most significant dietary factor in the development of dental caries.
- All fermentable carbohydrates e.g. sugars and starches can contribute to dental caries.
- The frequency (not the amount) to which the oral environment is exposed to carbohydrates plays a major role in the decay process.
- Sticky foods e.g. dried fruit and lollies are a higher risk to teeth than foods which are easily washed away, e.g. cheese and fruits.
- Frequent snacking increases the length of time acids are present in the mouth and their contact with tooth surfaces.
- Greater time between snacking reduces acid and allows greater time for remineralisation (repair process).
- Limit the frequency of consumption of sweet and acidic drinks such as soft drinks, diet soft drinks, sports drinks and juice.
- If bottlefeeding, put only breastmilk, infant formula or water in the bottle.
- During interrupted sleep avoid sipping drinks, other than water.
- Avoid chewing or sucking acidic vitamin tablets.

3.4 Fluorides

- Water fluoridation is the most effective, equitable and efficient measure for reducing dental caries in a community.
- In communities where there is no access to a fluoridated drinking water supply:
  - dental practitioners can provide advice about access to alternate sources of fluoride such as mouth rinses, high fluoride toothpastes and fluoride supplements.
  - dental practitioners and other health professionals can advocate on behalf of their community for water supplies to be fluoridated while encouraging behaviours which promote and maintain oral health.
- For further information about fluoride efficacy and safety see Resource 3.

3.5 Smoking cessation

- See Smoking cessation, page 44
- Smoking reduces the blood oxygen supply to the gums and increases the risk of developing periodontal disease.
- Smoking causes bad breath and stained teeth and contributes to greater levels of tooth loss
- Acute ulcerative gingivitis occurs predominantly in smokers
- Smoking and excessive alcohol consumption are significant risk factors for developing oral cancers
- Provide literature and refer client to a suitable smoking cessation program (see Resource 3)

### 3.6 Toothpastes and gels
- Toothpastes and gels are the most common substances used by Australians for brushing teeth
- Use of these should be encouraged as they
  - provide a source of fluoride and promote remineralisation of the tooth surface
  - can reduce tooth sensitivity
  - reduce the build up of bacteria and plaque and
  - assist in the removal of surface stains
- From 6 months (the age that teeth first erupt) to 18 months of age
  - children's teeth should be cleaned without toothpaste by a responsible adult
  - for children living in areas with unfluoridated water supplies, teeth should be brushed twice a day with a small pea-sized amount of low fluoride toothpaste by a responsible adult
- Between 18 months and 5 years of age
  - the teeth should be cleaned twice a day with a small pea-sized amount of low fluoride children's toothpaste
  - when finished children should spit out, not swallow, and not rinse
  - children should always use toothpaste under the supervision of a responsible adult
  - children should avoid licking or eating toothpaste
- For everyone over 6 years of age
  - the teeth should be cleaned twice a day or more frequently with standard fluoride toothpaste
  - when finished spit out, do not swallow, and do not rinse
- Children should not be allowed to dispense toothpaste without supervision
- Keep toothpaste out of reach of children

### 3.7 Toothbrush or denture brush
- The use of a brush is the primary home-care strategy for most people
- A brush should be selected for maximum cleaning efficiency of all exposed tooth surfaces or prostheses
- The grip, head size, shape and flexibility of the bristles are important factors to match to the needs of the individual
- Its effectiveness depends on the technique used by, and the physical ability of, the
individual

- Hard brushes and abrasive toothpastes can damage the teeth and soft tissues, resulting in tooth wear, ulcerations and gum recession
- Electric toothbrushes are an effective, often superior, plaque removal tool and are especially useful where a person’s manual dexterity is limited
- Replace the toothbrush after 3 - 4 months or sooner if bristles become frayed with use

3.8 Interdental cleaning

- Toothbrushes do not adequately remove plaque from between teeth
- Used correctly, dental floss, ribbon and tape are effective means of removing plaque from between teeth
- Pre-threaded flossing tools and interdental brushes are available for people with limited dexterity

3.9 Fluoride varnish

- Can be used for the prevention of dental caries and those deemed at risk of dental caries
- In Queensland only dental practitioners can apply fluoride varnish
- Fluoride varnish releases fluoride over 24 hours to increase calcium fluoride reserves and long term fluoride release
- Can be applied to all teeth or as spot application on individual teeth or localised areas

3.10 Sugar-free chewing gum

- Can act as a mechanical salivary stimulant
- Accelerates the clearance of dietary substances and micro-organisms
- Dilutes and buffers acid
- Can also act as a vehicle for anti-plaque and re-mineralising agents

3.11 Reduce xerostomia (dry mouth)

- Saliva is the body’s natural defence against tooth decay and
  - washes away food debris from around the teeth
  - neutralises harmful acids produced by plaque and foods and drinks
  - protects the soft tissues of the mouth
  - prevents fungal infections
  - acts as a vehicle for minerals such as fluoride, calcium and phosphate, which help strengthen tooth enamel
- Reduced saliva flow is attributed to
  - increasing age
  - Sjögren’s syndrome, lupus, diabetes, Alzheimer’s disease and stroke
  - antidepressants, antihistamines, decongestants, antihypertensives, painkillers and diuretics
– chemotherapy and radiotherapy
– smoking and drinking alcohol or caffeinated beverages
– snoring and breathing through your mouth
– depression and stress
– dehydration from fever, vomiting, diarrhoea, exercise or low fluid intake

Actions to improve saliva production and relieve a dry mouth include
– chewing sugar-free gum
– using ‘saliva substitutes’ (available from most pharmacies)
– spraying water into the mouth frequently using an atomiser
– taking frequent small sips of water
– avoiding sugary sweets or drinks to relieve the feeling of a dry mouth
– not smoking
– limiting alcohol consumption
– limiting intake of caffeinated drinks such as tea, coffee and soft drinks
– using gravies and sauces to make food softer and easier to chew and swallow

3.12 Mouth rinses
• Should be used only as an adjunct to toothbrushing to deliver a therapeutic or cosmetic effect to the teeth
• Therapeutic agents in mouth rinses may be effective in reducing plaque and gingivitis
• Fluoride containing mouth rinses have caries-inhibiting effects
• Fluoride containing mouth rinses should only be prescribed by a dental practitioner
• Avoid mouth rinses containing alcohol

4. Medications
• For all clients with an acute periodontal disease or toothache see the current edition of the Primary Clinical Care Manual (PCCM) or refer to a dentist

4.1 Fluoride supplements
• The effectiveness of water fluoridation and fluoride toothpaste is well established
• Fluoride supplements (tablets or drops) are not recommended for use in Australia as a public health measure due to low levels of compliance
• Those living in regions with unfluoridated water supplies should be encouraged to consult a dentist for personal options on the use of fluoride supplements

4.2 Antibiotic prophylaxis
• Antibiotic prophylaxis for the prevention of infective endocarditis may be required before some dental procedures for clients (see Table 2) with certain cardiac conditions including
– cardiac valve repair
– previous infective endocarditis
- congenital heart disease (under certain conditions)
- cardiac transplantation
- rheumatic heart disease

• Anticoagulants may need to be ceased prior to dental procedures

---

Table 1. Topical applications to reduce dental caries

<table>
<thead>
<tr>
<th>Application</th>
<th>Use in clients at high risk of dental caries</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fluorides</strong></td>
<td></td>
</tr>
<tr>
<td>Fluoride varnish</td>
<td>• Applied to all at-risk dental surfaces by a dental practitioner only</td>
</tr>
<tr>
<td>22,600 ppm (22.6 mg/mL)</td>
<td>• Twice a year depending on caries risk</td>
</tr>
<tr>
<td>Fluoride mouthwash</td>
<td>• Can be used daily by adults and children aged 6 years or more who are at high</td>
</tr>
<tr>
<td>200 ppm (0.2 mg/mL)</td>
<td>risk of developing dental caries</td>
</tr>
<tr>
<td>Neutral fluoride mouthwash</td>
<td>• After rinsing, the mouthwash should be spat out, not swallowed</td>
</tr>
<tr>
<td>220 ppm (0.22 mg/mL)</td>
<td>• Can be used daily by adults and children aged 10 years or more who are high</td>
</tr>
<tr>
<td>900 ppm (0.9 mg/mL)</td>
<td>risk of developing dental caries</td>
</tr>
<tr>
<td>Neutral fluoride toothpaste</td>
<td></td>
</tr>
<tr>
<td>5000 ppm (5 mg/g)</td>
<td></td>
</tr>
<tr>
<td>Casein phosphopeptide-amorphous calcium phosphate (CPP-ACP)</td>
<td></td>
</tr>
<tr>
<td>CPP-ACP sugar-free gum</td>
<td>• Can be used 4 times daily, preferably after meals and after cleaning teeth</td>
</tr>
<tr>
<td></td>
<td>with a toothpaste containing fluoride</td>
</tr>
<tr>
<td>CPP-ACP cream</td>
<td>• Adults can apply the cream nightly to teeth after teeth cleaning and not</td>
</tr>
<tr>
<td></td>
<td>rinse out</td>
</tr>
</tbody>
</table>
### Table 2. Dental procedures requiring antibiotic prophylaxis for those at risk of infective endocarditis

<table>
<thead>
<tr>
<th>Prophylaxis always required</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Extraction</td>
</tr>
<tr>
<td>• Periodontal procedures including surgery, subgingival scaling and root planing</td>
</tr>
<tr>
<td>• Replanting avulsed teeth</td>
</tr>
<tr>
<td>• Other surgical procedures e.g. implant placement, apicectomy</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Prophylaxis required in some circumstances</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Consider prophylaxis for the following procedures, if multiple procedures are being conducted, the procedure is prolonged or periodontal disease is present</td>
</tr>
<tr>
<td>• full periodontal probing for clients with periodontitis</td>
</tr>
<tr>
<td>• intraligamentary and intraosseous local anaesthetic injection</td>
</tr>
<tr>
<td>• supragingival calculus removal/cleaning</td>
</tr>
<tr>
<td>• rubber dam placement with clamps (where risk of damaging gingiva)</td>
</tr>
<tr>
<td>• restorative matrix band/strip placement</td>
</tr>
<tr>
<td>• endodontics beyond the apical foramen</td>
</tr>
<tr>
<td>• placement of orthodontic bands</td>
</tr>
<tr>
<td>• placement of interdental wedges</td>
</tr>
<tr>
<td>• subgingival placement of retraction cords, antibiotic fibres or antibiotic strips</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Prophylaxis not required</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Oral examination</td>
</tr>
<tr>
<td>• Infiltration and block local anaesthetic injection</td>
</tr>
<tr>
<td>• Restorative dentistry</td>
</tr>
<tr>
<td>• Supragingival rubber dam clamping and placement of rubber dam</td>
</tr>
<tr>
<td>• Intracanal endodontic procedures</td>
</tr>
<tr>
<td>• Removal of sutures</td>
</tr>
<tr>
<td>• Impressions and construction of dentures</td>
</tr>
<tr>
<td>• Orthodontic bracket placement and adjustment of fixed appliances</td>
</tr>
<tr>
<td>• Application of gels</td>
</tr>
<tr>
<td>• Intraoral radiographs</td>
</tr>
<tr>
<td>• Supragingival plaque removal</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Standard prophylaxis</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Amoxycillin 2 g (child: 50 mg/kg up to 2 g) orally, 1 hour before the procedure OR</td>
</tr>
<tr>
<td>• Amoxycillin/ampicillin 2 g (child: 50 mg/kg up to 2 g) IV, just before the procedure OR</td>
</tr>
<tr>
<td>• Amoxycillin/ampicillin 2 g (child: 50 mg/kg up to 2 g) IM, 30 minutes before the procedure</td>
</tr>
</tbody>
</table>

**OR for those**
- hypersensitive to penicillin
- on long-term penicillin therapy or
- who have taken penicillin or a related beta-lactam antibiotic more than once in the previous month
- Cephazolin 2 g (child 30 mg/kg up to 2 g) IV, within 1 hour (ideally 15 - 30 minutes) before the procedure

**OR**
- Cephazolin 2 g (child 30 mg/kg up to 2 g) IM, 30 minutes before the procedure

**OR for those with**
- immediate hypersensitivity to penicillin
- Clindamycin 600 mg (child 20 mg/kg up to 600 mg) orally, 1 hour before the procedure or Clindamycin 600 mg (child 20 mg/kg up to 600 mg) IV over at least 20 minutes, just before the procedure
5. Care plan

Table 4. Care plan for dental caries and periodontal disease

<table>
<thead>
<tr>
<th>Action</th>
<th>Dx</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral health education</td>
<td>✓</td>
<td>Each visit</td>
</tr>
<tr>
<td>Lifestyle modification</td>
<td>✓</td>
<td>Each visit</td>
</tr>
<tr>
<td>Social emotional wellbeing</td>
<td>✓</td>
<td>12 mthly</td>
</tr>
<tr>
<td>Self manage education</td>
<td>✓</td>
<td>12 mthly</td>
</tr>
<tr>
<td>Dentist or therapist R/V</td>
<td>✓</td>
<td>12 mthly</td>
</tr>
<tr>
<td>MO/NP R/V</td>
<td>✓</td>
<td>As required</td>
</tr>
<tr>
<td>RN/IHW R/V</td>
<td>✓</td>
<td>Each visit</td>
</tr>
<tr>
<td>Dental specialist</td>
<td>✓</td>
<td>As per MO/NP or dentist referral</td>
</tr>
</tbody>
</table>
6. References


7. Resources

1. What is depression?

- Depression is a low or irritable mood, resulting in a loss of enjoyment or pleasure, which can be long lasting or recurrent and substantially impairs an individual's ability to function.\(^5,6\)
- Clinical depression is common, serious and treatable. If left untreated, it can result in disability and even death.\(^7\)
- Risk of recurrences are common even when treated appropriately, with each new episode increasing the risk of future episodes of depression.\(^7\)
- Depression varies for each person and may change over time.\(^4\)
- Signs of a depressive episode can include:\(^4\)
  - unusually sad or irritable mood that doesn’t go away
  - withdrawal from friends, family and from previously enjoyed activities
  - difficulty concentrating or remembering things
  - deterioration in school or work performance

2. High risk groups

- Permanent aged care facility residents\(^1\)
- Those who are physically inactive\(^1\)
- Those who are obese\(^1\)
- Those who consume high risk amounts of alcohol \(^1\)
- Aboriginal, Torres Strait Islander and culturally and linguistically diverse groups\(^2\)
- Those from a sexual minority or gender diverse group\(^2\)
- The homeless\(^2\)
- Those with disabilities\(^2\)
- Post partum women until child is 3 years of age

Considerations for women of child-bearing age

- A high index of suspicion for depression in both the antenatal and postnatal periods.\(^3\)
- Check compatibility and consider the risks and benefits of using antidepressants with pregnancy and lactation.\(^3,4\)
- All women should be assessed for symptoms of depression at least once during the antenatal and postnatal period using the Edinburgh Postnatal Depression Scale (EPDS)\(^3\)

Urgent referral

- Refer immediately to the MO/NP or mental health team if there is any risk of harm to themselves or others
- Lifeline 1300 131 114 (local call)
- Kids Helpline 1800 55 1800 (free call)
Section 2: Management of diagnosed conditions

Depression

- lack of energy, enthusiasm or motivation
- feeling slowed down
- restlessness or agitation
- changes in eating habits, body weight or sleeping patterns
- feelings of guilt or worthlessness
- thinking of death or suicide

Types of depression include

- **Major depression** occurs in episodes, in which at least 5 of the symptoms listed above need to have been present for at least 2 weeks for a diagnosis to be considered
- **Dysthymia** is a milder version of major depression but often lasts longer, sometimes for months. It has fewer physical symptoms than major depression, but is defined by more emotional symptoms such as dark or gloomy thoughts
- **Psychotic depression** is an extreme case of depression, in which a person's thoughts are characterised by: profound despair, guilt and self-loathing, strongly-held false beliefs, agitation, hallucinations and severe social withdrawal
- **Bipolar disorder** is characterised by symptoms of depression and mania at different times. A manic episode is a period of elevated mood with symptoms such as rapid speech, reduced need for sleep and excessive behaviours like gambling, promiscuity and shopping sprees
- **Perinatal depression** is experienced by approximately 10% of pregnant women and 16% of new mothers. The first 6 months of parenthood are the most vulnerable. Depression arising before baby's 3rd birthday is considered postnatal depression. Prevalence is higher amongst Aboriginal and Torres Strait Islander women and culturally and linguistically diverse women

2. Diagnosis of depression

Diagnosis of depression is summarised into 2 clinical processes

- the initial assessment
  - engaging the client explaining that assessment aims for an understanding of their situation to guide further actions
  - establishing the context of the client’s strengths e.g. their place in the family, school and/or employment and the local environment
  - the use of screening tools (see Resource 1) to provide a framework for psychosocial assessment
  - considering other explanations for distress (e.g. grief, conflict, stressful events) from developmental, familial or sociocultural events
  - reports and perspectives from other sources (e.g. family, carers, teachers) of changes in symptoms over time
- assessment of depressive symptoms
  - symptoms consistent with depression diagnostic criteria (see Table 1)
  - use of validated tools (see Resource 2)
  - excluding other causes of depressive symptoms such as mental health conditions, substance use or co-morbidities
  - assessing the risk of suicide and self harm when depressive symptoms are present
### Table 1. Criteria for diagnosis of depression

- Five (or more) of the following symptoms have been present during the same 2 week period and represent a change from previous functioning and
- At least one of the symptoms is either dysphoria or anhedonia
- Do not include symptoms that are clearly attributable to the physiological effects of a substance or to another medical condition

<table>
<thead>
<tr>
<th>Condition or state</th>
<th>Manifestation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dysphoria (depressed mood)</td>
<td>• Depressed mood most of the day, nearly every day, as indicated by either subjective report (e.g. feels sad or empty) or observation made by others (e.g. appears tearful)</td>
</tr>
<tr>
<td></td>
<td>• In children and adolescents, can be irritable mood</td>
</tr>
<tr>
<td>Anhedonia (loss of interest or pleasure)</td>
<td>• Markedly diminished interest or pleasure in all, or almost all, activities most of the day, nearly every day</td>
</tr>
<tr>
<td></td>
<td>• As indicated by either subjective account or observation made by others</td>
</tr>
<tr>
<td>Weight loss or gain</td>
<td>• Significant weight loss when not dieting, or weight gain (e.g. a change of more than 5% of body weight in 1 month), or decrease or increase in appetite nearly every day</td>
</tr>
<tr>
<td></td>
<td>• In children, consider failure to make expected weight gains</td>
</tr>
<tr>
<td>Insomnia or hypersomnia</td>
<td>• Nearly every day</td>
</tr>
<tr>
<td>Psychomotor agitation or retardation</td>
<td>• Nearly every day</td>
</tr>
<tr>
<td></td>
<td>• Observable by others, not merely subjective feelings of restlessness or being slowed down</td>
</tr>
<tr>
<td>Fatigue or loss of energy</td>
<td>• Nearly every day</td>
</tr>
<tr>
<td>Feelings of worthlessness or excessive or inappropriate guilt (which may be delusional)</td>
<td>• Nearly every day</td>
</tr>
<tr>
<td></td>
<td>• Not merely self-reproach or guilt about being sick</td>
</tr>
<tr>
<td>Diminished ability to think or concentrate, or indecisiveness</td>
<td>• Nearly every day</td>
</tr>
<tr>
<td></td>
<td>• Either by subjective account or as observed by others</td>
</tr>
<tr>
<td>Recurrent thoughts of death or suicide</td>
<td>• Not just fear of dying</td>
</tr>
<tr>
<td></td>
<td>• Recurrent suicidal ideation without a specific plan, or a suicide attempt or a specific plan for committing suicide</td>
</tr>
<tr>
<td>Functioning</td>
<td>• The symptoms cause clinically significant distress or impairment in social, occupational, or other important areas of functioning</td>
</tr>
<tr>
<td>Not explained by other psychotic disorders</td>
<td>• Such as schizophrenia, a delusional disorder or an unspecified schizophrenia spectrum</td>
</tr>
<tr>
<td>Lack of mania</td>
<td>• There has never been a manic episode or a hypomanic episode</td>
</tr>
</tbody>
</table>
3. Management

• Most depression is managed successfully in primary care and community settings with attention to relevant acute and chronic stressors, nature and course of the depression, the treatment options and follow up.9

• Ensure continuity of care by involving the client, carer and the care co-ordinator in all feedback and communications.

3.1 Special considerations

• Ensure cultural appropriateness of interaction and develop a management plan for the course of treatment.

• Good outcomes require sound alliance between the clinician and the client, adequate duration and co-ordination of treatment.7

• Exclude risk factors for suicide and/or self-harm.

• For coexisting mental health issues, treat concurrently with depression.

• Consider early referral for those
  – with protracted or severe depression
  – with atypical features
  – experiencing psychotic episodes
  – at high risk of suicide or self-harm

3.2 Suicide risk

• Depression is a significant risk factor for suicidal thinking and attempts, especially when combined with substance misuse.10

• All clinicians should have a high index of suspicion for suicide in the following clients with depression
  – male
  – age < 20 years and > 45 years of age
  – past major depressive episodes
  – previous suicidal attempts
  – excessive drug use
  – loss of rational thinking i.e. psychosis or severe depression
  – loss of a partner, social isolation or community separation (shame)
  – loss of supports, isolation or lack of community connection
  – a suicide plan
  – the client has the resources and ability to carry out their plan
  – a chronic or terminal illness

• Assess the client for suicidal risk using questions in Table 2.

• In the absence of suicidal ideation, clients must be given the contact details for support services such as Life Promotion Officers and crisis counselling. In the event that suicidal thoughts or feeling arise see Resource 3.
• For people who have attempted suicide, or for those supporting a person who has attempted suicide, provide them with relevant resources (see Resource 4)

### Table 2. Questions to assess suicide risk

<table>
<thead>
<tr>
<th>Assessment of suicide risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>• When people feel like you are/have been feeling, they sometimes think that life is not worth living - have you been thinking like that or have you ever thought like that?</td>
</tr>
<tr>
<td>• Have you been thinking of harming yourself?</td>
</tr>
<tr>
<td>• Are you thinking of suicide?</td>
</tr>
<tr>
<td>• If yes, how often are you having these thoughts?</td>
</tr>
<tr>
<td>• Have you thought about how you would act on these?</td>
</tr>
<tr>
<td>• Is there a plan? (the clinician should explore if the plan seems feasible, if the method is available to the client, and whether it is likely to be successful)</td>
</tr>
<tr>
<td>• Have you thought about when you might act on this plan?</td>
</tr>
<tr>
<td>• Are there any things/reasons that stop you from acting on these thoughts?</td>
</tr>
<tr>
<td>• Have you tried to harm yourself in the past?</td>
</tr>
<tr>
<td>• If yes, how many times?</td>
</tr>
<tr>
<td>• When was the most recent time?</td>
</tr>
<tr>
<td>• Do you know anyone who has tried to harm themselves?</td>
</tr>
<tr>
<td>• Have you had a friend who has suicided?</td>
</tr>
<tr>
<td>• Do you feel safe at the moment?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>If a suicide attempt has been made</th>
</tr>
</thead>
<tbody>
<tr>
<td>• What did you hope would happen as a result of your attempt? (Did they want to die, or end their pain?)</td>
</tr>
<tr>
<td>• Do you regret that you did not succeed?</td>
</tr>
<tr>
<td>• Do you still have access to the method used?</td>
</tr>
<tr>
<td>• Did you use alcohol or drugs before the attempt? What did you use?</td>
</tr>
<tr>
<td>• Do you have easy access to a weapon?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Assessment of risk of harm to others</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Have you thought of hurting anyone else?</td>
</tr>
<tr>
<td>• If yes, have you acted on these thoughts?</td>
</tr>
<tr>
<td>• Have you been involved in any fights recently?</td>
</tr>
<tr>
<td>• If yes, were you using drugs or alcohol at the time?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Added alerts to consider for Aboriginal or Torres Strait Islander people</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Recent social group bereavement?</td>
</tr>
<tr>
<td>• Recent social group suicide?</td>
</tr>
<tr>
<td>• Recent imprisonment?</td>
</tr>
<tr>
<td>• Previous or current trouble with legal issues?</td>
</tr>
<tr>
<td>• Conflict in social group?</td>
</tr>
</tbody>
</table>

| If you suspect your client is at risk of harm to themselves or others, refer immediately by phoning your local mental health unit |
3.3 Support client self management

- Provide relevant depression related resources (see Resources 5. and 6)
- Discuss the role lifestyle modification has in improving self esteem and mood with particular regard to physical activity and its effectiveness in treating major depression\(^{2,11}\)
- Encourage the client to identify barriers to adequate lifestyle modification and medical adherence and to set goals to overcome those barriers based on their capacity and understanding
- Encourage women with depression during pregnancy and in the year following the birth of a child, to regularly perform the Edinburgh Postnatal Depression Scale (EPDS) (see Resource 7)

3.4 Social emotional support

- Provide a safe, convenient and confidential environment with flexible appointments and short waiting times\(^{10}\)
- Clinicians should be motivated, non-judgemental, considerate, easy to relate to, have good interpersonal and communication skills, treat all people with equity and allow adequate time for the needs of the client\(^{10}\)
- Ensure the client is well informed about services and their rights, are involved in service provision and encouraged to involve parental/carer support\(^{10}\)
- Build strong therapeutic relationships which will form the basis of continuing care\(^{10}\)

3.5 Carer support

- The burden of caring for someone with depression is an increasing source of depression (and stress) in its own right
- Provide the carer with resources to assist with their own needs (see Resource 8)
- Ensure carer is supported and engaged in service coordination\(^{6}\)
- Refer carers in remote areas to available carer support services
- Carers may experience isolation and abuse if client has become violent or agitated
- Referral to respite allows carers to have a break and enables clients to stay in their home longer (see Resource 9)

3.6 Substance abuse

- It is important to recognise that identification and management of co-occurring substance abuse is vital to effective treatment of depression\(^{7}\)
- Symptoms of depression and substance abuse need to be given equal priority in treatment
- Referral to Alcohol Tobacco and Other Drugs Services (ATODS) to help client if dual diagnosis or substance abuse exists
- Refer to Alcohol reduction, page 4 and Smoking cessation, page 44

3.7 Psychotherapy

- There are several forms of psychotherapy including cognitive behaviour therapy (CBT),
and interpersonal psychotherapy (IPT) which should be considered as first line treatment.

- Psychotherapy has been associated with lower relapse rates after two to three years.
- Psychotherapy can be as effective as antidepressants for mild to moderate depression.
- Psychotherapy may provide skills which reduce risk of relapse.
- Psychotherapy requires considerable commitment by the person with depression.
- Psychotherapy requires referral to an appropriately trained expert therapist, i.e., social worker, mental health worker or psychologist.

General principles of psychotherapy include:
- The client is assisted to problem-solve stressors which adversely affect their mental health as they present and.
- The client is encouraged to resist negative thoughts and replace them with more realistic thoughts, and to resist pessimism and self-criticism.
- Behavioural tasks designed to improve mood by increasing activity (behavioural activation).

### 3.8 Relapse and recurrent depression

- Depression is often recurrent and most presentations will be for a second or subsequent episode of depression.
- Key to effective intervention is continuing with treatment, the quality of the therapeutic relationship and the extent to which treatment goals are shared.
- Identify any barriers to medication adherence (e.g., nausea and sexual dysfunction) and discuss solutions (e.g., medication change or counselling).
- Check adequacy of dose and adequacy of treatment period.
- Check diagnosis and consider a second opinion.
- Consider second line treatments.
- Maintain the client’s understanding of and their participation in their treatment regimen for at least 1 year for a first episode and 3 years for recurrent depression.

### 4. Medications

- In clients who have benefitted from initial antidepressant treatment, treatment should not be stopped before 9 to 12 months after recovery.
- Medications should be monitored regularly, with special attention to adherence.
- Interactions with medications, alcohol and other drugs such as beta-blockers, anti-hypertensive medication, oral contraceptives and corticosteroids can occur.
- Tricyclic antidepressants should not be used for treating major depressive disorder in adolescents.
- There is evidence of an increased risk of suicidal behaviour in young people under 25 years of age taking SSRIs.
- Figure 1. illustrates medication management of clients with depression.
4.1 Antidepressant choice

- When choosing an antidepressant start with any first line medication (see Table 2)
- Ensure regular client follow up every 2 - 4 weeks once therapy has been commenced until satisfactory response has been achieved
- There is currently little evidence to guide the choice of drug selection when changing drugs\(^2\)
- An alternate antidepressant is indicated where there is good adherence and
  - no therapeutic response despite medication dose increases over 4 - 8 weeks
  - only a partial response despite maximal dosing
- To reduce the risk of drug interactions when changing or commencing antidepressants, consider
  - their class and
  - an adequate washout period has elapsed (refer to the *Australian Medicines Handbook* or the *Therapeutic Guidelines* for details)\(^2\)
- Discuss with the client that
  - SSRIs and SNRIs are well tolerated, however there are a wide range of potential side effects
  - potential improvement in symptoms occurs from 2 weeks after medication use
Provide and regularly review non-pharmacological interventions

Psychotherapy
- CBT and/or IPT

Lifestyle modification
- Address substance abuse
- Physical activity program
- Healthy eating

Social emotional support

Carer support

Use any first line antidepressant

Review after 2 - 4 weeks

If no initial or partial response
- Increase the dose

Review after 2 - 4 weeks

If no response or there are unacceptable side effects
- Switch to a different drug
- If partial response increase dose within recommended range
- If unable to increase dose switch to a different drug

Review after 2 - 4 weeks

Urgent referral if
- Signs of psychosis
- Significant risk of suicide
- Physically unwell

Responds well
- Continue at current dose

If no initial or partial response
- Increase the dose

Review after 2 - 4 weeks

If no response or there are unacceptable side effects
- Switch to a different drug
- If partial response increase dose within recommended range
- If unable to increase dose switch to a different drug

Review after 2 - 4 weeks

Only choose a second line drug if
- After unsuccessful trials of at least 2 first line treatments OR
- For clients who responded well to second line drugs previously

Figure 1. Medication management of depression\(^3\)
**Table 3. Medications for depression**

<table>
<thead>
<tr>
<th>Class</th>
<th>Recommended drug and dose</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First line medications</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Serotonin selective reuptake inhibitors (SSRIs)</strong></td>
<td></td>
</tr>
<tr>
<td>• Fluoxetine 20 mg mane up to 80 mg</td>
<td>• Adverse effects include: nausea, diarrhoea, constipation, insomnia, orthostatic hypotension, dizziness, hyponatraemia, increased risk of GI bleeding and sedation</td>
</tr>
<tr>
<td>• Fluvoxamine 50 mg mane up to 300 mg</td>
<td>• Weight gain of more than 6 kgs may occur</td>
</tr>
<tr>
<td>• Escitalopram 10 mg mane up to 20 mg</td>
<td>• Sexual dysfunction, including loss of libido, anorgasmia and ejaculatory disturbance, may also occur</td>
</tr>
<tr>
<td>• Paroxetine 20 mg mane up to 60 mg</td>
<td>• Use with caution in pregnancy</td>
</tr>
<tr>
<td>• Sertraline 50 mg mane up to 200 mg</td>
<td>• Compatible with breastfeeding</td>
</tr>
<tr>
<td>• Citalopram &lt; 65 years old 20 mg mane &gt; 65 years old 10 mg mane</td>
<td>• If drowsiness occurs give in the evening</td>
</tr>
<tr>
<td>• Adverse effects include: nausea, diarrhoea, constipation, insomnia, orthostatic hypotension, dizziness, hyponatraemia, increased risk of GI bleeding and sedation</td>
<td>• Careful titration and follow up is required</td>
</tr>
<tr>
<td>• Serotonin and noradrenaline reuptake inhibitors (SNRIs)</td>
<td></td>
</tr>
<tr>
<td>• Desvenlafaxine CR 50 mg mane up to 200 mg</td>
<td>• Adverse effects as above, plus tachycardia, hypertension</td>
</tr>
<tr>
<td>• Venlafaxine CR 75 mg mane up to 375 mg</td>
<td>• Useful when other treatments have been unsuccessful or for severe anxiety disorders</td>
</tr>
<tr>
<td>• Duloxetine 60 mg mane up to 120 mg</td>
<td>• Not to be used in children and adolescents</td>
</tr>
<tr>
<td>• Mirtazapine 15 - 30 mg nocte up to 60 mg</td>
<td>• Careful titration and follow up is required</td>
</tr>
<tr>
<td>• Atypical</td>
<td>• Consider SSRI as an alternative in pregnancy</td>
</tr>
<tr>
<td>• Amitriptyline 25 - 50 mg nocte up to 300 mg</td>
<td>• Compatible with breastfeeding</td>
</tr>
<tr>
<td>• Nortriptyline 25 - 50 mg daily up to max of 150 mg</td>
<td></td>
</tr>
<tr>
<td>• Clomipramine, Dothiepin, Doxepin and Imipramine 25 - 50 mg daily up to max dose of 300 mg daily</td>
<td>• If a TCA is to be used, nortriptyline has the lowest incidence of sedation, orthostatic hypotension and anticholinergic effects</td>
</tr>
<tr>
<td>• Agomelatine 25 mg nocte up to 50 mg</td>
<td></td>
</tr>
<tr>
<td><strong>Second line medications</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Monoamine oxidase (MAOs)</strong></td>
<td></td>
</tr>
<tr>
<td>• Moclobemide 300 - 450 mg daily up to 600 mg</td>
<td></td>
</tr>
<tr>
<td><strong>Tricyclic antidepressants (TCAs)</strong></td>
<td></td>
</tr>
<tr>
<td>• If a TCA is to be used, nortriptyline has the lowest incidence of sedation, orthostatic hypotension and anticholinergic effects</td>
<td></td>
</tr>
</tbody>
</table>
5. Care plan

<table>
<thead>
<tr>
<th>Table 4. Care plan for clients with depression</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Action</strong></td>
</tr>
<tr>
<td>Full physical health check</td>
</tr>
<tr>
<td>TFT, FBC, LFTs, UEC, glucose, syphilis serology, fasting lipids</td>
</tr>
<tr>
<td>BP</td>
</tr>
<tr>
<td>Height, weight and BMI</td>
</tr>
<tr>
<td>Waist circumference</td>
</tr>
<tr>
<td>Electrocardiogram</td>
</tr>
<tr>
<td>Self harm risk</td>
</tr>
<tr>
<td>Medication review</td>
</tr>
<tr>
<td>MSE</td>
</tr>
<tr>
<td>Lifestyle modification</td>
</tr>
<tr>
<td>ATODs service review</td>
</tr>
<tr>
<td>Mental Health Worker review</td>
</tr>
<tr>
<td>Mental health team</td>
</tr>
<tr>
<td>MO/NP R/V</td>
</tr>
<tr>
<td>Psychiatrist</td>
</tr>
</tbody>
</table>

6. References

7. Resources
3. Life promotion and counselling support is available at BluePage at www.bluepages.anu.edu.au or beyondblue at www.beyondblue.org.au or depressioNet at www.depressioNet.org.au or the Black Dog Institute at www.blackdoginstitute.org.au or Lifeline 1300 131 114 (local call) or Kids Helpline 1800 55 1800 (free call)
4. For support after a suicide attempt; Finding your way back (a resource for people who have attempted suicide), Guiding their way back (a resource for people who are supporting a person after a suicide attempt) and Finding our way back (a resource for Aboriginal and Torres Strait Islander peoples after a suicide attempt) all available at http://www.beyondblue.org.au/the-facts/suicide-prevention/support-after-a-suicide-attempt
6. For perinatal depression related resources see PANDA perinatal depression helpline 1300 726 306 available at http://www.panda.org.au or Queensland Centre for Perinatal and Infant Mental Health (see their promotion and prevention resources) available at http://www.health.qld.gov.au/qcpimh
7. The Edinburgh Postnatal Depression Scale is available at http://www.beyondblue.org.au/resources/for-me/pregnancy-and-early-parenthood/edinburgh-postnatal-depression-scale and a site to assist clinicians with understanding the validity and limitation of the EPDS available at http://meta4RN.com/epd
Developmental delay in children

**High risk groups**¹,²

- Children of women with a substance dependency during pregnancy
- Children of women who give birth over the age of 35
- People with family history of developmental delay¹
- Aboriginal and Torres Strait Islander children²
- Children living in remote communities²
- Children living in out of home care²
- Children who live with medical and/or mental health co-morbidities²
- Children from culturally and linguistically diverse backgrounds²
- Children who have survived adverse events as neonates²

**Considerations for women of child-bearing age**

- Consider inherited and persisting environmental causes of developmental delay and implications for future children
- Provide information and support for women to avoid using alcohol and other substances in pregnancy
- Assist family to consider future reproductive choices and offer contraception if desired

**Urgent referral**

- Refer to a MO/NP, paediatrician or allied health professional if there is
  - strong parental concerns
  - significant loss of developmental skills
  - lack of response to sound or visual stimuli
  - poor interaction with adults or other children
  - difference between right and left sides of the body in strength, movement and tone
  - loose and floppy movements (low tone) or stiff and tense movements (high tone)
  - poor achievement of developmental milestones
  - suspicion of poor growth (see Poor growth in children, page 278)
  - any suspicion of developmental delay

**Child safety notification**

- Refer to Appendix 2: Child safety reporting, page 498 if
  - psychosocial factors during the presentation suggest risk of harm to child
  - substance use during pregnancy is likely to impact on a parent’s ability to meet a child’s needs
1. What is a developmental delay in a child?

- Development is influenced from birth by interaction with the environment and is facilitated by secure and loving relationships with primary caregivers.

- Child development describes the child’s ability to change and adapt over time to achieve increasing complexity of function across given domains including:
  - gross motor
  - fine motor and speech
  - hearing and language
  - social, emotional and cognition

- These domains develop incrementally with new skills built on what has already been achieved.

- Rates of development will vary within normal ranges for a child’s age.

- Developmental delay is when the rates of development fall behind in one or more domains compared to what is expected.

- Developmental delay can be:
  - transient e.g. when a child recovers from serious illness, prolonged hospitalisation, family stress or extreme prematurity or
  - persistent (ongoing) which is usually related to issues of understanding, communication, hearing, seeing and/or moving.

- Persistent developmental impairments have a direct effect on the child’s functional ability (see Table 1).

- Risk factors for persistent developmental delay are due to events that occur before, during and after birth (see Table 2).

- Early recognition of developmental delay, impairment and disability in children can minimise long term complications and improve outcomes.

2. Diagnosis of developmental delay in a child

- Diagnosis of developmental delay is made by a thorough history and examination of the child.

- History features include:
  - skills that are not acquired
  - skills that do not progress or remain static
  - regression in skills and unusual behaviours
  - identifying childhood risk factors such as: prenatal exposures (e.g. to alcohol), prematurity, disability and sensory impairments, genetic factors and syndromes, neonatal factors, illness, emotional difficulty, temperament, behaviour, abuse and neglect, stressful life events
  - identifying family risk factors such as: parental psychopathology, family dysfunction, family violence, poverty, substance abuse, family structure
  - identifying community risk factors such as prejudicial social demographic factors

- A multi-organ examination may reveal: dysmorphology, neurocutaneous stigma,
Developmental delay in children

- Neurological dysfunction, poor growth and nutrition and hearing and vision problems
- Developmental screening may be undertaken using screening tools such as the Parents Evaluation of Developmental Status (PEDS) and the Ages and Stages Questionnaire (ASQ) (see Resource 1)
- The ‘Red Flag’ guide is a helpful tool to assist clinicians identify developmental delay (see Resource 2)

**Table 1. Functional effects of developmental impairments**

<table>
<thead>
<tr>
<th>Function</th>
<th>Ability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Executive functioning</td>
<td>• Compromised ability to plan, predict, organise, prioritise, sequence, initiate, follow through, set goals, comply with contractual expectations, be on time and adhere to a schedule</td>
</tr>
<tr>
<td>Memory</td>
<td>• Information input, integration, forming associations, retrieval, learning from past experiences&lt;br&gt;• Will repeat mistakes in spite of punishment</td>
</tr>
<tr>
<td>Abstract concepts</td>
<td>• Time, maths or money</td>
</tr>
<tr>
<td>Judgement</td>
<td>• Difficulty making sound decisions, differentiating safety from danger, friend from stranger or fantasy from reality</td>
</tr>
<tr>
<td>Information processing</td>
<td>• Difficulty forming links and associations&lt;br&gt;• Unable to apply a learned rule in new setting</td>
</tr>
<tr>
<td>Communication and language</td>
<td>• Difficulty comprehending the meaning of language&lt;br&gt;• Difficulty answering questions accurately&lt;br&gt;• May agree, make things up or fill in the blanks to appear understood&lt;br&gt;• May talk excessively, yet be unable to engage in a meaningful conversation&lt;br&gt;• Appears to understand instructions, but does not comprehend and fails to apply them&lt;br&gt;• Disengaged socially&lt;br&gt;• Lack of eye contact</td>
</tr>
<tr>
<td>Cognitive pace</td>
<td>• May think more slowly&lt;br&gt;• May require minutes to generate an answer rather than seconds</td>
</tr>
<tr>
<td>Perseveration</td>
<td>• May be rigid, get stuck, have difficulty stopping an activity or starting a new one&lt;br&gt;• May react strongly to changes in setting, program or personnel</td>
</tr>
<tr>
<td>Maturity</td>
<td>• Functions socially, emotionally and cognitively at a younger level of development than chronological age</td>
</tr>
<tr>
<td>Impulsivity</td>
<td>• Acts first and then sees the problem after the fact</td>
</tr>
<tr>
<td>Auditory pace</td>
<td>• Central auditory delay means language is processed more slowly, requiring more time to comprehend&lt;br&gt;• Child processes every third word of normally paced speech</td>
</tr>
</tbody>
</table>
Table 2. Causes of persistent developmental delay\textsuperscript{2,4,6}

<table>
<thead>
<tr>
<th>Prenatal factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chromosomal</td>
</tr>
<tr>
<td>• Trisomy 21 (Down Syndrome)</td>
</tr>
<tr>
<td>• Fragile X Syndrome</td>
</tr>
<tr>
<td>• 22 q11 deletion (velocardiofacial syndrome)</td>
</tr>
<tr>
<td>Genetic</td>
</tr>
<tr>
<td>• Tuberous Sclerosis</td>
</tr>
<tr>
<td>• Metabolic disorder e.g. phenylketonuria</td>
</tr>
<tr>
<td>Syndromes</td>
</tr>
<tr>
<td>• Rare syndromes such as Williams Syndrome, Prader-Willi Syndrome and Cornelia de Lange Syndrome</td>
</tr>
<tr>
<td>Infections</td>
</tr>
<tr>
<td>• Rubella virus, Cytomegalovirus</td>
</tr>
<tr>
<td>Drugs and toxins</td>
</tr>
<tr>
<td>• Excessive alcohol (FASD)</td>
</tr>
<tr>
<td>• Inhalants</td>
</tr>
<tr>
<td>• Medications</td>
</tr>
<tr>
<td>Major structural anomalies of the brain</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Perinatal factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low birth weight children are at risk of these complications after birth</td>
</tr>
<tr>
<td>• Lack of oxygen (hypoxia)</td>
</tr>
<tr>
<td>• Trauma</td>
</tr>
<tr>
<td>• Infections</td>
</tr>
<tr>
<td>• Biochemical abnormalities such as low sugar levels</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Postnatal factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Head injuries</td>
</tr>
<tr>
<td>• Motor car accidents</td>
</tr>
<tr>
<td>• Near drowning accidents</td>
</tr>
<tr>
<td>Infections such as meningitis and encephalitis</td>
</tr>
<tr>
<td>Poisons</td>
</tr>
<tr>
<td>Social emotional</td>
</tr>
<tr>
<td>• Living in a remote location</td>
</tr>
<tr>
<td>• Exposure to violence, abuse and neglect</td>
</tr>
<tr>
<td>• Children in care</td>
</tr>
<tr>
<td>• Parental mental health and physical health concerns</td>
</tr>
</tbody>
</table>

3. Management

- This may be a critical and stressful period for parents and caregivers and it is important to work with and support them during this difficult time\textsuperscript{7}
- Early intervention is important in achieving best outcomes for children\textsuperscript{7}
- Children with developmental delay have a range of special needs and require a variety of supports at critical periods during their lives\textsuperscript{5,6}
3.1 Support child and family self management

- Managing developmental delay involves building a therapeutic partnership with parents or caregivers to support children to live healthy productive lives by:
  - providing a safe, engaging environment where children can explore, experiment and develop their skills
  - being available and supporting children when they need help, care or attention
  - dealing consistently with inappropriate behaviour
- Early intervention and identification of the strengths of the child, parent or carer will assist in goal setting and monitoring development to achieve best outcomes for the child
- Provide resources and support service information for developmental delay (see Resource 1)
- Provide the parent or carer with practical strategies to support the development of the child with a developmental delay (see Table 3)
- Consider ongoing developmental needs and the impact of developmental delays at different ages, including long term implications as appropriate, to enable families to plan for support over time
- Present a progressive lifelong picture of strengths and difficulties for the family rather than a single diagnosis
- Provide information about available services
- Consider practical supports available to families such as: therapy interventions, community supports, support services available from education providers, respite and financial assistance such as carer’s allowance
- Where appropriate, provide harm minimisation information to assist women and families to avoid environmental risk factors in future pregnancies (see Alcohol reduction, page 4, Smoking cessation, page 44, Sexual and reproductive health, page 32)
- Encourage the child, parent or carer to identify barriers to adequate lifestyle modification and treatment adherence and develop goals to overcome those barriers based on their capacity and understanding

2 Social emotional support

- The child with a developmental delay can place great stress on carers, who may be unaware of the needs of these children (see Table 3)
- Assess the emotional position of the carer or parent of the child
- Depression and anxiety can be screened for by using a self- or clinician-rated mood scale (for examples see Resource 4). Rating scales should be supplemented by a clinical assessment by a suitably qualified clinician to make a diagnosis
- See Depression, page 172 and Anxiety disorders, page 62
Table 3. Strategies to support the development of the child with a developmental delay

<table>
<thead>
<tr>
<th>Social emotional development</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Assist the child to separate from the parent e.g. a routine in saying goodbye</td>
</tr>
<tr>
<td>• Value and acknowledge the child’s efforts</td>
</tr>
<tr>
<td>• Provide opportunities for the child to play in proximity to, and, with others</td>
</tr>
<tr>
<td>• Expand the child’s reciprocal play skills e.g. tickling, peek-a-boo, chase</td>
</tr>
<tr>
<td>• Encourage independent play</td>
</tr>
<tr>
<td>• Ask the child to visualise how their behaviour might affect others</td>
</tr>
<tr>
<td>• Use clear, calm instructions when dealing with problem behaviour</td>
</tr>
<tr>
<td>• Follow through with consequences for poor behaviour (see Resource 3)</td>
</tr>
<tr>
<td>• Ask the child to identify appropriate behaviour</td>
</tr>
<tr>
<td>• Encourage the child to use language to describe feelings</td>
</tr>
<tr>
<td>• Provide praise for desirable behaviour</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Speech and language development</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Use pictures to reinforce language</td>
</tr>
<tr>
<td>• Speak slowly, deliberately and directly to the child</td>
</tr>
<tr>
<td>• Paraphrase what the child has said</td>
</tr>
<tr>
<td>• Establish alternative communication means for non-verbal children</td>
</tr>
<tr>
<td>• Label objects with words</td>
</tr>
<tr>
<td>• Model clear speech</td>
</tr>
<tr>
<td>• Actively listen to the child</td>
</tr>
<tr>
<td>• Use storybook interactions as a basis for talking, learning and turn taking</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Motor development</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Plan physical activities for times when the child has the most energy</td>
</tr>
<tr>
<td>• Provide simple, fun obstacle courses that the child is capable of completing</td>
</tr>
<tr>
<td>• Provide opportunities and activities for the child to use handheld tools and objects</td>
</tr>
<tr>
<td>• Incorporate singing and dancing into many activities</td>
</tr>
<tr>
<td>• Place objects in the child’s hand to hold and feel</td>
</tr>
<tr>
<td>• Give the child blocks, clay, paper, pencils, crayons, safety scissors and play dough, to manipulate and use (cutting, pasting, drawing and writing)</td>
</tr>
<tr>
<td>• Take the child outside to run, climb and jump around</td>
</tr>
<tr>
<td>• Have the child practise buttoning and unbuttoning, zipping clothes, and opening and closing doors and items in their immediate environment</td>
</tr>
<tr>
<td>• Get the child involved with meal preparation</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Adaptive behaviour development</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Teach life skills related to daily living and self care</td>
</tr>
<tr>
<td>• Break skills into steps (use visual cues if appropriate)</td>
</tr>
<tr>
<td>• Plan experiences that are relevant to the child’s world</td>
</tr>
<tr>
<td>• Teach how to apply skills to other settings e.g. at the park</td>
</tr>
<tr>
<td>• Minimise distractions and the possibility for over stimulation</td>
</tr>
<tr>
<td>• Teach and model personal hygiene habits such as hand washing</td>
</tr>
<tr>
<td>• Allow the child to practise feeding dressing and toileting themselves</td>
</tr>
<tr>
<td>• Teach and model rules and practices for playground safety, staying with the group and safety in the classroom</td>
</tr>
<tr>
<td>• Teach the child to provide personal identification information when asked</td>
</tr>
<tr>
<td>• Teach procedures to deal with dangerous situations e.g. in the event of a fire or stranger danger</td>
</tr>
</tbody>
</table>

(continued)
**Table 3. Strategies to support the development of the child with a developmental delay** (continued)

<table>
<thead>
<tr>
<th>Cognitive development</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Provide teachers with the child’s preferences and interests to structure education</td>
</tr>
<tr>
<td>• Allow the child time to complete tasks and practise skills</td>
</tr>
<tr>
<td>• Demonstrate concepts rather than giving directions verbally</td>
</tr>
<tr>
<td>• Provide visual information to complement verbal i.e. show as well as tell</td>
</tr>
<tr>
<td>• Demonstrate how things work</td>
</tr>
<tr>
<td>• Be consistent with routines</td>
</tr>
<tr>
<td>• Use age appropriate learning materials</td>
</tr>
<tr>
<td>• Use short, simple sentences to ensure understanding</td>
</tr>
<tr>
<td>• Repeat instructions or directions frequently and ascertain if further clarification is necessary</td>
</tr>
<tr>
<td>• Minimise distractions and transitions</td>
</tr>
<tr>
<td>• Provide a positive learning environment</td>
</tr>
<tr>
<td>• Avoid overwhelming the child with multiple or complex instructions</td>
</tr>
<tr>
<td>• Encourage participation in school activities</td>
</tr>
<tr>
<td>• Use visual discrimination games such as “I spy”</td>
</tr>
</tbody>
</table>

### 3.3 Children in care

- The two main factors which have an influence on whether children with developmental delay might enter the care system are
  - evidence of abuse and/or neglect and
  - risks to growth and development, including failure to thrive (see Poor growth in children, page 278)
- Children with developmental difficulties are at higher risk of harm than those without developmental problems
- Developmental difficulties also impact on a child’s ability to cope with change
- Moving between family of origin, kinship care and foster care involves changes in culture, language and location which challenges the child with a developmental delay and further impacts on behaviour
- Children in care can experience
  - repeated attempts at reunification with birth or extended family
  - access with family which may be planned or unplanned
  - placement breakdown
  - multiple placements prior to long term placements being identified
  - changes in childcare or school depending on placement
- Be mindful of the stress and anxiety imposed upon the child with a developmental delay

### 3.4 Carer support

- Caring for children with developmental delay may be time consuming and difficult and early intervention strategies can be resource intensive
- Depending on the level of developmental delay, some children may require intensive care and supervision and can often be in need of high level health service co-ordination
• A large number of carers raising children with developmental delay are foster carers or grandparents and other kin, rather than biological parents
• Ensure parents and carers are provided with opportunities and support and are engaged in service coordination and intervention
• Encourage active participation in educational interventions for caregivers
• Refer parents and carers in remote areas to visiting carer support services, social worker and psychologist
• Referral to respite allows parents and carers to have a break from the demands of difficult to manage children (see Resource 5. and 6)

3.5 Learning

• Children with developmental delay typically have difficulty with the stimulating, demanding and complicated environment of school and homework which becomes more apparent in the classroom context
• Ensure parent and child are engaged with education services such as Education Queensland early childhood development programs and guidance officers

3.6 Early intervention support services

• Consider assessments, interventions and management by a multidisciplinary team for delays in multiple domains
• Engage allied health professionals, community providers and education providers to provide comprehensive management and support strategies
• Consider periodic review and support from child development services, including speech therapists, occupational therapists, physiotherapists and psychologists
• Liaise with other providers including disability and education services
• Clinicians should assist the parent to access services
• Other appropriate referrals may include
  – paediatrician
  – mental health team
  – social worker
  – Disability Services Queensland
  – Home and Community Care (HACC)
• Consider practical supports available to families such as
  – daycare
  – mums and bubs groups
  – playgroup
  – local community services
  – online supports (see Resource 7)
• Providing parents or carers of children with a developmental delay with a behaviour or attachment based parenting program can provide the strategies and skills to deal with more difficult behavioural problems (see Resource 8)
3.7 Monitoring

- Provide ongoing monitoring of physical health, growth and nutrition by local clinicians and paediatrician including
  - milestones
  - growth charts (height, weight, head circumference and BMI)
  - eyes and vision
  - ears and hearing
- Investigations may be ordered by the paediatrician e.g. imaging, blood and urine tests, if required
- Consider review by other specialists as required e.g. geneticist or neurologist

4. Medications

- There are no medications recommended for the broad treatment of developmental delay
- Medications may however be required at the discretion of the treating specialist to help with certain symptom complexes
### 5. Care plan

**Table 4. Care plan for children with a developmental delay**

<table>
<thead>
<tr>
<th>Action</th>
<th>Dx</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td>✓</td>
<td>At each child health check</td>
</tr>
<tr>
<td>Weight</td>
<td>✓</td>
<td>At each child health check</td>
</tr>
<tr>
<td>Head circumference</td>
<td>✓</td>
<td>At each child health check</td>
</tr>
<tr>
<td>Hearing</td>
<td>✓</td>
<td>With routine health checks. Consider formal testing if concerns about developmental delay</td>
</tr>
<tr>
<td>Vision</td>
<td>✓</td>
<td>With routine health checks. Consider formal testing if concerns about developmental delay</td>
</tr>
<tr>
<td>Neurobehavioural assessment and testing</td>
<td>✓</td>
<td>As guided by clinical need. Consider formal testing around time of school entry if significant concerns</td>
</tr>
<tr>
<td>Formal developmental assessments</td>
<td>✓</td>
<td>ASQ or PEDS as determined by suitably trained clinician</td>
</tr>
<tr>
<td>Client self management support</td>
<td>✓</td>
<td>At each appointment and providing anticipatory guidance at significant points such as birth, early childhood, school entry, puberty, transition to adulthood</td>
</tr>
<tr>
<td>Social emotional wellbeing</td>
<td>✓</td>
<td>At each contact</td>
</tr>
<tr>
<td>RN/HW R/V</td>
<td>✓</td>
<td>Each visit</td>
</tr>
<tr>
<td>MO/NP R/V</td>
<td>✓</td>
<td>As required</td>
</tr>
<tr>
<td>Dietitian</td>
<td>✓</td>
<td>As required</td>
</tr>
<tr>
<td>Speech pathologist</td>
<td>✓</td>
<td>As required</td>
</tr>
<tr>
<td>Physiotherapist</td>
<td>✓</td>
<td>As required</td>
</tr>
<tr>
<td>Occupational therapist</td>
<td>✓</td>
<td>As required</td>
</tr>
<tr>
<td>Paediatrician</td>
<td>✓</td>
<td>As required</td>
</tr>
<tr>
<td>Psychologist</td>
<td>✓</td>
<td>As required</td>
</tr>
<tr>
<td>Social worker</td>
<td>✓</td>
<td>As required</td>
</tr>
</tbody>
</table>
6. References


7. Resources


5. Carers Queensland www.carersaustralia.com.au


8. The Positive Parenting Program (PPP) is available at http://www.triplep.net/glo-en/home/ and the Circle of Security (COS) parenting program is available at http://circleofsecurity.net/
Section 2: Management of diagnosed conditions | 195
Diabetes type 2

High risk groups

- Aboriginal and Torres Strait Islander peoples
- Non-Indigenous people over 40 years with high blood pressure, are overweight or have a family history of diabetes
- Young people who are overweight or obese
- History of gestational diabetes (GDM)
- Polycystic ovarian syndrome who are obese
- Those over 55 years of age

Considerations for women of child-bearing age

- Infertility in obese women
- Multiple early miscarriages
- Monitoring of blood glucose levels to avoid increased risk of adverse outcome of pregnancy including fetal abnormalities
- Early screening for undiagnosed type 2 and GDM if pregnant

Urgent referral

- Refer to the MO/NP and the current edition of the PCCM for
  - Diabetic ketoacidosis (DKA) or a hyperosmolar hyperglycaemic state
  - High risk foot complications such as wound infection, gangrene or osteomyelitis
  - Hypoglycaemia i.e. a BGL of < 4.0 mmol/L

Special considerations

- In managing type 2 diabetes the following co-morbidities and screening must be considered
  - Dyslipidaemia, page 210
  - Chronic kidney disease, page 112
  - Hypertension, page 228
  - Child Eyes and vision - child, page 374 and adult Eyes and vision - adult, page 446
  - Foot screening for peripheral neuropathy and peripheral vascular disease

1. What is diabetes?

- Diabetes is a chronic metabolic disease characterised by high blood glucose (BGL) levels and disturbance of carbohydrate, fat and protein metabolism

- There are two major types of diabetes
  - type 1 diabetes mellitus, typically occurring in children, and
  - type 2 diabetes mellitus, which predominantly occurs in adults

- Inadequately controlled diabetes can affect the vascular system (blood vessels) causing microvascular (small blood vessels) and macrovascular (large blood vessels) complications
• Poor blood flow to nerves reduces their ability to function (diabetic neuropathy)\textsuperscript{5}
• People who develop type 1 diabetes have an abrupt onset and symptoms are obvious
• People who develop type 2 diabetes may be asymptomatic but can also present with symptoms such as thirst, frequent urination and weight loss

\textbf{1.1 Type 2 diabetes}

• The most common type of diabetes occurring in 90\% of people with diabetes
• There is a growing trend for young people to develop this disease due to the obesity epidemic
• Aboriginal and Torres Strait Islander peoples are particularly prone to type 2 diabetes
• Characterised initially by hyperinsulinaemia and insulin resistance
• Over time, insulin production decreases, contributing to hyperglycaemia

\textbf{1.2 Pre-diabetes}

• Pre-diabetes is blood glucose levels elevated above normal range but does not meet the criteria for a diagnosis of diabetes mellitus\textsuperscript{6}
• People with pre-diabetes are at increased risk of developing diabetes and cardiovascular diseases (myocardial infarction, stroke, peripheral vascular disease)
• Individuals with pre-diabetes should be encouraged to increase physical activity and maintain a healthy weight to prevent progression to type 2 diabetes

\textbf{2. Diagnosis}

• Blood glucose levels using a blood glucose meter may be used for testing for undiagnosed diabetes as long as it is confirmed by venous plasma measurement\textsuperscript{6} (see Table 1)

\begin{table}[h]
\centering
\begin{tabular}{|l|c|c|c|}
\hline
 & \textbf{Fasting blood glucose (FBG)} & \textbf{Random blood glucose (RBG)} & \textbf{Oral glucose tolerance test (OGTT) 2 hour result (mmol/L)} \\
\hline
\textbf{Normal (unlikely)} & <5.5 & <5.5 & <7.8 \\
\hline
\textbf{Pre-diabetes (do OGTT)} & 5.5 - 6.9 & 5.5 - 11.0 & 7.8 - 11.0 \\
\hline
\textbf{Diabetes (likely)} & \geq 7.0 & \geq 11.1 & \geq 11 \\
\hline
\end{tabular}
\caption{Diagnostic criteria for type 2 diabetes\textsuperscript{6}}
\end{table}

• \text{FBG} \geq 7.0 \text{mmol/L on two separate occasions}
• 2 hour postprandial >11.0 mmol/L OGTT on two separate occasions
• HbA1c \geq 6.5\% (48 mmol/mol) on two separate occasions (a medicare rebateable diagnostic test)

• The following clinical signs and symptoms may be present
  – tiredness and lethargy
  – hunger
  – excessive thirst
  – excessive urination
– numbness/tingling in feet or legs
– blurred vision
– itching and skin infections e.g. boils/thrush
– weight loss

3. Management

• The long term goals of managing type 2 diabetes are to prevent complications, improve quality of life and prevent premature death \(^6\) (see Table 2)

• A long term effective way for clients to maintain adequate blood glucose levels and avoid diabetes related complications is to modify their lifestyles (see Lifestyle modifications section)

• For further clinical principles of management for adults with diabetes see Resource 1.

Table 2. Goals for management \(^6\)

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blood glucose level (BGL)</td>
<td>• Fasting 6 - 8 mmol/L (8 - 10 mmol/L postprandial)</td>
</tr>
<tr>
<td>HbA1c</td>
<td>• ≤ 7.0%</td>
</tr>
<tr>
<td>Total cholesterol (TC)</td>
<td>• &lt; 4.0 mmol/L</td>
</tr>
<tr>
<td>LDL-C</td>
<td>• &lt; 2.0 mmol/l</td>
</tr>
<tr>
<td>HDL-C</td>
<td>• &gt; 1.0 mmol/L</td>
</tr>
<tr>
<td>Non-HDL-C</td>
<td>• &lt; 2.5 mmol/L</td>
</tr>
<tr>
<td>Triglycerides (TG)</td>
<td>• &lt; 2.0 mmol/L</td>
</tr>
<tr>
<td>Blood pressure (BP)</td>
<td>• &lt; 130/80</td>
</tr>
<tr>
<td>Body mass index (BMI)</td>
<td>• 5 - 10% loss for people overweight or obese with type 2 diabetes • People with BMI &gt; 35 and comorbidities or BMI &gt; 40, greater weight loss measures should be considered</td>
</tr>
<tr>
<td>Urinary albumin excretion (ACR)</td>
<td>• &lt; 20 microgram per min (timed overnight collection) • &lt; 20 mg/L (spot collection) • &lt; 3.5 mg/mmol: women • &lt; 2.5 mg/mmol: men</td>
</tr>
<tr>
<td>Cigarette consumption</td>
<td>• Zero</td>
</tr>
<tr>
<td>Alcohol intake</td>
<td>• ≤ 2 standard drinks per day for men and women</td>
</tr>
<tr>
<td>Physical activity</td>
<td>• At least 30 minutes of moderate physical activity on most/all days of the week (total ≥ 150 minutes/week)</td>
</tr>
</tbody>
</table>

3.1 Factors complicating management

• In managing type 2 diabetes the following comorbidities and screening must be considered
  – Dyslipidaemia, page 210 is a common comorbidity in people with type 2 diabetes and independent risk for macrovascular complications \(^6\)
  – Chronic kidney disease, page 112 is a common result of poorly controlled blood glucose and high blood pressure \(^6\)
3.2 Supporting client self management

- See Lifestyle modification section
- Discuss what type 2 diabetes is and how it progresses
- Provide relevant diabetes resources (see Resources 1, 2, and 3)
- Refer client to The COACH Program, a free phone coaching service which helps clients manage their condition (see Resource 4)
- Encourage the client to identify barriers to adequate lifestyle modification and medical adherence and to set goals to overcome those barriers based on their capacity and understanding
- Refer to a diabetes educator for ongoing education, self management and health promotion

3.3 Social emotional support

- A self or clinician-rated mood scale can be used to assess for altered mood (for examples see Resource 5) Rating scales should be supplemented by a clinical assessment by suitably qualified mental health clinician to make a diagnosis
- Acknowledge any client concerns and reassure them that good adherence to appropriate treatment can improve the symptoms of their condition

3.4 Diet modification and weight control

- Diabetes magnifies the effects of dyslipidaemia (such as cholesterol and triglycerides found in nutritional poor foods) which block arteries and cause acute myocardial infarcts
- Refer to a dietitian and reinforce a healthy eating plan
- Encourage client to maintain a healthy BMI (see Diet and nutrition, page 14 and Overweight and obesity in adults, page 260)
- Encourage any degree of weight loss in clients with overweight or obese BMI
- Eat foods in amounts appropriate for energy requirements to lose weight
- Avoid foods that cause high blood fats including: deep-fried foods, turtle fat, dugong fat, fatty meats, chips, pies and full fat dairy products
- Avoid high energy sugary foods like biscuits, cakes, alcohol and sports and soft drinks
- Substitute a high fat and high sugar diet with a high fibre and 2 serves of fruit and 5 serves of vegetables each day
- Steam foods or use a non stick pan with spray oils
- Add fish 3 times per week and choose lean cuts of meat with plenty of vegetables

- Hypertension, page 228 in diabetes increases the risk of macrovascular disease, retinopathy, neuropathies and the progression of chronic kidney disease
- it is important to check for these complications along with calculation of absolute cardiac risk using the Appendix 1: Australian cardiovascular risk charts, page 494
- reducing cardiovascular risk requires regular assessment and management of blood pressure, renal function and lipids
3.5 Physical activity
- At least 30 minutes of moderate physical activity (activity that makes you “puff”) on most, if not all, days of the week (total ≥ 150 minutes/week)
- Improves glucose tolerance (as insulin sensitivity increases), blood pressure and lipid profiles
- Increases weight loss, wellbeing and work capacity
- See Physical activity, page 26

3.6 Infections
- Poorly controlled diabetes
  - causes damage to the inside of the blood vessels leading to poor wound healing and increased chance of infection and
  - stops the blood cells that fight infection (white blood cells) from working properly
- Infections raise blood glucose levels
- People with diabetes are at higher risk of contracting chest, urinary tract, skin and kidney infections
- Teach the client to be aware of wounds
- Cover any wounds and seek treatment immediately
- Any client experiencing cloudy, bloody or painful urination should seek treatment immediately
- Influenza and pneumococcal vaccines are recommended for people with diabetes

3.7 Neuropathy
- Poorly controlled diabetes causes peripheral nerve damage resulting in pins-and-needle sensations in the feet and legs which may be painful or cause loss of sensation
- Nerve damage may also result in decreased sensation with loss of ability to feel pain and touch
- Any client with type 2 diabetes presenting with peripheral neuropathy should be referred to the MO/NP for evaluation

3.8 Foot care
- Look for injury, cuts, blisters, ulcers, calluses or foot deformity
- Provide treatment early (on the same day) if any problems are found
- Apply moisturising cream to dry/tough/thickened skin (not between the toes)
- Wear well-fitting walking or sports shoes or rubber-soled sandals with soft socks as much as possible
- Before putting on your shoes, check inside with your hand for rough spots, stones and grass seeds
- Seek help with nail trimming if necessary
- If a client has difficulty seeing their feet then recommend family or any health
professional to review

- Refer to a podiatrist for review of an active foot wound or complication
- A foot check is completed every year to review, check and inform current foot risk status

### 3.9 Teeth and gums

- High blood glucose leads to high glucose in saliva (spit), less saliva production, dry mouth, gum infection, loose teeth and tooth decay
- Client should
  - choose to drink water over sports and soft drinks
  - clean their teeth and gums at least twice a day
  - use floss and mouthwashes
- Refer for dental review every 6 months
- See Dental caries and periodontal disease, page 162

### 3.10 Eye damage

- For visual health checks in children refer to Eyes and vision - child, page 374 and in adults, Eyes and vision - adult, page 446
- Inform client that poorly controlled diabetes increases the risk of developing eye problems
- High blood glucose levels alters the lens shape causing blurriness
- Correction glasses are prescribed once blood glucose levels are stabilised
- Cataract (cloudiness of the lens) occurs early in people with diabetes causing blurred vision, glare intolerance, poor night vision and difficulty interpreting colours. Surgical treatment is necessary when this affects lifestyle
- Retinopathy occurs as a result of microvascular disease of the retina causing permanent visual distortion unable to be corrected
- Maculopathy (changes to the macula) is the most common cause of visual loss in people with diabetes
- All newly diagnosed clients should be referred to an ophthalmologist or optometrist
- All Indigenous clients with diabetes should have an eye exam annually or for non-Indigenous clients, second yearly

### 3.11 Sexual function

- High blood glucose levels can cause
  - damage to the autonomic nervous system
  - deterioration in penile blood vessels and nerves
  - a reduction in penile sensation
  - difficulty in penile erection
  - vaginal infections
- Medications are available (non-Pharmaceutical Benefits Scheme)
• Do not use sildenafil citrate, tadalafil or vardenafil if the client has used any nitrate preparation in the last 24 hours or is hypotensive

3.12 Pre-diabetes
• As with all above but with intensive lifestyle modification
• Annual oral glucose tolerance testing (OGTT) or HbA1c
• Frequency can be reduced if no deterioration in results and client’s modifiable lifestyle has improved

4. Medications
• Medications assist in maintaining the blood glucose levels within healthy limits
• Reinforce the importance of taking medications
• A small number of clients commenced on metformin may experience gastrointestinal side effects including diarrhoea
• All decisions to start or change client’s medication must be done in conjunction with the MO/NP or diabetes educator
• Figure 1. provides a management process for blood glucose control in type 2 diabetes

4.1 Oral hypoglycaemics
• Oral medications (e.g. metformin, sulphonylureas) should be continued when using insulins as
  – early cessation before blood glucose targets are achieved can result in significant hyperglycaemia
  – ongoing use can reduce weight gain
  – ongoing use allows a smaller insulin dose and can reduce the risk of hypoglycaemia or hyperglycaemia
• See Table 3. for a list of oral hypoglycaemics
**Address lifestyle modification factors including**
- Diet and nutrition, page 14
- Physical activity, page 26
- Smoking cessation, page 44

If HbA1c is > 53 mmol/mol (7%) move down the algorithm

---

**1st Line**
- Metformin is the usual 1st line therapy unless contraindicated or not tolerated

<table>
<thead>
<tr>
<th>Metformin</th>
<th>SU</th>
<th>DPP-4 inhibitor</th>
<th>SGLT2 inhibitor</th>
<th>Insulin®</th>
<th>Acarbose</th>
<th>TZD</th>
</tr>
</thead>
</table>

**2nd Line**
- If metformin was not used as 1st line, add it now if not contraindicated
- Sulphonylureas (SUs) are the recommended initial agent to add to metformin
- If SUs are contraindicated or not tolerated, another agent is recommended

<table>
<thead>
<tr>
<th>SU</th>
<th>DPP-4 inhibitor</th>
<th>GLP-1RA</th>
<th>SGLT2 inhibitor</th>
<th>Insulin®</th>
<th>Acarbose</th>
<th>TZD</th>
</tr>
</thead>
</table>

**3rd Line**
- Consider triple oral therapy or GLP-1R agonist or insulin

<table>
<thead>
<tr>
<th>SU</th>
<th>DPP-4 inhibitor</th>
<th>GLP-1RA</th>
<th>Insulin®</th>
<th>SGLT2 inhibitor</th>
<th>Acarbose</th>
<th>TZD</th>
</tr>
</thead>
</table>

---

**THEN**
One of the following

**If on triple oral therapy**
Switch one or more oral agents to
- GLP-1RA or insulin® or
- another oral agent*  

**If on a GLP-1RA**
Change to Premixed® or Basal insulin® or
- Premixed insulin®

**If on insulin®**
Intensify insulin Basal bolus or Basal plus®

---

- SU=sulfonylurea. TZD= thiazolidinedione. DPP-4 = dipeptidyl peptidase. GLP1RA= glucagon like peptide 1 receptor agonist. SGLT2 = sodium glucose transporter
- Blue boxes indicate usual therapeutic strategy
- White boxes indicate alternative approaches
- Compliance should always be assessed before changing or adding new therapies
- Therapies which do not improve glycaemia should be ceased
- *Switching an oral agent is likely to have the smallest impact on glycaemia
- #Unless metformin is contraindicated, or not tolerated, it is often therapeutically useful to continue it in combination with insulin in people with type 2 diabetes

**Figure 1. Management algorithm for blood glucose control in type 2 diabetes**
## Table 3. Oral hypoglycaemics

<table>
<thead>
<tr>
<th>Suggested medications</th>
<th>Monitoring</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Prefered medications</strong></td>
<td></td>
</tr>
</tbody>
</table>
| **Biguanides** (usually first line therapy unless contraindicated) | • Metformin | • eGFR at initiation  
• Fasting plasma glucose at 2 weeks  
• HbA1c and eGFR at 3 months  
• When eGFR 30 - 60 ml/min, decrease to total daily dose of 1 g  
• Cease if eGFR < 30 ml/min |
| **Sulphonylureas** | • Gliclazide  
• Gliclazide MR  
• Glimepiride | • Fasting plasma glucose 2 weeks  
• HbA1c at 3 months  
• Glimepiride may cause hypoglycaemia in presence of renal impairment |
| **DPP4 inhibitors** | • Sitagliptin  
• Vildagliptin  
• Alogliptin  
• Saxagliptin  
• Linagliptin | • Fasting and post prandial glucose  
• HbA1c 3 monthly  
• Vildagliptin not indicated in clients with creatinine > 130 μmol/l |
| **GLP-1RA** | • Liraglutide  
• Exenatide | • Fasting and post prandial glucose  
• HbA1c 3 monthly |
| **SGLT 2 inhibitors** | • Dapagliflozin  
• Canagliflozin  
• Empagliflozin | • Rely on adequate renal function  
• eGFR at initiation and yearly thereafter  
• eGFR 6 monthly when 60 - 90 ml/min  
• eGFR when starting other medications that reduce renal function  
• Cease dapagliflozin when CrCl < 60 ml/min and canagliflozin and empagliflozin if < 45 ml/min  
• Not recommended if volume depleted or taking diuretics  
• AST and ALT at baseline  
• UEC at baseline and 6 monthly thereafter  
• May be associated with weight loss  
• Increase risk of urogenital infections |
| **Sulphonylureas** | • Glibenclamide  
• Glipizide | • Glibenclamide has high potential for hypoglycaemia particularly in elderly and renally impaired  
• Glipizide not routinely used |
| **Glitazones (TZDs)** | • Pioglitazone  
• Rosiglitazone | • AST and ALT at baseline  
• Signs of fluid overload e.g. ankle oedema, SOB, sleeping upright  
• Risk of bladder cancer with pioglitazone |
| **Alpha-glucosidase inhibitor** | • Acarbose | • Postprandial glucose at initiation  
• Hypoglycaemia  
• HbA1c at 3 months  
• Hepatic enzymes for hepatotoxicity  
• Flatulence, diarrhoea, abdominal pain and distension are common |
4.2 Insulins

- Guide to insulin treatment\(^6\)
  - **Step 1.** Check that diet, activity and oral medication are appropriate and co-morbidities are managed
  - **Step 2.** Decide the time and type of insulin (Table 4). Usually this would be once daily basal insulin (glargine) before dinner or premixed insulin twice daily, before breakfast and dinner
  - **Step 3.** Dosage
    - decide on the target range (Table 5)
    - decide the dose, ‘start low and go slow’
    - single dose, morning or evening
    - less may be required in the elderly, active, thin client and more in the overweight inactive client
  - **Step 4.** Adjust doses
    - Change doses in increments of 10 - 20% (e.g. 2 - 4 units if dose is 20 units) at intervals of 2 - 4 days

<table>
<thead>
<tr>
<th>Insulin type</th>
<th>Insulin name</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Onset of action</td>
</tr>
<tr>
<td>Long acting (analogues)</td>
<td>Glargine (Lantus)</td>
<td>1 - 2 hours</td>
</tr>
<tr>
<td>Long acting (human)</td>
<td>Protaphane</td>
<td>1 - 2.5 hours</td>
</tr>
<tr>
<td></td>
<td>Humulin NPH</td>
<td></td>
</tr>
<tr>
<td>Long acting premixed (analogues)</td>
<td>NovoMix 30</td>
<td>15 minutes</td>
</tr>
<tr>
<td></td>
<td>Humalog Mix 25</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Humalog Mix 50</td>
<td></td>
</tr>
<tr>
<td>Long acting premixed (human)</td>
<td>Mixtard 50/50</td>
<td>30 minutes - 1 hour</td>
</tr>
<tr>
<td></td>
<td>Mixtard 30/70</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Humulin 30/70</td>
<td></td>
</tr>
<tr>
<td>Ultra short acting (analogues)</td>
<td>NovoRapid</td>
<td>15 minutes</td>
</tr>
<tr>
<td></td>
<td>Humalog</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Apidra</td>
<td></td>
</tr>
<tr>
<td>Short acting (human)</td>
<td>Actrapid</td>
<td>30 minutes</td>
</tr>
<tr>
<td></td>
<td>Humulin R</td>
<td></td>
</tr>
</tbody>
</table>
Table 5. Targets for glycaemic control in type 2 diabetes

<table>
<thead>
<tr>
<th>Pre-prandial blood glucose (mmol/L)</th>
<th>Post-prandial (2 hours after food) (mmol/L)</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.0 - 6.0</td>
<td>4.0 - 7.7</td>
<td>Normoglycaemia</td>
</tr>
<tr>
<td>6.1 - 8.0</td>
<td>6.0 - 10.0</td>
<td>NHMRC values</td>
</tr>
<tr>
<td>&gt; 8.0</td>
<td>&gt; 10.0</td>
<td>High</td>
</tr>
</tbody>
</table>

5. Care plans

Table 6. Care plan for clients with pre-diabetes

<table>
<thead>
<tr>
<th>Action</th>
<th>Review frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td>Dx</td>
</tr>
<tr>
<td>Blood pressure</td>
<td>✓</td>
</tr>
<tr>
<td>Weight</td>
<td>✓</td>
</tr>
<tr>
<td>Waist circumference</td>
<td>✓</td>
</tr>
<tr>
<td>BMI</td>
<td>✓</td>
</tr>
<tr>
<td>Fasting lipids</td>
<td>✓</td>
</tr>
<tr>
<td>Random BGL</td>
<td>✓</td>
</tr>
<tr>
<td>Fasting BGL</td>
<td>✓</td>
</tr>
<tr>
<td>OGGT or HbA1c</td>
<td>✓</td>
</tr>
<tr>
<td>Dietitian</td>
<td>✓</td>
</tr>
<tr>
<td>Absolute cardiovascular risk assessment</td>
<td>✓</td>
</tr>
<tr>
<td>Lifestyle modification</td>
<td>✓</td>
</tr>
<tr>
<td>MO/NP/RN R/V</td>
<td>✓</td>
</tr>
</tbody>
</table>
### Table 7. Care plan summary for people with type 2 diabetes

<table>
<thead>
<tr>
<th>Action</th>
<th>Review frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Dx</td>
</tr>
<tr>
<td>Height</td>
<td>✓</td>
</tr>
<tr>
<td>Blood pressure</td>
<td>✓</td>
</tr>
<tr>
<td>Weight</td>
<td>✓</td>
</tr>
<tr>
<td>Waist circumference</td>
<td>✓</td>
</tr>
<tr>
<td>BMI</td>
<td>✓</td>
</tr>
<tr>
<td>BGL</td>
<td>✓</td>
</tr>
<tr>
<td>Lifestyle modification education</td>
<td>✓</td>
</tr>
<tr>
<td>Social emotional support</td>
<td>✓</td>
</tr>
<tr>
<td>Foot/amputation check</td>
<td>✓</td>
</tr>
<tr>
<td>Visual acuity</td>
<td>✓</td>
</tr>
<tr>
<td>Retinal camera/eye examination</td>
<td>✓</td>
</tr>
<tr>
<td>FBC</td>
<td>✓</td>
</tr>
<tr>
<td>Liver function test (LFT)</td>
<td>✓</td>
</tr>
<tr>
<td>UEC</td>
<td>✓</td>
</tr>
<tr>
<td>eGFR</td>
<td>✓</td>
</tr>
<tr>
<td>HbA1c</td>
<td>✓</td>
</tr>
<tr>
<td>Fasting lipids</td>
<td>✓</td>
</tr>
<tr>
<td>Urinalysis</td>
<td>✓</td>
</tr>
<tr>
<td>ACR</td>
<td>✓</td>
</tr>
<tr>
<td>ECG</td>
<td>✓</td>
</tr>
<tr>
<td>Insulin</td>
<td>✓</td>
</tr>
<tr>
<td>Influenza vaccine</td>
<td>✓</td>
</tr>
<tr>
<td>Pneumococcal vaccine</td>
<td>✓</td>
</tr>
<tr>
<td>HW/RN R/V</td>
<td>✓</td>
</tr>
<tr>
<td>MO/NP R/V</td>
<td>✓</td>
</tr>
<tr>
<td>Medication R/V</td>
<td>✓</td>
</tr>
<tr>
<td>Diabetes educator</td>
<td>✓</td>
</tr>
<tr>
<td>Dietitian</td>
<td>✓</td>
</tr>
<tr>
<td>Dentist</td>
<td>✓</td>
</tr>
<tr>
<td>High risk foot service team</td>
<td>✓</td>
</tr>
<tr>
<td>Podiatrist</td>
<td>✓</td>
</tr>
<tr>
<td>Physician/Endocrinologist</td>
<td>✓</td>
</tr>
</tbody>
</table>
6. References


7. Resources


Dyslipidaemia

High risk groups
- Children and adolescents who are overweight or obese for their age
- People with multiple cardiovascular risk factors
- Aboriginal and Torres Strait Islander peoples > 18 years of age

Considerations for women of child-bearing age
- Dyslipidaemia in pregnancy does not require treatment
- Women who are on statins and are contemplating pregnancy should discuss medication use with the MO/NP

Urgent referral
- Clients who have co-morbidities and resistant high cholesterol levels (triglyceride level > 8 mmol/L or TCholesterol > 9 mmol/L) despite treatment should see a specialist

Special considerations
- In managing dyslipidaemia the following co-morbidities and screening must be considered
  - Chronic heart failure, page 100
  - Chronic kidney disease, page 112
  - Coronary heart disease, page 142
  - Diabetes type 2, page 196
  - Hypertension, page 228
  - Overweight and obesity in adults, page 260
  - Overweight and obesity in children, page 270
  - Stroke and transient ischaemic attack, page 300

1. What is dyslipidaemia?
- Dyslipidaemia (sometimes referred to as hyperlipidaemia) is the term used to describe various lipid (fat)/lipoprotein abnormalities which may occur in the serum due to the interaction between genetic and environmental factors
- Cholesterol is a type of fat that is part of all animal cells
- Cholesterol is essential for many of the body’s metabolic processes including
  - building cell membranes
  - making hormones like oestrogen and testosterone
  - helping metabolism e.g. for the production of vitamin D
  - producing bile acids which help digest fat and absorb nutrients
- When fats are ingested, the liver processes and returns cholesterol to the bloodstream
- Too much circulating blood cholesterol can build up fatty deposits in the walls of blood vessels
• Arteries can narrow and block completely, leading to heart disease and stroke
• A 10% increase in total cholesterol is associated with a 27% increase in the incidence of coronary heart disease irrespective of smoking, hypertension or history of vascular disease\(^3\)
• Lipoproteins carry cholesterol in the blood
• High density lipoproteins (HDL-cholesterol) are considered beneficial
• Low density lipoproteins (LDL-cholesterol) are considered harmful
• Very low density lipoproteins (VLDL-cholesterol) carry triglycerides (TG) in the bloodstream

1.1 Primary dyslipidaemia
• Genetic or hereditary disorder for high cholesterol such as familial hypercholesterolaemia

1.2 Secondary dyslipidaemia
• Most commonly caused by lifestyle factors, chronic conditions or diseases and medications (see Table 1)

2. Diagnosis of dyslipidaemia
• Diagnosis is confirmed with a venous blood sample taken 12 hours after ceasing any food or drink
• Once a blood test identifies abnormal lipid levels (see Table 4), the need for management in the context of the client’s absolute cardiovascular risk (see Appendix 2: Australian cardiovascular risk charts, page 494) and the cause of the dyslipidaemia should be initiated

| Table 1. Common causes of secondary dyslipidaemia\(^2\) |
|-----------------|------------------|
| **Cause** | **Effect on lipid profile** |
| Hypothyroidism, nephrotic syndrome, cholestasis, anorexia nervosa | • Increases LDL-C |
| Type 2 diabetes, obesity, renal impairment, smoking, drug therapy | • Increases triglycerides | • Decreases HDL-C |
| Diet high in saturated fat | • Increases LDL-C |
| Alcohol abuse and/or oestrogen use | • Increases triglycerides |
| Sedentary lifestyle | • Increases LDL-C | • Decreases HDL-C |
| ß-blockers | • Increases TC | • Decreases HDL-C |
| Diuretics | • Increases TC | • Increases TG |
3. Management

- Management of dyslipidaemia primarily focuses on diet and medication

3.1 Factors complicating management

- In managing dyslipidaemia the following co-morbidities and screening must be considered
  - Diabetes type 2, page 196
  - Chronic kidney disease, page 112
  - Hypertension, page 228
  - Coronary heart disease, page 142
  - Chronic heart failure, page 100
  - Stroke and transient ischaemic attack, page 300
  - Overweight and obesity in adults, page 260
  - Overweight and obesity in children, page 270

- It is important to check for these complications along with calculation of absolute cardiovascular risk. See Appendix 1: Australian cardiovascular risk charts, page 494

**Target lipid levels**

- Total cholesterol (TC) < 4.0 mmol/L
- Triglycerides (TG) < 2.0 mmol/L
- HDL-cholesterol (HDL) > 1.0 mmol/L
- LDL-cholesterol (LDL) < 2.0 mmol/L (< 1.8 mmol/L with coronary stent)
- Non-HDL-cholesterol (NHDL) < 2.5 mmol/L
- TC:HDL-C ≤ 4.5 mmol/L

3.2 Support client self management

- Discuss the positive effects of lifestyle modification (see Lifestyle modification section) on lipid levels (see Table 2) with particular regard to Diet and nutrition, page 14

- Provide information about dyslipidaemia and its association with heart disease, stroke and pancreatitis

- Every 1.0 mmol/L reduction in LDL-C is associated with a corresponding 22% reduction in cardiovascular disease (CVD) mortality and morbidity

- Provide relevant dyslipidaemia resources (see Resources 1)

- Encourage the client to identify barriers to adequate lifestyle modification and medical adherence and to set goals to overcome those barriers based on their capacity and understanding
Table 2. Lifestyle modification effect on lipid levels

<table>
<thead>
<tr>
<th>Lifestyle intervention</th>
<th>To reduce TC and LDL-C levels</th>
<th>To reduce TG levels</th>
<th>To increase HDL-C levels</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduce excessive body weight</td>
<td>♥</td>
<td>♥♥♥</td>
<td>♥♥</td>
</tr>
<tr>
<td>Increase physical activity</td>
<td>♥</td>
<td>♥♥♥</td>
<td>♥♥</td>
</tr>
<tr>
<td>Reduce dietary trans fat</td>
<td>♥♥♥</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reduce intake of mono and disaccharides</td>
<td>♥♥</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reduce dietary saturated fat</td>
<td>♥♥</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consume foods high in phytosterol</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alcohol in moderation only</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reduce total amount of dietary carbohydrates</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consume polyunsaturated fat</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Increase dietary fibre</td>
<td>♥</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reduce dietary cholesterol</td>
<td>♥</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reduce dietary carbohydrates and replace with unsaturated fat</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Smoking cessation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consume soy protein products</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Replace saturated fat with mono- or polyunsaturated fat</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

♥♥♥ Great effect  ♥♥ Good effect  ♥ Adequate effect

3.3 Social emotional support
- Depression and anxiety can be screened for by using a self- or clinician-rated mood scale (for examples see Resource 2). Rating scales should be supplemented by a clinical assessment by a suitably qualified clinician to make a diagnosis.
- Acknowledge any client concerns and reassure them that good adherence to appropriate treatment can improve the symptoms of their condition.

3.4 Body weight and physical activity
- Overweight, obesity and central obesity contributes to dyslipidaemia and particularly decreases HDL.
- A 5 - 10% body weight reduction improves lipid levels and favourably affects other cardiovascular risk factors often present in dyslipidaemic clients.
- Weight reduction can be achieved by decreasing dietary saturated fats and engaging in regular physical exercise of moderate intensity i.e. 30 minutes/day of exercise that makes you breathless.

3.5 Nutrition and diet
- Provide the client with nutrition and diet related resources (see Resource 3).
- Dietary saturated fats (take-away meals, potato chips, cakes, biscuits, pies, butter, full-fat milk, cream and cheese) have the strongest impact on raising LDL-C levels.
Clients with high TG levels particularly, should avoid food and drinks with added sugar e.g. softdrinks, sports drinks, lollies and cakes.

Clients with high TG levels should cease alcohol consumption.

Avoid using or cooking with salt and instead choose fresh or frozen foods “low in salt” or with “no added salt”.

Polysaturated fats help lower blood cholesterol e.g. fish, unsalted nuts, and polysaturated margarines and oils.

Regular fish consumption is associated with a reduced cardiovascular risk.

Phytosterols found in vegetable oils and dietary fibre found in legumes, avocado, plain nuts, fruit, vegetables, and wholemeal cereals, have a direct cholesterol lowering effect.

Implement diet modification to lower lipid levels (see Table 3)
  – diet modification for low risk groups runs for 6 weeks
  – if lipid levels remain high, commence medications
  – for high risk groups, diet modification must be started concurrently with medication.

See Diet and nutrition, page 14

<table>
<thead>
<tr>
<th>Types</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cereals</td>
<td>Whole grains, oats</td>
</tr>
<tr>
<td>Vegetables</td>
<td>Raw, cooked, frozen or tinned vegetables</td>
</tr>
<tr>
<td>Legumes</td>
<td>Beans, lentils, including soy and soy protein</td>
</tr>
<tr>
<td>Fruit</td>
<td>Fresh, frozen or tinned fruit</td>
</tr>
<tr>
<td>Eggs, meat and fish</td>
<td>Lean meat, oily fish, skinless chicken and egg white</td>
</tr>
<tr>
<td>Dairy foods</td>
<td>Skimmed milk and yoghurt</td>
</tr>
<tr>
<td>Cooking procedures</td>
<td>Grilling, boiling, steaming, oven bake and microwave</td>
</tr>
</tbody>
</table>

4. Medications

MO or NP to commence and review medications.

Statins are the first line, proven and efficacious therapy for lowering elevated LDL-C plasma levels.

Identify medications which interact with those used for dyslipidaemia
  – ß-blockers increase TC and decreases HDL
  – Diuretics increase TC and TG

Provide client education around medication use and safety.

Begin medication therapy if 6 weeks of lifestyle modification intervention has failed to reduce lipid levels below the therapy threshold (see Table 4).
Table 4. Medication therapy thresholds for high risk groups

<table>
<thead>
<tr>
<th>Population</th>
<th>Cholesterol thresholds</th>
</tr>
</thead>
<tbody>
<tr>
<td>People with diabetes</td>
<td>TC &gt; 5.5 mmol/L</td>
</tr>
<tr>
<td>Clients with</td>
<td>TC &gt; 4.0 mmol/L</td>
</tr>
<tr>
<td>• Coronary heart disease</td>
<td>LDL &gt; 2.0 mmol/L (≤ 1.8 mmol/L in stented clients)</td>
</tr>
<tr>
<td>• Cerebrovascular disease</td>
<td>HDL &lt; 1.0 mmol/L</td>
</tr>
<tr>
<td>• Peripheral vascular disease</td>
<td>TG &gt; 2.0 mmol/L</td>
</tr>
<tr>
<td>• NHDL-C &lt; 2.5 mmol/L</td>
<td></td>
</tr>
<tr>
<td>People with chronic kidney disease</td>
<td>TC &gt; 4 mmol/L</td>
</tr>
<tr>
<td></td>
<td>LDL &gt; 0.5 mmol/L</td>
</tr>
<tr>
<td>Aboriginal and Torres Strait Islander peoples without diabetes or other high risk</td>
<td>TC &gt; 6.5 mmol/L or</td>
</tr>
<tr>
<td></td>
<td>TC &gt; 5.5 mmol/L and HDL &lt; 1 mmol/L</td>
</tr>
<tr>
<td>People with hypertension alone</td>
<td>TC &gt; 6.5 mmol/L or</td>
</tr>
<tr>
<td></td>
<td>TC &gt; 5.5 mmol/L and HDL &lt; 1 mmol/L</td>
</tr>
<tr>
<td>Dyslipidaemia in</td>
<td>TC &gt; 7.5 mmol/L or</td>
</tr>
<tr>
<td>• Men aged 35 - 75 years</td>
<td>TG &gt; 4 mmol/L</td>
</tr>
<tr>
<td>• Post-menopausal women up to 75 years</td>
<td></td>
</tr>
<tr>
<td>Familial hypercholesterolaemia or family history of symptomatic coronary heart disease</td>
<td>≤ 18 years LDL &gt; 4 mmol/L</td>
</tr>
<tr>
<td>• before age 60 years in one or more first degree relatives</td>
<td>&gt; 18 years</td>
</tr>
<tr>
<td>• before age 50 years in one or more second degree relatives</td>
<td>TC &gt; 6.5 mmol/L or</td>
</tr>
<tr>
<td></td>
<td>TC &gt; 5.5 mmol/L and HDL &lt; 1 mmol/L</td>
</tr>
<tr>
<td>Begin medication treatment on all others who have these lipid levels</td>
<td>TC &gt; 9 mmol/L or</td>
</tr>
<tr>
<td></td>
<td>TG &gt; 8 mmol/L</td>
</tr>
</tbody>
</table>

Begin medications when cholesterol remains greater than the above thresholds after 6 weeks of lifestyle modification has failed

<table>
<thead>
<tr>
<th>Target lipid levels for those on medications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total cholesterol (TC)</td>
</tr>
<tr>
<td>Triglycerides (TG)</td>
</tr>
<tr>
<td>HDL-cholesterol (HDL)</td>
</tr>
<tr>
<td>LDL-cholesterol (LDL)</td>
</tr>
<tr>
<td>Non-HDL-cholesterol (NHDL)</td>
</tr>
<tr>
<td>TC:HDL-C</td>
</tr>
</tbody>
</table>
Table 5. Recommended medications and combinations\(^2\)

<table>
<thead>
<tr>
<th>Class</th>
<th>Drug</th>
<th>Dosage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Treatment for hypercholesterolaemia</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Statin</td>
<td>• Atorvastatin</td>
<td>10 - 80 mg daily • First line treatment • Reduces circulating LDL-C up to 60% • Increases HDL-C by 5 - 10%</td>
</tr>
<tr>
<td></td>
<td>• Pravastatin</td>
<td>20 - 80 mg daily</td>
</tr>
<tr>
<td></td>
<td>• Rosuvastatin</td>
<td>5 - 40 mg daily</td>
</tr>
<tr>
<td></td>
<td>• Simvastatin</td>
<td>10 - 80 mg daily</td>
</tr>
<tr>
<td></td>
<td>• Fluvastatin</td>
<td>20 - 80 mg daily</td>
</tr>
<tr>
<td>Lipase inhibitor (when</td>
<td>• Ezetimibe</td>
<td>10 mg daily • Reduces LDL-C by between 15 - 22%</td>
</tr>
<tr>
<td>intolerant of statin or as</td>
<td></td>
<td></td>
</tr>
<tr>
<td>add-on when target not reached</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bile acid binding resins</td>
<td>• Cholestyramine</td>
<td>4 - 8 g daily increasing up to 24 g in divided doses • Reduces LDL-C by between 18 - 25%</td>
</tr>
<tr>
<td>(GI adverse effects limit the</td>
<td>• Colestipol</td>
<td>5 - 10 g daily up increasing up to 30 g daily in divided doses • Reduces LDL-C by between 18% - 25%</td>
</tr>
<tr>
<td>maximum dose)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nicotinic acid</td>
<td>• Nicotinic acid</td>
<td>250 mg b.d. with food increasing slowly to 1500 mg b.d. or 1000 mg t.d.s. • Raises HDL-C up to 25% • Reduces LDL-C by 15 - 18% • Reduces TG by 20 - 40%</td>
</tr>
<tr>
<td>Statin + bile acid binding</td>
<td>• As above</td>
<td>Reduces LDL-C by a further 10 - 20%</td>
</tr>
<tr>
<td>resins</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Statin + lipase inhibitor</td>
<td>• As above</td>
<td>Reduces LDL-C by a further 10 - 15%</td>
</tr>
<tr>
<td><strong>Treatment for hypertriglyceridaemia</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fibrates (when client</td>
<td>• Fenofibrate</td>
<td>145 mg daily • Reduce dose in clients with renal impairment • eGFR 20 - 60 mL/min 96 mg daily • eGFR 10 - 20 mL/min 48 mg daily • Reduces TG levels • Modest HDL-C raising effects</td>
</tr>
<tr>
<td>intolerant of statin or</td>
<td></td>
<td></td>
</tr>
<tr>
<td>occasionally when target not</td>
<td>• Gemfibrozil</td>
<td>600 mg b.d. • Reduces TG levels • Modest HDL-C raising effects</td>
</tr>
<tr>
<td>reached with statin alone)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>n-3 fatty acids</td>
<td>• Fish oil</td>
<td>1.2 - 3.6 g omega-3 daily • Reduces TG by up to 30%</td>
</tr>
<tr>
<td>Statins + fibrates</td>
<td>• As above</td>
<td>Statins + fibrates reduce LDL-C and TG • Statins + nicotinic acid reduce TG • Both combinations raise HDL-C • Both combinations increase risk of myopathy</td>
</tr>
<tr>
<td>Statins + nicotinic acid</td>
<td>• As above</td>
<td>Statins + fibrates reduce LDL-C and TG • Statins + nicotinic acid reduce TG • Both combinations raise HDL-C • Both combinations increase risk of myopathy</td>
</tr>
</tbody>
</table>
## 5. Care plan

### Table 6. Care plan for clients with dyslipidaemia

<table>
<thead>
<tr>
<th>Action</th>
<th>Dx</th>
<th>Frequency</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMI</td>
<td>✓</td>
<td>12 mthly</td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>✓</td>
<td>3 mthly</td>
<td></td>
</tr>
<tr>
<td>Waist circumference</td>
<td>✓</td>
<td>3 mthly</td>
<td></td>
</tr>
<tr>
<td>Pulse rate</td>
<td>✓</td>
<td>3 mthly</td>
<td></td>
</tr>
<tr>
<td>Blood pressure</td>
<td>✓</td>
<td>3 mthly</td>
<td></td>
</tr>
<tr>
<td>UEC</td>
<td>✓</td>
<td>12 mthly</td>
<td></td>
</tr>
<tr>
<td><strong>Fasting blood lipids</strong></td>
<td>✓</td>
<td></td>
<td>• Prior to initial drug treatment then every 2 mths until target reached</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Annually once target levels reached</td>
</tr>
<tr>
<td><strong>LFT and ALT</strong></td>
<td>✓</td>
<td></td>
<td>• 2 mths after medication changes then annually if liver enzymes remain below upper limit</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Check if client develops myalgia or weakness</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• If liver enzymes become raised on medications</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• if ≤ 3 x upper limit of normal continue therapy and recheck in 4 wks</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• if &gt; 3 x upper limit of normal stop or reduce statin and recheck in 4 wks</td>
</tr>
<tr>
<td><strong>Creatinine kinase (CK)</strong></td>
<td>✓</td>
<td></td>
<td>• Prior to medication treatment</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Routine monitoring not required</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Check if client develops myalgia or weakness</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Stop medications if CK &gt; 5 x upper limit of normal, check and monitor every 2 wks</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• If medicated and ≤ 5 x upper limit of normal and no muscle symptoms then continue statin, if muscle symptoms then monitor CK regularly</td>
</tr>
<tr>
<td><strong>Client self management support</strong></td>
<td>✓</td>
<td>Each visit</td>
<td></td>
</tr>
<tr>
<td><strong>Lifestyle modification</strong></td>
<td>✓</td>
<td>Each visit</td>
<td></td>
</tr>
<tr>
<td><strong>Diet modification</strong></td>
<td>✓</td>
<td>Wkly for 6 wks</td>
<td></td>
</tr>
<tr>
<td><strong>Social emotional wellbeing</strong></td>
<td>✓</td>
<td>Each visit</td>
<td></td>
</tr>
<tr>
<td><strong>Influenza vaccine</strong></td>
<td>✓</td>
<td></td>
<td>Recommended - see the current edition of the <em>Australian Immunisation Handbook</em> for schedule</td>
</tr>
<tr>
<td>Dietitian</td>
<td>✓</td>
<td>Wkly for 4 wks; at 2 mth then 3 mthly</td>
<td></td>
</tr>
<tr>
<td>Medication review</td>
<td>✓</td>
<td>Each visit</td>
<td></td>
</tr>
<tr>
<td>Dentist</td>
<td>✓</td>
<td>12 mthly</td>
<td></td>
</tr>
<tr>
<td>HW/RN R/V</td>
<td>✓</td>
<td>3 mthly</td>
<td></td>
</tr>
<tr>
<td>MO/NP R/V</td>
<td>✓</td>
<td>6 mthly</td>
<td></td>
</tr>
<tr>
<td>Specialist R/V</td>
<td>✓</td>
<td>On MO/NP referral</td>
<td></td>
</tr>
</tbody>
</table>
6. References

7. Resources
Hepatitis B

High risk groups
- Aboriginal and Torres Strait Islander peoples
- Peoples from Asia-Pacific countries
- People with a history of exposure to infected blood or body fluids
- Household members or sexual partners with hepatitis B infection
- People with tattoos or piercings not performed cleanly
- Cultures with unsterile cultural practices e.g. initiation ceremonies
- Injecting drug users
- Detainees of correctional facilities
- Those on haemodialysis
- Those with HIV or other diseases affecting immunity
- Workers with occupational exposure e.g. health workers etc.
- Sexually active men who have sex with men
- Disabled people attending residential or daycare facilities
- Recipients of certain transplants and blood products

Considerations for women of child-bearing age
- All pregnant women should be screened for hepatitis B as part of routine antenatal care (See the current edition of Primary Clinical Care Manual or the Clinical Practice Guidelines: Antenatal Care - Module 1 for further information)
- Management should be discussed with a specialist early in a pregnancy as women with a high viral load can be offered treatment
- Infants born to women who are HBsAg positive must be given hepatitis B immunoglobulin (HBIG) and a dose of monovalent hepatitis B vaccine on the day of birth
- Any baby born to a mother with chronic hepatitis B (CHB) should be tested for HBsAg and anti-HBs at 9 - 12 months of age (at least 3 months after completing the primary vaccination course)

Urgent referral
- For acute presentations of hepatitis B refer to the current edition of the Primary Clinical Care Manual (PCCM), MO/NP, gastroenterologist or infectious diseases physician

1. What is hepatitis B?
- A very infectious virus that infects and damages the liver
- The virus can be spread
  - from mother to infant at birth
  - by sexual contact
  - by using contaminated equipment to inject drugs
  - by close household contact such as sharing toothbrushes and razors
person to person transmission through contact between open sores or wounds

• CHB infection poses significant long term health risks to the client, as well as the risk of infection to others

• Up to 25% of those who are chronically infected will die prematurely as a result of either cirrhosis or hepatocellular carcinoma (HCC)

• The prevalence of chronic hepatitis B infection is very high in many Australian Aboriginal and Torres Strait Islander communities

• Aboriginal and Torres Strait Islander peoples are more likely to have contracted hepatitis B at birth or in early childhood

• Acquisition as a neonate or child carries a much higher risk of developing chronic hepatitis B (90% and 30% respectively), than if the infection is acquired as an adult (< 10%)

• Antiretroviral treatment is available to reduce these outcomes

• Acute hepatitis B infections are less commonly seen than CHB

2. Diagnosis of hepatitis B

2.1 Acute hepatitis B

• For acute episodes of hepatitis B refer to the current edition of the Primary Clinical Care Manual

2.2 Chronic hepatitis B (CHB)

• Is often asymptomatic (no symptoms)

• Is identified by venous blood serology for HBsAg, anti-HBs and anti-HBc (triple test)

• Once documented evidence of hepatitis B serology exists refer to Figure 1.

3. Management

3.1 Support client self management

• See Lifestyle modification section with particular focus on Alcohol reduction, page 4

• Encourage the client to identify barriers to adequate lifestyle modification and medical compliance and to set goals to overcome those barriers based on their capacity and understanding

• Discuss what hepatitis B is and how it progresses (see Resource 1)

• Avoid alcohol and kava use

• Safe sex should be encouraged to avoid co-infection with other viruses

• Provide hepatitis B support services details and material (see Resource 1)
Figure 1. Interpretation of hepatitis B serology

- HBsAg +ve
- anti-HBc +ve
- anti-HBs < 10 IU/L
  - Likely CHB
  - Take bloods for
    - HBsAg
    - anti-HBc
    - anti-HBs
  - No further action or testing required

- HBsAg -ve
  - anti-HBc -ve
  - anti-HBs > 10 IU/L
    - Immune due to vaccination
    - No further action or testing required

- HBsAg -ve
  - anti-HBc +ve
  - anti-HBs < 10 IU/L
    - Susceptible to infection
    - Refer to Figure 2
  - anti-HBs > 10 IU/L
    - Immune due to past resolved infection
    - No further action or testing required

- anti-HBs > 10 IU/L
  - No further action or testing required

- anti-HBs < 10 IU/L
  - Refer to Figure 2
Does the client have additional risk factors for hepatitis B?

- **No**
  - Has the client had a documented hepatitis B vaccination?
    - **Yes**
      - Has the client had a documented hepatitis B vaccination?
        - **Yes**
          - Offer booster dose and retest anti-HBs one month later
        - **No**
          - Offer vaccination
    - **No**
      - No further action or testing required

**Figure 2. Clinical response for people with anti-HBc -ve, HBsAg -ve, anti-HBs < 10 IU/L**

### 3.2 Social emotional support
- Depression and anxiety can be screened for by using a self- or clinician-rated mood scale (see Resource 2.). Rating scales should be supplemented with a clinical assessment by a suitably qualified clinician to make a diagnosis.
- Acknowledge any client concerns and reassure them that good adherence to appropriate clinical treatment can improve the symptoms of their condition.

### 3.3 Reduce the risk of developing complications
- People with active hepatitis B can be effectively treated with anti-viral agents to reduce the risk of long term liver damage (see 4. Medications).
- Initial assessment and ongoing monitoring as per careplan (Table 1).
- Provide vaccination, especially hepatitis A, to optimise liver health.

### 3.4 Minimise risk of spreading the virus
- Contact tracing of sexual contacts.
- Regular sexual contacts, close household and family (especially parents and siblings) contacts should be tested for hepatitis B and offered immunisation if:
  - there is no evidence of prior infection and
  - they have not previously received 3 doses of hepatitis B vaccine.
- Use of condoms to protect sexual contacts.
- Avoid sharing toothbrushes or razors with others, and cover wounds or cuts.
- Clean up spilt blood with gloves and bleach.
- Harm minimisation for intravenous drug users should be advocated to avoid...
co-infection with HIV or hepatitis C

3.5 Screening for hepatocellular carcinoma (HCC or liver cancer)

- If left untreated HCC is a terminal condition
- Consider screening for HCC if after counselling the client wants and could tolerate curative treatment and the client
  - has a proven or suspected cirrhosis or
  - is Aboriginal and/or Torres Strait Islander aged 50 or over or
  - has a first degree family history of HCC or
  - is an Asian male over 40 years or female over 50 years or
  - is an African over 20 years
- If a client is at risk of HCC then refer to a specialist for assessment
- Screening for HCC should be individually assessed by a specialist, taking into account the patient, clinical picture, co-morbidities, habitual alcohol consumption and co-infection with hepatitis C or HIV
- Screening for HCC involves a 6 monthly ultrasound and Alpha-Foetoprotein blood test\textsuperscript{12,13}

3.6 Serological management

- Attend to ongoing serological monitoring and per Figure 2. and Figure 3. as well as attending to co-morbid conditions

4. Medications

- Treatment of chronic hepatitis B is complex, undergoing rapid change and must be individualised. Seek specialist advice
- There are currently 2 types of medications used for hepatitis B
  - pegylated interferon - injection once a week for 48 weeks, and
  - antiviral medications - tablets once a day, generally for life. The more commonly used antiviral medications are entecavir and tenofovir
- Tenofovir should be offered from 32 weeks gestation until 8 weeks post-partum to all mothers with HBV DNA > 10 million IU/mL
- Adherence to antivirals is crucial due to the risk of a liver flare
- Antivirals will be prescribed by and after a specialist review
Figure 3. Chronic hepatitis B management

* HBV DNA level is considered high if > 2,000 IU/ml (104 copies/ml) in people who are HepBeAg negative, and > 20,000 IU/ml (105 copies/ml) in people who are HepBeAg positive

# If someone from Pathway 1. develops a constantly raised ALT (> 19 IU/L women and > 30 IU/L men\(^1,2,13\)), and a clinical review fails to identify other causes of liver dysfunction (medications, fatty liver, alcohol) then refer to Pathway 3.

Anyone with CHB being considered for immunosuppressive treatment or with symptoms of chronic liver disease needs specialist review.
### Table 1. Care plan summary for a person with chronic hepatitis B

<table>
<thead>
<tr>
<th>Action</th>
<th>Pathway 1. normal ALT level low HBV DNA eAg +ve or -ve</th>
<th>Pathway 2. normal ALT level high HBV DNA eAg +ve or -ve</th>
<th>Pathway 3. raised ALT level high or low HBV DNA eAg +ve or -ve</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waist circumference</td>
<td>Dx</td>
<td>Dx</td>
<td>Dx and 6 mthly</td>
</tr>
<tr>
<td>BMI</td>
<td>Dx</td>
<td>Dx</td>
<td>Dx and 6 mthly</td>
</tr>
<tr>
<td>Lifestyle education</td>
<td>Dx and at each encounter</td>
<td>Dx and at each encounter</td>
<td>Dx and at each encounter</td>
</tr>
<tr>
<td>Check immune status of sexual partner(s) household and family contacts</td>
<td>Dx and at each encounter</td>
<td>Dx and at each encounter</td>
<td>Dx and at each encounter</td>
</tr>
<tr>
<td>HBeAg serology</td>
<td>Dx</td>
<td>Dx</td>
<td>Dx</td>
</tr>
<tr>
<td>HBV DNA viral load testing</td>
<td>Dx and 12 mthly</td>
<td>Dx and 12 mthly</td>
<td>Dx and 12 mthly</td>
</tr>
<tr>
<td>Hepatitis A serology and offer vaccination if -ve</td>
<td>Dx</td>
<td>Dx</td>
<td>Dx</td>
</tr>
<tr>
<td>Hepatitis C serology</td>
<td>Dx</td>
<td>Dx</td>
<td>Dx</td>
</tr>
<tr>
<td>Hepatitis D serology</td>
<td>Dx</td>
<td>Dx</td>
<td>Dx</td>
</tr>
<tr>
<td>HIV serology</td>
<td>Dx</td>
<td>Dx</td>
<td>Dx</td>
</tr>
<tr>
<td>LFT, ALT, AST</td>
<td>Dx and 12 mthly</td>
<td>Dx and 6 mthly</td>
<td>Dx and 6 mthly</td>
</tr>
<tr>
<td>Full blood count (FBC)</td>
<td>Dx and 12 mthly</td>
<td>Dx and 12 mthly</td>
<td>Dx and 12 mthly</td>
</tr>
<tr>
<td>INR</td>
<td>Dx</td>
<td>Dx</td>
<td>Dx and 12 mthly</td>
</tr>
<tr>
<td>Liver ultrasound</td>
<td>If &gt; 40 yrs perform at diagnosis</td>
<td>Dx consider 6 mthly</td>
<td>Dx consider 6 mthly</td>
</tr>
<tr>
<td>Fibroscan</td>
<td>annually for active disease phase otherwise at Dx then 2nd yrl</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alpha-Foetoprotein (AFP)</td>
<td>Consider 6 mthly</td>
<td>Consider 6 mthly</td>
<td></td>
</tr>
<tr>
<td>Coagulation profile</td>
<td>Dx</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thyroid function test (TFT)</td>
<td>Dx</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Iron studies</td>
<td>Dx</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Caeruloplasmin and copper</td>
<td>Dx</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ANA (anti nuclear antibodies)</td>
<td>Dx</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AMA (mitochondrial antibody)</td>
<td>Dx</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Influenza vaccine</td>
<td>Recommended - see the current edition of the Australian Immunisation Handbook for schedule</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pneumococcal vaccine</td>
<td>Dx and 12 mthly</td>
<td>Dx and 6 mthly</td>
<td>Dx and 3 mthly</td>
</tr>
<tr>
<td>MO/NP R/V</td>
<td>Dx and 12 mthly</td>
<td>Dx and 6 mthly</td>
<td>Dx and 3 mthly</td>
</tr>
<tr>
<td>Physician/specialist review</td>
<td>Dx</td>
<td></td>
<td>Dx</td>
</tr>
</tbody>
</table>
6. References
5. NACCHO/RACGP. National Guide to a Preventive Health Assessment for Aboriginal and Torres Strait Islander People. 2nd Edition RACGP 2012

7. Resources
1. All you wanted to know about hepatitis B available at http://www.ashm.org.au/HBV
Hypertension

High risk groups
- Any person with a blood pressure (BP) reading higher than 140/90 mmHg
- Any person with cardiovascular risk factors
- People under 15 years of age who have an overweight or obese BMI range

Considerations for women of child-bearing age
- Hypertension may be worse in pregnancy or be pregnancy induced (see Resource 1)

Urgent referral
- If systolic BP ≥ 200 mmHg and/or diastolic BP ≥ 120 mmHg then refer to the current edition of the PCCM and the MO2/NP

Special considerations
In managing hypertension the following co-morbidities must be considered
- Dyslipidaemia, page 210
- Chronic kidney disease, page 112
- Overweight and obesity in adults, page 260
- Diabetes type 2, page 196

1. What is hypertension?
- Hypertension is an elevated blood pressure (BP) and is defined as ≥ 140/90 mmHg
- Thresholds for elevated blood pressure vary between individuals depending on age, gender and the presence of risk factors
- Higher BP readings are associated with greater risk of cardiovascular and renal disease and death
- Lowering BP by lifestyle modification (see Lifestyle modification section) and medication is associated with reduced risk
- Hypertension in most cases has no warning signs or symptoms
- People usually do not know they have hypertension until their BP is checked
- There are two types of hypertension: primary hypertension and secondary hypertension
- Primary hypertension is attributed to lifestyle behaviours, age and genetic factors
- Secondary hypertension is attributed to potentially reversible causes such as: medications, pregnancy, sleep apnoea, kidney disease and certain endocrine (hormone) disorders

2. Diagnosis
- Diagnosis involves a review of client medical history and all cardiovascular disease risk factors
- A cardiovascular system physical examination includes: BP, pulse, signs of lower limb
swelling (peripheral oedema), heart sounds and lung auscultation

• Clients should avoid consuming caffeine or cigarettes 2 hours prior to measuring BP as this increases the reading particularly when used in combination

• During initial assessment BP is measured on both arms

• If BP varies by more than 5 mmHg use the arm with the higher reading for all subsequent BP measurements

• In clients where postural hypotension might be suspected (e.g. elderly, those with diabetes), measure both sitting and standing BP

• Repeat the measurement after the client has been standing for 2 minutes

• A raised BP in response to the assessment itself ("white coat" hypertension) should be considered and ruled out

• The diagnosis of hypertension should be based on multiple BP measurements taken on separate occasions

• Signs and symptoms suggestive of secondary hypertension include
  – sudden onset hypertension in young or elderly clients
  – abnormal renal function and proteinuria
  – sleep apnoea
  – episodes of sudden onset flushing, headaches, sweating and palpitations
  – existing medication use that may raise the client’s blood pressure

• BP should be checked every 2 years from 18 years of age for non-Aboriginal or Torres Strait Islander and annually from 18 years of age for all Aboriginal and/or Torres Strait Islander people

3. Management

• Management of hypertension should follow a comprehensive strategy that includes lifestyle modification, and medication when appropriate, to reduce cardiovascular risk profile and prevent end organ disease (see Table 2)

• Management decisions will be influenced by co-morbidities, age, gender, smoking and physical activity

3.1 Factors complicating management

• In managing hypertension the following co-morbidities must be considered
  – Dyslipidaemia, page 210
  – Chronic kidney disease, page 112
  – Diabetes type 2, page 196
  – Overweight and obesity in adults, page 260
  – It is important to check for these complications along with calculation of absolute cardiac risk using Appendix 1: Australian cardiovascular risk charts, page 494
3.2 Support client self management

- Refer to the Lifestyle modification section
- Provide education to the client about what hypertension is and how it affects blood vessels, cardiovascular risk and other chronic diseases (see Resource 2)
- Regular aerobic exercise can lower systolic BP by an average of 4 mmHg and diastolic BP by an average of 2.5 mmHg\(^3\)
- Blood pressure will increase during rigorous exercise
- Salt restriction can reduce systolic BP by approximately 4 - 5 mmHg in hypertensive individuals and 2 mmHg in normotensive individuals\(^3\)
- In people with normal renal function increasing dietary potassium can reduce systolic BP by 4 - 8 mmHg if hypertensive and 2 mmHg if normotensive\(^3\)
- Every 1% reduction in body weight lowers systolic BP by an average of 1 mmHg. Weight loss of 4.5 kg can reduce BP and/or prevent hypertension in a large proportion of overweight people, while a loss of 10 kg can reduce systolic BP by 6 - 10 mmHg\(^3\)
- Reducing alcohol consumption can substantially lower BP in some clients\(^3\)
- Inform the client of the importance of taking blood pressure medications
- Encourage the client to identify barriers to adequate lifestyle modification and medical adherence and to set goals to overcome those barriers based on their capacity and understanding

3.3 Social emotional support

- Depression and anxiety can be screened for by using a self- or clinician-rated mood scale (for examples see Resource 3). Rating scales should be supplemented by a clinical assessment by a suitably qualified clinician to make a diagnosis
- Acknowledge any client concerns and reassure them that good adherence to appropriate treatment can improve the symptoms of their condition

3.4 Renal monitoring

- Dip stick urinalysis for blood and protein
- FBC, UEC, eGFR, fasting glucose, fasting cholesterol/triglycerides/LDL/HDL and ACR to monitor diabetes, dyslipidaemia, liver or kidney problems\(^3\)

3.5 Cardiac monitoring

- Client progresses toward addressing cardiovascular risk factors
- Adherence with agreed management strategies to lower blood pressure
- Regular review of blood pressure history
- ECG at diagnosis to look for left ventricular hypertrophy. Repeat 1 - 2 yearly
- Echocardiogram referral in the presence of heart failure or murmur
4. Medications

- Medications are reviewed by MO or NP
- A therapeutic plan should be implemented in all people with hypertension
- Record any current or past medication use and its efficacy
- Identify drugs that can raise blood pressure, such as alcohol, oral contraceptive pill, non-steroidal anti-inflammatory drugs (NSAIDs), steroids, nasal decongestants and amphetamines
- Provide medication information, discuss barriers to taking medications and devise a plan with the client to ensure medication adherence
- For all major anti-hypertensive drug classes the beneficial effect is by lowering BP regardless of their mode of action
- Combination therapy is often necessary. Fewer than 50% of people treated for hypertension will achieve an optimal blood pressure response with a single agent

4.1 Steps to medication treatment

- **Step 1.**
  - classify the client’s blood pressure level (see Table 1)
  - attempt to reach recommended targets

### Table 1. Definition and classification of blood pressure (BP) levels

<table>
<thead>
<tr>
<th>Category</th>
<th>Systolic mmHg (SBP)</th>
<th>Diastolic mmHg (BP)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Definition and classification of blood pressure levels</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Normal</td>
<td>&lt; 120</td>
<td>&lt; 80</td>
</tr>
<tr>
<td>High normal</td>
<td>120 - 139</td>
<td>80 - 89</td>
</tr>
<tr>
<td>Grade 1 (mild) hypertension</td>
<td>140 - 159</td>
<td>90 - 99</td>
</tr>
<tr>
<td>Grade 2 (moderate) hypertension</td>
<td>160 - 179</td>
<td>100 - 109</td>
</tr>
<tr>
<td>Grade 3 (severe) hypertension</td>
<td>≥ 180</td>
<td>≥ 110</td>
</tr>
<tr>
<td>Isolated systolic hypertension</td>
<td>≥ 140</td>
<td>&lt; 90</td>
</tr>
<tr>
<td>Isolated systolic hypertension with widening pulse pressure</td>
<td>≥ 160</td>
<td>≤ 70</td>
</tr>
<tr>
<td><strong>Blood pressure targets for adults</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>People with proteinuria &gt; 1 g per day (with or without diabetes)</td>
<td>&lt; 125</td>
<td>&lt; 75</td>
</tr>
<tr>
<td>People with co-morbidities or end organ damage e.g. coronary heart disease, diabetes, chronic kidney disease, proteinuria &gt; 300 mg/day, stroke / TIA</td>
<td>&lt; 130</td>
<td>&lt; 80</td>
</tr>
<tr>
<td>People with none of the above conditions</td>
<td>&lt; 140</td>
<td>&lt; 90</td>
</tr>
</tbody>
</table>

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• **Step 2.**
  - identify conditions that warrant immediate treatment with antihypertensive drugs, regardless of BP or overall cardiovascular risk profile (see Table 2)

<table>
<thead>
<tr>
<th>Table 2. Conditions requiring immediate antihypertensive treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Associated clinical conditions</strong></td>
</tr>
<tr>
<td>Diabetes</td>
</tr>
<tr>
<td>• In either of the following</td>
</tr>
<tr>
<td>• Adults with diabetes aged &gt; 60 years</td>
</tr>
<tr>
<td>• Adults with diabetes and microalbuminuria (see</td>
</tr>
<tr>
<td>Microalbuminuria below)</td>
</tr>
<tr>
<td>Cerebrovascular disease</td>
</tr>
<tr>
<td>• Ischaemic stroke</td>
</tr>
<tr>
<td>• Cerebral haemorrhage</td>
</tr>
<tr>
<td>• Transient ischaemic attack</td>
</tr>
<tr>
<td>Coronary heart disease</td>
</tr>
<tr>
<td>• Myocardial infarction</td>
</tr>
<tr>
<td>• Angina</td>
</tr>
<tr>
<td>• Coronary revascularisation</td>
</tr>
<tr>
<td>Chronic heart failure</td>
</tr>
<tr>
<td>Chronic kidney disease</td>
</tr>
<tr>
<td>• Diabetic nephropathy</td>
</tr>
<tr>
<td>• Glomerulonephritis</td>
</tr>
<tr>
<td>• Hypertensive kidney disease</td>
</tr>
<tr>
<td>Aortic disease</td>
</tr>
<tr>
<td>• Dissecting aneurysm</td>
</tr>
<tr>
<td>• Fusiform aortic aneurysm</td>
</tr>
<tr>
<td>Peripheral arterial disease</td>
</tr>
<tr>
<td>• Clinical diagnosis or ankle-brachial index test &lt; 0.9</td>
</tr>
<tr>
<td>Dyslipidaemia</td>
</tr>
<tr>
<td>• Serum total cholesterol &gt; 7.5 mmol/L</td>
</tr>
<tr>
<td>Family history</td>
</tr>
<tr>
<td>• Premature cardiovascular disease</td>
</tr>
<tr>
<td>Previous diagnosis</td>
</tr>
<tr>
<td>• Familial hypercholesterolaemia</td>
</tr>
</tbody>
</table>

**End-organ disease**

| Left ventricular hypertrophy                                  |
| • Diagnosed by electrocardiogram                              |
| Microalbuminuria                                              |
| • Defined as either of the following                         |
|   • Albumin creatinine ratio ≥ 2.5 mg/mmol (males) or          |
|     ≥ 3.5 mg/mmol (females) on the spot urine screening test |
|   • For Aboriginal and/or Torres Strait Islander clients albumin|
|     creatinine ratio ≥ 2.0 mg/mmol (males) or ≥ 3.0 mg/mmol   |
|     (females) on the spot urine screening test               |
|   • 24 hour urinary albumin excretion rate ≥ 20 μg/min       |
| Chronic kidney disease                                       |
| • Presence of either of the following                        |
|   • Proteinuria defined as either protein/creatinine ratio    |
|     ≥ 30 mg/mmol on the spot urine test or urine protein > 300|
|     mg/day on timed urine sample                              |
|   • Glomerular filtration rate (eGFR) ≤ 60 ml/min/1.73 m²     |
| Vascular disease                                              |
| • Atherosclerotic plaque (aorta, carotid, coronary, femoral   |
|   and iliac arteries) evident on ultrasound or radiology     |
| • Hypertensive retinopathy (grade 2 or greater)               |

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• Step 3.
  – determine if the client requires ongoing monitoring of their hypertension or initiation of drug treatment (see Figure 1)

Are any of the following present?
• SBP ≥ 180 or DBP ≥ 110
• Isolated systolic hypertension with widened pulse pressure
• Associated conditions or end organ damage (see Table 2)

YES ♥
Start drug treatment immediately

NO
Confirmed hypertension grades 1 or 2. All other adults assess 5 year absolute cardiovascular risk ♥

HIGH > 15%

MODERATE 10 - 15%
Start drug treatment immediately ♥
Monitor BP and reassess 5 year absolute cardiovascular risk in 3 - 6 months ♥

LOW < 10%
Monitor BP and reassess 5 year absolute cardiovascular risk in 6 - 12 months ♥

MODERATE 10 - 15%
SBP < 140 mmHg and DBP < 90 mmHg ♥
Continue monitoring ♥

SBP ≥ 140 mmHg or DBP ≥ 90 mmHg ♥
Start drug treatment immediately ♥

SBP ≥ 150 mmHg or DBP ≥ 90 mmHg ♥
Continue monitoring ♥

SBP 140 - 150 mmHg and DBP < 90 mmHg ♥

SBP ≥ 150 mmHg or DBP ≥ 90 mmHg ♥
Continue monitoring ♥

Figure 1. When to initiate blood pressure lowering drug treatment
♥ Continue lifestyle modification, monitor BP, manage associated conditions and reassess absolute cardiovascular risk regularly. Note that clients with mild hypertension will require antihypertensive drug treatment if their absolute risk of cardiovascular disease is elevated due to changes in other risk factors. For Aboriginal and/or Torres Strait Islander adults, consider managing as though at a higher risk level

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• **Step 4.**
  - determine the best combination of drugs for newly diagnosed hypertensive clients utilising Figure 2. and Table 3.
  - start with lowest dose of selected first line agent
  - if initial drug is not well tolerated change to a drug of a different class
  - if target or significant reduction is not reached with monotherapy (50 - 75% of clients with hypertension will not reach target) add a second agent from an appropriate different pharmacological class rather than increasing the dose of the first agent

---

**FIRST CHOICE**

ACE inhibitor (or angiotensin II receptor antagonist)  
**or**
calcium channel blocker  
**or**
low-dose thiazide diuretic (consider for people aged ≥ 65 years only)

**IF TARGET BP NOT REACHED**

ACE inhibitor (or angiotensin II receptor antagonist) + calcium channel blocker  
**or**
ACE inhibitor (or angiotensin II receptor antagonist) + low-dose thiazide diuretic

**IF TARGET BP NOT REACHED**

ACE inhibitor (or angiotensin II receptor antagonist) + calcium channel blocker + low-dose thiazide diuretic

**IF TARGET BP NOT REACHED**
seek specialist advice

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**Figure 2. Initiating drug treatment for newly diagnosed hypertension**

---
### Table 3. Suggested medications for hypertension

<table>
<thead>
<tr>
<th>Medication Type</th>
<th>Medication</th>
<th>Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Thiazide diuretics</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Chlorthalidone</td>
<td>12.5 - 25 mg once daily</td>
</tr>
<tr>
<td></td>
<td>Hydrochlorothiazide</td>
<td>12.5 - 25 mg once daily</td>
</tr>
<tr>
<td></td>
<td>Indapamide</td>
<td>1.25 - 2.5 mg once daily</td>
</tr>
<tr>
<td><strong>Beta-blockers</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bisoprolol</td>
<td>1.25 - 10 mg daily</td>
</tr>
<tr>
<td></td>
<td>Atenolol</td>
<td>25 - 100 mg once daily</td>
</tr>
<tr>
<td></td>
<td>Carvedilol</td>
<td>12.5 - 50 mg daily</td>
</tr>
<tr>
<td></td>
<td>Labetalol</td>
<td>100 - 400 mg twice daily</td>
</tr>
<tr>
<td></td>
<td>Metoprolol tartrate</td>
<td>50 - 100 mg twice daily</td>
</tr>
<tr>
<td></td>
<td>Metoprolol succinate (controlled release)</td>
<td>12 - 190 mg daily</td>
</tr>
<tr>
<td></td>
<td>Oxprenolol</td>
<td>40 - 160 mg twice daily</td>
</tr>
<tr>
<td><strong>Calcium channel blockers – dihydropyridine</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Amlodipine</td>
<td>2.5 - 10 mg once daily</td>
</tr>
<tr>
<td></td>
<td>Felodipine</td>
<td>5 - 20 mg once daily CR</td>
</tr>
<tr>
<td></td>
<td>Lercanidipine</td>
<td>10 - 20 mg once daily</td>
</tr>
<tr>
<td></td>
<td>Nifedipine</td>
<td>10 - 40 mg twice daily (conventional)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>20 - 120 mg once daily CR</td>
</tr>
<tr>
<td><strong>Calcium channel blockers – nondihydropyridine</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Diltiazem</td>
<td>180 - 360 mg once daily CR</td>
</tr>
<tr>
<td></td>
<td>Verapamil</td>
<td>120 - 240 mg once daily CR</td>
</tr>
</tbody>
</table>

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### Table 3. Suggested medications for hypertension (continued)

#### ACE inhibitors
- Commence at the lowest dose in elderly clients and those taking diuretics
- Potentially beneficial in type 1 or type 2 diabetes (with proteinuria or microalbuminuria), post stroke, chronic kidney disease, post myocardial infarction, heart failure and atrial fibrillation (remodelling)
- Contraindicated or potentially harmful in bilateral renal artery stenosis (unilateral in client with solitary kidney) and pregnancy

<table>
<thead>
<tr>
<th>Drug</th>
<th>Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Captopril</td>
<td>12.5 - 50 mg twice daily</td>
</tr>
<tr>
<td>Enalapril</td>
<td>5 - 40 mg once daily or in 2 equally divided doses</td>
</tr>
<tr>
<td>Fosinopril</td>
<td>10 - 40 mg once daily</td>
</tr>
<tr>
<td>Lisinopril</td>
<td>5 - 40 mg once daily</td>
</tr>
<tr>
<td>Perindopril erbumine</td>
<td>4 - 8 mg once daily</td>
</tr>
<tr>
<td>Perindopril arginine</td>
<td>5 - 10 mg once daily</td>
</tr>
<tr>
<td>Quinapril</td>
<td>5 - 40 mg once daily or in 2 equally divided doses</td>
</tr>
<tr>
<td>Ramipril</td>
<td>2.5 - 10 mg once daily or in 2 equally divided doses</td>
</tr>
<tr>
<td>Trandolapril</td>
<td>1 - 4 mg once daily</td>
</tr>
</tbody>
</table>

#### Angiotensin II receptor antagonists
- Commence at the lowest dose in elderly clients and those taking diuretics
- Use with caution in those who have experienced angioedema with ACE inhibitors
- Potentially beneficial in type 1 or type 2 diabetes (with proteinuria or microalbuminuria), post stroke, chronic kidney disease, heart failure, gout (losartan) and atrial fibrillation (remodelling)
- Contraindicated or potentially harmful in bilateral renal artery stenosis (unilateral in client with solitary kidney) and pregnancy

<table>
<thead>
<tr>
<th>Drug</th>
<th>Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Candesartan</td>
<td>8 - 16 mg once daily</td>
</tr>
<tr>
<td>Eprosartan</td>
<td>600 - 800 mg once daily</td>
</tr>
<tr>
<td>Irbesartan</td>
<td>150 - 300 mg once daily</td>
</tr>
<tr>
<td>Losartan</td>
<td>50 - 100 mg once daily</td>
</tr>
<tr>
<td>Telmisartan</td>
<td>20 - 80 mg once daily</td>
</tr>
<tr>
<td>Olmesartan</td>
<td>20 - 40 mg once daily</td>
</tr>
</tbody>
</table>

#### Other drugs
- Clonidine: rebound hypertension may occur on sudden cessation
- Hydralazine: generally used only in combination with a beta-blocker or verapamil, which prevent reflex tachycardia. Maintenance doses above 100 mg daily are associated with increased risk of lupus-like syndrome and should not be given without determining client’s acetylator status
- Contraindicated or potentially harmful in depression (clonidine, methyldopa, moxonidine)

<table>
<thead>
<tr>
<th>Drug</th>
<th>Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clonidine</td>
<td>50 - 300 micrograms twice daily</td>
</tr>
<tr>
<td>Hydralazine</td>
<td>12.5 - 100 mg twice daily</td>
</tr>
<tr>
<td>Methyldopa</td>
<td>125 - 500 mg twice daily</td>
</tr>
<tr>
<td>Moxonidine</td>
<td>200 - 600 micrograms daily</td>
</tr>
<tr>
<td>Prazosin</td>
<td>0.5 - 10 mg twice daily</td>
</tr>
</tbody>
</table>

Adapted with permission from the Guide to Management of Hypertension. © 2014 National Heart Foundation of Australia
• **Step 5.**
  – monitor medications according to client response (see Figure 4)
  – trial each drug regimen for 6 weeks if client is stable
  – it may be more convenient to use combined preparations to encourage full adherence

*Figure 4. Stabilisation, maintenance and follow up after initiation of antihypertensive drug therapy*
## 5. Care plan

### Table 4. Care plan summary for people with hypertension

<table>
<thead>
<tr>
<th>Action</th>
<th>Review frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dx</strong></td>
<td><strong>Ongoing</strong></td>
</tr>
<tr>
<td>Height</td>
<td>When stops growing</td>
</tr>
<tr>
<td>Blood pressure</td>
<td>Newly diagnosed or medication change then 2, 4, 6 and 12 wks otherwise 3 mthly</td>
</tr>
<tr>
<td>Weight</td>
<td>3 mthly</td>
</tr>
<tr>
<td>Waist circumference</td>
<td>3 mthly</td>
</tr>
<tr>
<td>BMI</td>
<td>3 mthly</td>
</tr>
<tr>
<td>Lifestyle modification education</td>
<td>3 mthly</td>
</tr>
<tr>
<td>Social emotional support</td>
<td>12 mthly</td>
</tr>
<tr>
<td>Visual acuity</td>
<td>12 mthly</td>
</tr>
<tr>
<td>Retinal imaging and fundoscopy</td>
<td>As per MO/NP or specialist 12 mthly</td>
</tr>
<tr>
<td>FBC</td>
<td>12 mthly</td>
</tr>
<tr>
<td>UEC</td>
<td>12 mthly or with change of meds</td>
</tr>
<tr>
<td>eGFR</td>
<td>According to renal function see <em>Chronic kidney disease, page 228</em></td>
</tr>
<tr>
<td>Fasting blood lipids</td>
<td>12 mthly</td>
</tr>
<tr>
<td>Fasting blood glucose</td>
<td>12 mthly</td>
</tr>
<tr>
<td>Urinalysis</td>
<td>12 mthly</td>
</tr>
<tr>
<td>ACR</td>
<td>6 mthly in diabetes otherwise annually</td>
</tr>
<tr>
<td>ECG</td>
<td>12 mthly</td>
</tr>
<tr>
<td>Echocardiogram</td>
<td>As per MO/NP</td>
</tr>
<tr>
<td>Chest x-ray</td>
<td>As per MO/NP</td>
</tr>
<tr>
<td>Influenza vaccine</td>
<td>Recommended - see the current edition of the <em>Australian Immunisation Handbook</em> for schedule</td>
</tr>
<tr>
<td>Pneumococcal vaccine</td>
<td></td>
</tr>
<tr>
<td>HW/RN R/V</td>
<td>3 mthly</td>
</tr>
<tr>
<td>MO/NP R/V</td>
<td>High risk 3 mth, low-medium risk 6 mthly</td>
</tr>
<tr>
<td>Medication review</td>
<td>3 mthly if medicine changed otherwise 12 mthly</td>
</tr>
<tr>
<td>Dentist</td>
<td>12 mthly</td>
</tr>
<tr>
<td>Dietitian</td>
<td>3 mthly</td>
</tr>
<tr>
<td>Specialist cardiac or renal physician</td>
<td>As referred by MO/NP</td>
</tr>
</tbody>
</table>
6. References


2. The State of Queensland and the Royal Flying Doctor Service (Queensland Section) 2013. Primary Clinical Care Manual. Cairns


7. Resources


Osteoarthritis

High risk groups

- Female gender
- Those who are overweight or obese
- Those with previous joint injury
- Those with a family history of osteoarthritis
- Those with occupations where repetitive stress is placed on joints

Urgent referral

- Clients with ongoing pain and/or dysfunction, who are unresponsive to conservative therapy, should be referred before significant functional decline occurs

Special considerations

- In managing osteoarthritis any underlying conditions should be addressed including
  - Cognitive impairment
  - Coronary heart disease, page 142
  - Chronic heart failure, page 100
  - Hypertension, page 228
  - Chronic kidney disease, page 112
  - Diabetes type 2, page 196
  - Asthma (adult and child over 12), page 72
  - Depression, page 172 and Anxiety disorders, page 62
  - Overweight and obesity in adults, page 260
  - Back pain
  - Falls risk
  - Medications (especially polypharmacy and potential drug interactions)

1. What is osteoarthritis (OA)?

- Osteoarthritis (OA) is the most common chronic joint disease in Australia and the leading cause of pain and disability affecting 1.2 million people

- OA can affect any joint, but occurs more commonly in the hands, the cervical and lumbar spine, the hips and knees

- OA causes pain, stiffness, swelling, joint instability and muscle weakness, all of which can lead to impaired physical function and reduced quality of life

- OA commonly develops over the age of 45, increasing with age from less than 1% of people aged under 25 to 49% of people aged over 65 years

- Arthritis and musculoskeletal conditions are the second most frequent problem managed by GPs, accounting for almost 17% of all presentations
2. Diagnosis of osteoarthritis \(^3,4\)

- Diagnosis is usually based on client history, presence of risk factors and examination
- Weight bearing radiographs may confirm a diagnosis but the findings are often non specific
- Other laboratory tests to exclude alternative diagnoses include: erythrocyte sedimentation rate (ESR), rheumatoid factor (RhF) and synovial fluid analysis \(^5\)

- Features suggestive of OA include
  - increased age
  - symmetrical joint pain, tenderness and early morning stiffness
  - decreased joint mobility
  - joint swelling
  - crepitus

- Assessment of a client with OA should also include assessment of obesity, muscle strength, joint alignment and other conditions that may impact on the management of OA

3. Management

- Progression of OA can be slowed, pain relieved, disability minimised and the need for surgery postponed or avoided, with appropriate early intervention strategies \(^6\)

- The aims of management are to \(^6\)
  - recognise and control symptoms early
  - optimise and maintain function
  - optimise and maintain quality of life
  - slow disease progression

- Management is based on a collaborative multidisciplinary approach divided broadly into \(^6,7\)
  - non-pharmacological interventions involving: disease management, education and support, manual therapy, diet and nutrition, physical activity and exercise, occupational therapy and psychosocial support
  - pharmacological intervention aimed at pain management with ongoing medication review and adjustment as required

3.1 Factors complicating management

- In managing osteoarthritis any underlying conditions should be addressed including
  - Cognitive impairment
  - Coronary heart disease, page 142
  - Chronic heart failure, page 100
  - Hypertension, page 228
  - Chronic kidney disease, page 112
  - Diabetes type 2, page 196
  - Asthma (adult and child over 12), page 72
— Depression, page 172 and Anxiety disorders, page 62
— Overweight and obesity in adults, page 260
— Back pain
— Falls risk
— Medications (especially poly-pharmacy and potential drug interactions)

3.2 Support client self management

- Provide the client with OA resources (see Resource 1)
- Maximise independent living using behaviour modification and exercise training
- Utilise community support services (e.g. Home and Community Care) to enhance safety, reduce risk and support the client to stay in their own home (see Resource 2)
- Ensure the home is safe from hazards such as trips, slips and burns
- Encourage the client to identify barriers to adequate lifestyle modification and clinical adherence and develop goals to overcome those barriers based on their capacity and understanding

3.3 Social emotional support

- Be alert for signs and symptoms of depression and anxiety as up to 50% of OA sufferers will develop these conditions (see Resource 3)
- Acknowledge any client or carer concerns and reassure them that good adherence to appropriate treatment can improve the symptoms and rate of progression of the condition

3.4 Pain control

- Pain management is based on a combination of non-pharmacological and pharmacological strategies
- Non-pharmacological interventions should be applied first and include
  — Diet and nutrition, page 14
  — Physical activity, page 26
  — topical application of cold or heat may reduce pain and allow continuation or resumption of physical activity
  — acupuncture may provide benefits in terms of pain and function
  — walking sticks, massage, manual therapy, transcutaneous electrical nerve stimulation (TENS) and knee taping and braces may provide short term benefits for pain relief
- Non-pharmacological interventions should continue even after pharmacological initiation
- Pharmacological treatment is initiated in a stepped approach (see Figure 1) starting with simple analgesics and working upward to stronger medications and dosages as symptoms dictate using simple analgesia, topical agents, oral non-steroidal anti-inflammatory medications, intra-articular corticosteroid injections and opioids
- Persistent pain and severe ongoing disability, despite multiple treatment modalities, will require surgical intervention.
3.5 Physical activity

- Regular physical activity and exercise is recognised as one of the most effective lifestyle strategies to produce improvements in function, maximum peak bone strength and pain control in those with OA.\textsuperscript{1,10,11}

- Depending on client capability, encourage weekly\textsuperscript{10}
  - 150 to 300 minutes of moderate intensity physical activity or
  - 75 to 150 minutes of vigorous intensity physical activity

- Be active on most, preferably all, days every week

- Be mindful of the risk of falling during exercise, especially in combination with medications

- Do muscle strengthening activities on at least 2 days each week to maintain strength and prevent falls\textsuperscript{12}

- Refer to a physiotherapist to initiate and reinforce an exercise regime such as a strength and balance group\textsuperscript{11}

- See Physical activity, page 26

3.6 Weight control

- Achieve and maintain a healthy body weight to maintain muscle mass, particularly guarding against underweight and overweight\textsuperscript{8}

- Overweight and obesity is a modifiable risk factor for knee and hip OA by increasing joint load\textsuperscript{13}

- Weight loss increases gait speed and decreases knee pain\textsuperscript{11}

- Approximately 25 - 50\% of all knee replacements can be avoided if those who are overweight and obese reduce their weight by 5 kg or to within the normal body mass index (BMI) range\textsuperscript{6}

- See Overweight and obesity in adults, page 260

3.7 Alcohol reduction

- Excessive alcohol intake
  - is a cause of fracture due to an increased propensity to fall
  - impairs bone formation

- Drinking no more than 4 standard drinks for men and women, on a single occasion, reduces the risk of alcohol related injury for that occasion\textsuperscript{14}

- See Alcohol reduction, page 4

3.8 Falls prevention

- Screen for individual falls risk (see Resource 4)

- Review medications and minimise sedatives especially benzodiazepines

- Refer to a physiotherapist and a balance and strength or fall prevention group

- Refer to an occupational therapist to assess whether home modifications are required to minimise slip and fall hazards
3.9 Surgery

- Around 30% of clients with osteoarthritis will have disease that progresses to a severity requiring surgical referral\(^6\)
- Timely access to osteotomy or joint replacement surgery is a cost effective intervention for people with OA\(^6,7,9\)
- Clients with ongoing pain and/or dysfunction, who have exhausted clinical therapy interventions, should be referred before significant functional decline occurs\(^6,7\)

4. Medications

- Medications are used to treat persistent underlying symptoms of pain and stiffness as well as manage acute exacerbations of pain when required

4.1 Pain relief

- It is important to approach treatment of symptoms in a stepwise fashion (see Figure 1) using simple analgesia, topical agents, oral non-steroidal anti-inflammatory drugs (NSAIDs), intra-articular corticosteroid injections and opioids\(^9,15\)
- At each step, medications are reviewed in relation to the client’s symptoms with the aim to control symptoms at the lowest medication dose and treatment option\(^9,15\)
- Medication review should include
  - 3 monthly renal function and full blood count (FBC) testing and
  - 6 monthly LFTs for those using NSAIDs or COX-2 inhibitors\(^17\)

![Figure 1. Stepped approach to pain management in OA\(^5,9,15,16\)](figure)
4.2 Simple analgesics and NSAIDs

- Pain relief is primarily treated with simple analgesics, topical agents and NSAIDs (see Table 1).
- Clients requiring NSAIDs should be evaluated for their risk of developing upper GI bleeding and where appropriate begun on Proton-pump inhibitor (PPI) therapy.9

Table 1. Simple analgesics and NSAIDs for osteoarthritis9,15,16

<table>
<thead>
<tr>
<th>Suggested drug and dose</th>
<th>Monitoring</th>
</tr>
</thead>
<tbody>
<tr>
<td>Celecoxib 100 - 200 mg orally 1 - 2 times daily up to maximum of 400 mg daily</td>
<td>- Serious adverse effects, including heart failure, renal impairment and GI bleeding are associated with all NSAIDs and COX-2 inhibitors</td>
</tr>
<tr>
<td>Diclofenac 25 - 50 mg orally 2 - 3 times daily up to 200 mg maximum daily</td>
<td>- No difference in efficacy has been demonstrated between different NSAIDs in the treatment of osteoarthritis</td>
</tr>
<tr>
<td>Ibuprofen orally 200 - 400 mg daily 3 - 4 times daily up to 2400 mg maximum daily</td>
<td>- Addition of an NSAID to regular paracetamol may produce additive benefit and limit the dose of NSAID required</td>
</tr>
<tr>
<td>Ketoprofen 100 mg orally daily up to 200 mg maximum daily</td>
<td>- Short courses of NSAIDs may provide benefit that can be maintained with simple analgesics</td>
</tr>
<tr>
<td>Mefenamic acid 500 mg orally 3 times daily up to 1500 mg maximum daily</td>
<td>- If NSAIDs are ineffective, contraindicated or not tolerated, consider intra- or peri-articular corticosteroids, opioid analgesics or surgery</td>
</tr>
<tr>
<td>Meloxicam 7.5 - 15 mg orally daily up to 15 mg maximum daily</td>
<td>- As effective as and better tolerated than NSAIDs, especially if OA is mild-to-moderate in severity</td>
</tr>
<tr>
<td>Naproxen 250 - 500 mg orally 2 times daily up to 1250 mg maximum daily</td>
<td></td>
</tr>
<tr>
<td>Piroxicam 10 - 20 mg orally daily up to 20 mg maximum daily</td>
<td></td>
</tr>
<tr>
<td>Paracetamol 1 g orally 4 - 6 hrly up to maximum 3 g daily</td>
<td></td>
</tr>
</tbody>
</table>

4.3 Topical agents15,16

- These over the counter creams, ointments, gels, liniments and sprays contain:
  - counter-irritants to provide a sensation of warmth, which may be comforting in painful OA e.g. eucalyptus oil, turpentine oil, nicotinate, nonivamide, salicylates and camphor
  - NSAIDs e.g. benzydamine
  - agents that produce a feeling of coolness e.g. menthol
  - capsaicin which is used as a topical analgesic but may cause a stinging or burning sensation

- Adverse effects are rare but may include skin irritation (superficial, partial thickness and full thickness chemical burns have been reported), erythema, itching, rash, bronchospasm, dyspnoea (salicylates), nausea, contact dermatitis, photo-sensitivity and hypersensitivity

- Product is applied 2 - 4 times daily for up to 14 days then reviewed for efficacy
4.4 Intra-articular corticosteroid injections\textsuperscript{9,15,16}

- For acute exacerbation of symptoms consider intra-articular corticosteroid injections where appropriate to provide pain relief in OA
- Should only be given by, or under the supervision of, experienced clinicians
- Local anaesthetic may be used before, or mixed with, the corticosteroid
- Corticosteroid injections are used for specific purposes including
  - betamethasone sodium phosphate plus betamethasone acetate is usually used for injection into smaller joints
  - methylprednisolone acetate is not suitable for injection into small joints or superficial soft tissue sites, where it may cause fat atrophy and can be an irritant. It could be used in a large bursa such as a trochanteric bursa
  - triamcinolone acetonide is the least soluble injection and provides the longest duration of action (up to 21 weeks)
- Table 2. provides examples of appropriate doses
- Dose must be adjusted to the specific requirements of the client according to the size of the joint, the severity of the condition, the response obtained and the client’s tolerance of the corticosteroid
- Do not give > 4 injections/year into any single joint as this may increase the risk of cartilage damage
- Avoid further injections if there is no response after 2 consecutive injections
- Clients should not overuse the joint following injection as there may be a risk of further joint deterioration and beneficial effects may be reduced

<table>
<thead>
<tr>
<th>Local corticosteroid injections</th>
<th>Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Small joint (e.g. hand)</td>
</tr>
<tr>
<td>Betamethasone sodium phosphate + betamethasone acetate 5.7 mg/mL</td>
<td>0.5 - 1 ml</td>
</tr>
<tr>
<td>Methylprednisolone acetate 40 mg/mL</td>
<td>N/A</td>
</tr>
<tr>
<td>Triamcinolone acetonide 10 mg/mL</td>
<td>0.5 - 1 ml</td>
</tr>
<tr>
<td>Triamcinolone acetonide 40 mg/mL</td>
<td>N/A</td>
</tr>
</tbody>
</table>
Section 2: Management of diagnosed conditions

4.5 Opioids

- Weak or strong opioids should be considered for treating moderate to severe pain of the hip or knee where
  - the client does not respond to or tolerate oral analgesics or NSAIDs
  - joint replacement surgery has been contraindicated or delayed\(^{10,16}\)

- Commence at low dose, titrate dose, monitor for adverse events and follow the stepped approach to pain relief\(^{8}\)

- See Table 3. for opioid choices for OA

### Table 3. Opioid medications for OA\(^{9,18}\)

<table>
<thead>
<tr>
<th>Recommended drug and dose</th>
<th>Monitoring</th>
</tr>
</thead>
</table>
| Oxycodone 5 - 10 mg orally (immediate release) every 4 - 6 hours when required | • Beware of constipation from opioids  
• Beware of accumulation of active metabolites in renal failure  
• Used in moderate to severe pain  
• Preferred in renal impairment (dose adjusted)  
• Mild to moderate pain |
| Oxycodone 10 mg orally CR b.d. when required                   |                                                                                               |
| Codeine 15 - 60 mg orally every 4 - 6 hours when required     | • Mild to moderate pain  
• Not first line opioid medication |
| Morphine 10 - 30 mg orally (immediate release) every 4 hours when required |                                                                                               |
| Morphine 15 mg orally CR every 8 - 12 hours when required     |                                                                                               |
| Tramadol 50 - 100 mg orally (immediate release) every 4 - 6 hours when required. Max daily dose 400 mg/day | • Moderate to severe pain |
| Tapentadol 50 mg twice daily initially Max daily dose 500 mg   |                                                                                               |
5. Care plan

Table 4. Care plan for osteoarthritis

<table>
<thead>
<tr>
<th>Action</th>
<th>Dx</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td>✓</td>
<td>Once</td>
</tr>
<tr>
<td>Weight</td>
<td>✓</td>
<td>6 mthly</td>
</tr>
<tr>
<td>BMI</td>
<td>✓</td>
<td>6 mthly</td>
</tr>
<tr>
<td>Waist circumference</td>
<td>✓</td>
<td>6 mthly</td>
</tr>
<tr>
<td>BP</td>
<td>✓</td>
<td>6 mthly</td>
</tr>
<tr>
<td>FBC</td>
<td>✓</td>
<td>3 - 6 mthly</td>
</tr>
<tr>
<td>Renal function</td>
<td>✓</td>
<td>3 - 6 mthly</td>
</tr>
<tr>
<td>LFTs</td>
<td>✓</td>
<td>3 mthly</td>
</tr>
<tr>
<td>Carer education and support</td>
<td>✓</td>
<td>3 mthly</td>
</tr>
<tr>
<td>Smoking cessation</td>
<td>✓</td>
<td>Ongoing support as required</td>
</tr>
<tr>
<td>Physical activity</td>
<td>✓</td>
<td>Exercise program as determined by physiotherapist</td>
</tr>
<tr>
<td>Diet and nutrition</td>
<td>✓</td>
<td>3 mthly</td>
</tr>
<tr>
<td>Social emotional wellbeing</td>
<td>✓</td>
<td>Each visit</td>
</tr>
<tr>
<td>Influenza vaccine</td>
<td></td>
<td>Recommended - see the current edition of the <em>Australian Immunisation Handbook</em> for schedule</td>
</tr>
<tr>
<td>Pneumococcal vaccine</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lifestyle modification</td>
<td>✓</td>
<td>Each visit</td>
</tr>
<tr>
<td>Medication review</td>
<td>✓</td>
<td>3 - 6 mthly</td>
</tr>
<tr>
<td>HW/RN R/V</td>
<td>✓</td>
<td>3 mthly</td>
</tr>
<tr>
<td>MO/NP R/V</td>
<td>✓</td>
<td>3 - 6 mthly</td>
</tr>
<tr>
<td>Occupational therapist</td>
<td>✓</td>
<td>Referral as required</td>
</tr>
<tr>
<td>Physiotherapist</td>
<td>✓</td>
<td>Referral as required</td>
</tr>
<tr>
<td>Specialist review</td>
<td>✓</td>
<td>Referral as required</td>
</tr>
<tr>
<td>HACC</td>
<td>✓</td>
<td>Referral as required</td>
</tr>
<tr>
<td>Falls risk assessment</td>
<td>✓</td>
<td>As determined by allied health</td>
</tr>
<tr>
<td>Balance and strength exercise program</td>
<td>✓</td>
<td>As determined by allied health</td>
</tr>
</tbody>
</table>

6. References


7. Resources


Osteoporosis

High risk groups

- Non modifiable
  - female gender (women develop thin bones sooner than men)
  - post menopause
  - over 70 years of age
  - certain medical conditions
  - a family history

- Modifiable
  - lack of weight-bearing exercise and immobilisation
  - poor calcium intake
  - vitamin D deficiency
  - low or high body weight
  - cigarette smoking
  - excessive alcohol use
  - long term use of corticosteroids
  - some chronic conditions like CKD and malabsorption syndromes

Urgent referral

- Any client who sustains a minimal trauma fracture should be investigated by a MO or NP for underlying osteoporosis or other pathology

Special considerations

- In managing osteoporosis the following needs to be addressed
  - cognitive impairment
  - Depression, page 172
  - Anxiety disorders, page 62
  - falls risk
  - medications (polypharmacy and potential drug interactions)

1. What is osteoporosis (OP)?

- Osteoporosis (OP) is defined as a disease characterised by low bone mass and deterioration of bone tissue, leading to bone fragility and an increase in fracture risk

- Osteoporotic fractures usually result from a combination of decreased bone strength and injurious falls

- Vertebral (spinal) fractures are the hallmark feature of OP and occur with a higher incidence and earlier in life than any other types of minimal trauma fracture

- Non-vertebral minimal trauma fractures include hip, distal forearm, humerus, shoulder, ankle, pelvis and tibia

- The lifetime risk of minimal trauma fracture is approximately 43% for women over 50
years of age and 56% among women over 60 years of age.  
• Irrespective of fracture site, adults who sustain a fracture are at substantially greater risk (2 - 4 fold) of sustaining another fracture of a different type.

2. Diagnosis of osteoporosis
• Diagnosis of OP is based on  
  – medical history and identification of risk factors  
  – clinical examination and  
  – confirmation by a dual energy x-ray absorptiometry (DXA) bone density measurement on 2 sites, preferably anteroposterior spine and hip  
• Part of this diagnostic process is ensuring that other causes of bone fragility such as metastatic cancers and endocrine disorders are excluded  
• The result of DXA scans are expressed as a ‘T-score,’ and will be in the range of  
  – normal (-1 or higher)  
  – osteopenia (low bone mineral density) (-1 to -2.5)  
  – OP (-2.5 or lower)  
• Applicable laboratory tests and radiographs of the thoracic and lumbar spine should also be considered

3. Management
3.1 Factors complicating management  
• In managing OP the following needs to be addressed  
  – cognitive impairment  
  – Depression, page 172  
  – Anxiety disorders, page 62  
  – falls risk  
  – medications (especially polypharmacy and potential drug interactions)

3.2 Support client self management  
• Provide the client with OP resources (see Resource 1)  
• Maximise independent living using behaviour modification and exercise training  
• Utilise community support services (e.g. Home and Community Care) to enhance safety, reduce risk and support the client to stay in their own home (see Resource 2)  
• Ensure the home is safe from hazards such as trips, slips and burns  
• Encourage the client to identify barriers to adequate lifestyle modification and clinical adherence and develop goals to overcome those barriers based on their capacity and understanding

3.3 Social emotional support  
• Be alert for signs and symptoms of depression and anxiety (see Resource 3)  
• Acknowledge any client or carer concerns and reassure them that good adherence to
appropriate treatment can improve the symptoms and rate of progression of the condition.

### 3.4 Adequate calcium intake

- Calcium can help prevent osteoporosis and fragility fractures
- An adequate calcium intake achieved through diet continues to be the best method, particularly in postmenopausal women and the elderly
- The recommended daily intake for women over 50, men over 70 and those with OP is 1300 mg (1000 mg daily for men between 50 and 70 years)
- Increase intake of dairy products by 3 - 4 servings of calcium containing foods each day (see Table 1)

#### Table 1. Calcium content of key foods (per standard serve)

<table>
<thead>
<tr>
<th>Food</th>
<th>Calcium content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Milk and yoghurt (including low fat versions)</td>
<td>304 - 488 mg</td>
</tr>
<tr>
<td>Cheese</td>
<td>121 - 209 mg</td>
</tr>
<tr>
<td>Tinned fish</td>
<td>175 - 486 mg</td>
</tr>
<tr>
<td>Selected green vegetables</td>
<td>12 - 91 mg</td>
</tr>
<tr>
<td>Tofu (firm)</td>
<td>150 - 850 mg</td>
</tr>
<tr>
<td>Selected nuts and tahini</td>
<td>30 - 66 mg</td>
</tr>
<tr>
<td>Dried fruit</td>
<td>32 - 160 mg</td>
</tr>
<tr>
<td>Fortified milk</td>
<td>520 mg</td>
</tr>
<tr>
<td>Soy milk (including low fat versions)</td>
<td>309 - 367 mg</td>
</tr>
</tbody>
</table>

For standard serve size see Diet and nutrition, page 14

### 3.5 Physical activity

- Regular weight bearing and resistance physical activity and exercise is recognised as one of the most effective lifestyle strategies to improve bone mass and density during ageing
- A 10% higher peak bone mass can delay the development of osteoporosis by 13 years and reduce the risk of fracture by 50%
- Non-weight bearing exercises (swimming, cycling) and leisure walking does not improve bone density
- Depending on the client’s capability, encourage 30 minutes of moderate to high intensity weight bearing and resistance exercise 3 - 5 times a week
- Weight bearing exercises include
  - running
  - impact aerobics
  - jump rope
  - dancing
Section 2: Management of diagnosed conditions

### OSTEOPOROSIS

- basketball
- netball
- tennis
- stair climbing

- Resistance exercises include:
  - hand weights
  - ankle weights
  - gym equipment

- Be active on most, preferably all, days every week
- Avoid long periods of sitting as often as possible
- Be mindful of the risk of falling during exercise, especially in combination with medications
- Do muscle strengthening activities on at least 2 days each week to maintain strength and prevent falls
- Exercise programs that combine high impact activity with high intensity resistance training appear most effective for pre-menopausal women
- Refer to a physiotherapist to initiate and reinforce an exercise regime such as a strength and balance group
- See Physical activity, page 26

#### 3.6 Weight control

- The relative risk of a hip fracture is approximately doubled for both women and men with low body weight (BMI < 20)
- Achieve and maintain a healthy body weight to maintain muscle mass, particularly guarding against underweight
- See Overweight and obesity in adults, page 260

#### 3.7 Adequate vitamin D levels

- Vitamin D deficiency is associated with low bone density and increased risk of falls
- Adequate vitamin D serum levels is critical for calcium absorption and is also important for bone growth and mineralisation and muscle function
- People at risk of osteoporosis should maintain a serum vitamin D concentration of 75 nmol/L or more
- It is important to measure vitamin D serum levels and provide supplements for those at risk of vitamin D deficiency, including those with limited sun exposure, with naturally occurring dark skin, who cover their skin (cultural or habitual clothing), conditions affecting vitamin D metabolism, and people in residential care or housebound, particularly the elderly
osteoporosis

– disabled, chronically ill or obese people
– indoor workers
– people with medical conditions or taking medications that interfere with vitamin D metabolism

• Most adults will obtain only 5% - 10% of their vitamin D needs from diet alone, the major sources being fatty fish (salmon, sardine, herring and mackerel), liver, eggs and fortified foods, such as margarine and some varieties of low fat milk.

• Exposure to the sun is the best way to achieve vitamin D requirements.

• Fair skinned people can get enough vitamin D by exposing their face, hands and arms before 10am and after 3pm for 6 - 7 minutes in summer and 7 - 40 minutes at midday in winter (depending on the UV index).

• Naturally dark skinned people need more UV exposure (10 - 15 minutes on most days of the week) to produce adequate levels of vitamin D as the pigment in their skin reduces UV penetration.

3.8 Alcohol reduction

• Excessive alcohol intake
  – is a cause of fracture, because of an increased propensity to fall
  – impairs bone formation

• If alcohol is consumed, it should be consumed in moderation; up to one standard drink per day for women and two standard drinks per day for men.

• See Alcohol reduction, page 4

3.9 Smoking cessation

• Smoking is associated with a reduction in bone structure and strength and is an independent moderate risk factor for vertebral fractures and nonvertebral (including hip) fractures.

• Do not smoke.

• See Smoking cessation, page 44

3.10 Falls prevention

• Reduced bone density and strength predisposes 50% of women and 25% of men to minimal trauma fractures, with a further 50% sustaining a re-fracture.

• Screen for individual falls risk (see Resource 4).

• Review medications and minimise sedatives especially benzodiazepines.

• Refer to a physiotherapist and a balance and strength or falls prevention group.

• Refer to an occupational therapist to assess whether home modifications are required to minimise slip and fall hazards.
4. Medications

4.1 Vitamin D

- For those at risk of developing osteoporosis, vitamin D supplements should continue at doses that will maintain serum 25(OH)D levels greater than 60 nmol/L to prevent the onset of the disease.
- Once this level has been achieved, maintenance doses of vitamin D supplements should continue at daily doses of 800 IU.
- Higher doses of 2000 - 4000 IU (50 - 100 micrograms) per day may be required in some individuals, e.g., obese.
- When starting vitamin D treatment for people who are already osteoporotic, it is important to measure the serum 25(OH)D level prior to initial dose of vitamin D, then 3 months after commencement of treatment (see Table 2).

| Table 2. Vitamin D regimen for osteoporosis

<table>
<thead>
<tr>
<th>Maintenance dose (serum 25(OH)D concentration &gt; 60 nmol/L)</th>
<th>Mild vitamin D deficiency (serum 25(OH)D concentration 30 - 49 nmol/L)</th>
<th>Moderate to severe vitamin D deficiency (serum 25(OH)D concentration &lt; 29 nmol/L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colecalciferol</td>
<td>• 25 micrograms (1000 IU) orally, daily</td>
<td>• 25 - 50 micrograms (1000 - 2000 IU) orally, daily</td>
</tr>
<tr>
<td></td>
<td>• Check serum 25(OH)D levels after 3 months</td>
<td></td>
</tr>
</tbody>
</table>

4.2 Calcium supplements

- Only consider calcium supplements (maximum daily dose of 500 - 600 mg) if dietary intake is insufficient (see Table 3).

| Table 3. Calcium supplements for osteoporosis

| Calcium carbonate | 1.5 g (elemental calcium 600 mg) orally, daily with food | Calcium supplements can reduce the absorption of some other drugs (e.g., thyroxine, tetracyclines, quinolones, bisphosphonates) and should be separated from these drugs by at least 2 hours |
| Calcium citrate | 2.38 g (elemental calcium 500 mg) orally, daily | |
4.3 Antiresorptive (AR) drugs

- Antiresorptive drugs (bisphosphonates and denosumab) slow bone loss by inhibiting osteoclast function, improving BMD and reducing the risk of fractures.
- AR drugs have very rarely been associated with osteonecrosis of the jaw in clients taking them orally for osteoporosis.
- An assessment of dental hygiene is recommended before starting treatment with an AR. A formal examination by a dentist is not required.
- It is recommended that dental treatment should be completed before starting bisphosphonate or denosumab therapy.
- Clients should ensure adequate intake of calcium and vitamin D while on these medications, however, calcium should be taken at a different time to ARs.
- ARs should be taken with caution in clients with renal disease.
- ARs are available on the PBS for men and women aged over 70 years where T-scores are ≤ -2.5 (Zoledronic acid ≤ -3.0).
- See Table 4. for a list of antiresorptive drugs.
### Table 4. Antiresorptive drugs for osteoporosis\(^1,4,11,12\)

<table>
<thead>
<tr>
<th>For men and women with a minimal trauma fracture</th>
<th>For post-menopausal women with a minimal trauma fracture</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Alendronate</strong></td>
<td>• 70 mg orally weekly</td>
</tr>
<tr>
<td><strong>Risedronate</strong></td>
<td>• 5 mg daily</td>
</tr>
<tr>
<td></td>
<td>• 35 mg weekly or</td>
</tr>
<tr>
<td></td>
<td>• 150 mg monthly all orally</td>
</tr>
<tr>
<td><strong>Zoledronic acid</strong></td>
<td>• 5 mg IV once a year</td>
</tr>
<tr>
<td><strong>Strontium ranelate</strong></td>
<td>• 2 g daily at night</td>
</tr>
<tr>
<td><strong>Denosumab</strong></td>
<td>• 60 mg subcutaneously every 6 months</td>
</tr>
<tr>
<td><strong>Raloxifene</strong></td>
<td>• 60 mg daily, orally</td>
</tr>
<tr>
<td><strong>Teriparatide</strong></td>
<td>• 20 micrograms subcutaneously daily for a maximum of 18 months</td>
</tr>
</tbody>
</table>

- To minimise upper gastrointestinal adverse effects take first thing in the morning on an empty stomach remain upright for at least 30 minutes after taking
- Dysphagia, achalasia or an inability to remain upright for 30 minutes are contraindications to their use
- Due to poor oral absorption of bisphosphonates, food, drink (apart from water) and medication should be avoided before and after administration
- Calcium salts, antacids, and iron and magnesium supplements inhibit absorption, and should not be taken within 2 hours
- Mix with at least 30 mL of water and take on an empty stomach at least 2 hours after eating
- Not to be taken within 2 hours of a calcium supplement
- Cease immediately and permanently if client develops a rash, particularly within 6 to 8 weeks of starting treatment
- Contraindicated in those with a history of ischaemic heart disease, peripheral vascular disease, cerebrovascular disease, or if systolic BP > 160 mmHg or diastolic BP > 90 mmHg. Cease if any of these develop during treatment
- Increases the incidence of hot flushes, deep venous thrombosis and causes a small increase in the risk of death after stroke
- Can only be initiated by a specialist

For those with a very high risk of fracture (T-score < -3.0, two or more minimal trauma fractures and at least one new fracture after 12 months on anti-resorptive therapy)
### 5. Care plan

#### Table 5. Osteoporosis care plan

<table>
<thead>
<tr>
<th>Action</th>
<th>Dx</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td>✓</td>
<td>Once</td>
</tr>
<tr>
<td>BMI</td>
<td>✓</td>
<td>6 mthly</td>
</tr>
<tr>
<td>Weight</td>
<td>✓</td>
<td>6 mthly</td>
</tr>
<tr>
<td>Waist circumference</td>
<td>✓</td>
<td>6 mthly</td>
</tr>
<tr>
<td>BP</td>
<td>✓</td>
<td>6 mthly</td>
</tr>
<tr>
<td>Serum 25(OH)D levels</td>
<td>✓</td>
<td>3 mthly if being treated, otherwise annually</td>
</tr>
<tr>
<td>Carer education and support</td>
<td>✓</td>
<td>Each visit</td>
</tr>
<tr>
<td>Smoking cessation</td>
<td>✓</td>
<td>Ongoing support as required</td>
</tr>
<tr>
<td>Physical activity</td>
<td>✓</td>
<td>Exercise program as determined by physiotherapist</td>
</tr>
<tr>
<td>Diet and nutrition</td>
<td>✓</td>
<td>Each visit</td>
</tr>
<tr>
<td>Social emotional wellbeing</td>
<td>✓</td>
<td>Each visit</td>
</tr>
<tr>
<td>Influenza vaccine</td>
<td></td>
<td>Recommended - see the current edition of the Australian Immunisation Handbook for schedule</td>
</tr>
<tr>
<td>Pneumococcal vaccine</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lifestyle modification</td>
<td>✓</td>
<td>Each visit</td>
</tr>
<tr>
<td>Medication review</td>
<td>✓</td>
<td>3 - 6 mthly</td>
</tr>
<tr>
<td>Bone mass density testing</td>
<td>✓</td>
<td>Every 2 years</td>
</tr>
<tr>
<td>HW/RN R/V</td>
<td>✓</td>
<td>Each visit</td>
</tr>
<tr>
<td>MO/NP R/V</td>
<td>✓</td>
<td>6 mthly</td>
</tr>
<tr>
<td>Occupational therapist</td>
<td>✓</td>
<td>Referral as required</td>
</tr>
<tr>
<td>Physiotherapist</td>
<td>✓</td>
<td>Referral as required</td>
</tr>
<tr>
<td>Specialist review</td>
<td>✓</td>
<td>Referral as required</td>
</tr>
<tr>
<td>HACC</td>
<td>✓</td>
<td>Referral as required</td>
</tr>
<tr>
<td>Falls risk assessment</td>
<td>✓</td>
<td>As determined by allied health</td>
</tr>
<tr>
<td>Balance and strength exercise program</td>
<td>✓</td>
<td>As determined by allied health</td>
</tr>
</tbody>
</table>
6. References


7. Resources

1. For an array of osteoporosis resources see Osteoporosis Australia at http://www.osteoporosis.org.au/


Overweight and obesity in adults

High risk groups
- Persons over 18 years of age with a BMI > 25
- Women with waist circumference ≥ 80 cm
- Men with waist circumference ≥ 94 cm¹
- Aboriginal and Torres Strait Islander and culturally and linguistically diverse peoples
- Those living in socioeconomic disadvantage
- Those living in rural and remote locations

Considerations for women of child-bearing age
- Small for gestational age babies with catch up growth are at risk of obesity
- Excess weight gain during pregnancy is associated with an increased risk of metabolic syndrome and obesity in the infant in later life¹
- Babies born to mothers who smoke during pregnancy have a higher risk of being overweight or obese as adolescents and adults¹
- Increase in antenatal miscarriage, gestational diabetes, stillbirth, pre-eclampsia, thromboembolism and maternal death²
- Increase in intrapartum general anaesthesia use, instrumental delivery, caesarean section, postpartum haemorrhage and prolonged labour²

1. What is overweight or obesity in adults?
- Overweight and obesity is defined as abnormal or excessive fat accumulation that may impair health³
- The term, overweight, generally indicates that a person has more body fat than is considered healthy for the optimal functioning of the body
- Being overweight or obese is the second highest contributor to disease burden (after tobacco use) for all Australians, with approximately 60% of adults being overweight or obese⁴,⁵
- Overweight and obesity is associated with an increased risk of
  - type 2 diabetes
  - cardiovascular disease
  - hypertension
  - metabolic syndrome
  - some cancers
  - musculoskeletal conditions
  - respiratory conditions
  - sleep apnoea
  - gall bladder disease
  - hernia
  - reproductive disorders
– urinary incontinence
– fatty liver disease and
– depression and other mental health disorders

• The fundamental cause of obesity and overweight is an energy imbalance between calories consumed and calories expended i.e. a high fat, energy dense diet and a sedentary lifestyle

2. Diagnosis of overweight or obesity in adults

• Although not suitable for all population groups generally the diagnosis of overweight and obesity is determined by
  – body mass index (BMI) and
  – waist circumference

• It is recommended to use a combination of body mass and fat distribution measures when identifying ill health risk

2.1 Body Mass Index

• Body mass index (BMI) is calculated as weight (in kilograms) divided by height (in metres) squared (kg/m²)

• The association between a person’s weight and the risk of mortality or morbidity increases above a BMI in the normal range (18.5 to 24.9 kg/m²)

• BMI categories for adults are as follows
  – < 18.5 kg/m² – underweight
  – 18.5 - 24.9 kg/m² – healthy weight
  – 25.0 - 29.9 kg/m² – overweight
  – ≥ 30.0 kg/m² – obese

2.2 Waist circumference

• Increased abdominal obesity is associated with cardiovascular disease, type 2 diabetes and some cancers

• Risk is increased at ≥ 80 cm and high at ≥ 88 cm for women and increased at ≥ 94 cm and high at ≥ 102 cm for men

• Waist measurement is taken at the mid-point between the bottom of the person’s ribs and the top of the hipbone and during expiration

3. Management

• Managing overweight and obese clients primarily focuses on supporting the client to make sustainable lifestyle changes around diet and physical activity

3.1 Factors complicating management

• In managing overweight and obese clients the following co-morbidities and screening must be considered
  – Stroke and transient ischaemic attack, page 300
  – Dyslipidaemia, page 210
overweight and obesity in adults

- Depression, page 172
- Anxiety disorders, page 62
- moderate weight loss can prevent, delay or improve control of type 2 diabetes\(^4\) (see Diabetes type 2, page 196)
- a 5% weight loss is associated with improvements in chronic kidney disease and sleep apnoea\(^4\) (see Chronic kidney disease, page 112)
- a modest weight loss in overweight or obese people reduces cardiovascular risk factors\(^4\) (see Hypertension, page 228, Coronary heart disease, page 142, and Chronic heart failure, page 100)

- It is important to check for these complications along with calculation of absolute cardiovascular risk (see Appendix 1: Australian cardiovascular risk charts, page 494)

3.2 Support client self management

- Weight reduction can be achieved by reducing energy intake, increasing physical activity and supporting behavioural change\(^3,4\)
- Discuss overweight and obesity and its association with chronic diseases
- Provide resources (see Resource 1) and discuss the positive effects of lifestyle modification (see Lifestyle modification section) on weight with particular regard to diet and nutrition (Diet and nutrition, page 14) and physical activity (Physical activity, page 26)
- Encourage self monitoring of weight which is associated with greater weight loss and weight gain prevention\(^1,4\) (see Resource 2)
- Encourage the client to identify barriers to adequate lifestyle modification and clinical adherence and provide goals to overcome those barriers based on their capacity and understanding

3.3 Social emotional support

- Depressive disorders and eating disorders are associated with overweight and obesity. If suspected, refer to a psychologist for mental health assessment\(^1,4\)
- Depression and anxiety can be screened for by using a self- or clinician-rated mood scale (see Resource 3. for examples). Rating scales should be supplemented by a clinical assessment by a suitably qualified clinician to make a diagnosis
- Acknowledge any client concerns and reassure them that good adherence to appropriate treatment can improve the symptoms of their condition

3.4 Weight loss plan

- A weight loss plan is a documented set of client centred goals to lose weight in response to lifestyle modification information negotiated with the clinician
- For many overweight and obese adults, achieving a ‘healthy’ BMI is an unrealistic expectation. Discuss that a weight loss of 5% is achievable and will result in health benefits\(^4\)
- Encourage the client to set goals by identifying ways to modify their lifestyle (see Lifestyle modification section)
- For best results, self monitoring by using a food and activity diary is recommended
• The plan should be reviewed every 2 weeks for the first 3 months to ensure client suitability and/or modification where necessary
• Review lifestyle behaviours if there is no weight loss (less than 1% body weight or no change in waist circumference) after 3 months of active management
• Encourage the client to take action (e.g. seeing a health professional) when small amounts of weight (approximately 3 kg) have been regained
• If there is weight gain reassess energy intake and physical activity, and reinforce weight loss strategies

### 3.5 Physical activity

- Being physically active reduces the risk of mortality and prevents and manages many chronic diseases, including heart disease, stroke, hypertension, type 2 diabetes and some cancers.
- Being physically active offers other health benefits, including building and maintaining healthy bones, muscles and joints, improving self-esteem, self-image and quality of life.
- When discussing physical activity approaches to weight loss consider the influence of cultural values or family beliefs on health behaviours, time or support for physical activity e.g. child care or walking tracks, the client’s fitness level, mobility or activity impairment due to age, disability, co-morbidity or size.
- Doing any physical activity is better than doing none.
- Moving from no activity to low or higher levels of activity, provides the greatest health benefits.
- Each week encourage 150 - 300 minutes of moderate intensity physical activity or 75 - 150 minutes of vigorous intensity physical activity.
- Be active on most, preferably all, days every week.
- Do muscle strengthening activities on at least 2 days each week to maintain strength, prevent falls, and to reduce risk factors for cardiovascular disease and type 2 diabetes.
- Avoid long periods of sitting as often as possible which results in poorer health outcomes.
- For adults who are overweight or obese, particularly those who are older than 40 years, there should be an individualised approach to increasing physical activity.
- Women may start or continue exercise programs during pregnancy.
• For further details refer to Physical activity, page 26

3.6 Diet and nutrition

• When discussing dietary approaches to weight loss consider:
  – the influence of cultural values or family beliefs on health behaviours
  – the degree of overweight or obesity and the degree of program intensity
  – dietary preferences of the individual and their family
  – the availability, affordability and the ability to store healthy foods
  – a sustainable eating plan to gradually change eating habits
  – the presence of psychosocial pressures affecting the current eating pattern
  – alcohol has a high kilojoule content and contributes to fat storage
  – portion sizes and strategies for controlling or reducing them e.g. use smaller plates
  – reducing rather than restricting intake of foods that are high in energy e.g. fats, sugar
  – increasing intake of foods that are low in energy but rich in other nutrients e.g. vegetables, fruit
  – starting with small changes and avoiding situations that encourage unhealthy behaviours
  – providing examples of healthy foods that are affordable and familiar, or suitable alternatives
  – identifying and managing triggers for emotional eating
  – the importance of regular eating patterns and mindful eating

• Provide the client with nutrition and diet related resources (see Resource 2)

• Eat plenty of
  – any and all vegetables, including different types and colours
  – fruit
  – breads, cereals, rice, pasta, noodles, oats and barley
  – lean meats and poultry, fish, eggs, tofu, nuts and seeds, and legumes and beans
  – reduced fat milk, yoghurt and cheese

• Limit intake of all other foods including saturated fat, added salt, added sugars and alcohol

• Drink plenty of water

• Under recommendations by a dietitian a very low-energy diet may be a consideration in obese adults with
  – a BMI > 30 kg/m² or
  – a BMI > 27 kg/m² and obesity related co-morbidities

• Consider referring the client to a dietitian

• For further details refer to the Diet and nutrition, page 14
3.7 Psychotherapy

- Psychological interventions have been shown to have a more beneficial weight loss effect when combined with other lifestyle approaches.
- Individual or group based psychological interventions may improve the success of weight management programs.
- The main form of psychotherapy is cognitive behaviour therapy (CBT).
- Psychotherapy may provide skills which reduce risk of relapse.
- Requires commitment by the person.
- Requires referral to an appropriately trained expert therapist e.g. social worker, mental health worker or psychologist.
- General principles of psychotherapy include:
  - Assisting the client to problem solve urges which adversely affect their weight.
  - The client is encouraged to challenge urges and replace them with thoughts of rational consequences and to resist pessimism and self-criticism.
  - An example might be: “I am hungry.”
    - If I eat that bucket of chicken my hunger will be satisfied and I will gain weight.
    - If I eat a sandwich and drink a glass of water my hunger will also be satisfied and I will not gain weight.

3.8 Surgery

- Bariatric surgery may be considered for the following groups:
  - People with a BMI > 40.
  - People with a BMI > 35 and have co-morbidities that would improve with weight loss.
  - People with a BMI > 30 and have poorly controlled type 2 diabetes and increased cardiovascular risk.
- Bariatric surgery is associated with significant improvements in cardiovascular risk factors, improved glycaemic control in type 2 diabetes and mortality rate.
- When indicated, bariatric surgery should be delivered by a multidisciplinary team (i.e. surgeons, dietitians, nurses, psychologists and MOs), including an overall clinical pathway for adult weight management.
4. Medications

- Medications should not be necessary for individuals who are moderately overweight and should only be used in conjunction with lifestyle modification and counselling\(^1\)\(^{-4}\)
- Lifestyle modification should be sufficient for weight loss
- There are several medications available for the purposes of weight reduction, however, they are not available on the Queensland Health List of Approved Medicines
- MO/NP may discuss medication options with their client

Table 1. Medications for overweight or obesity in adults\(^3\)

<table>
<thead>
<tr>
<th>Drug and dosage</th>
<th>Usage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orlistat 120 mg t.d.s. with food</td>
<td>• For adults with BMI $\geq$ 30 kg/m(^2) or adults with BMI $\geq$ 27 kg/m(^2) and co-morbidities</td>
</tr>
<tr>
<td></td>
<td>• Should only be considered as an adjunct to lifestyle interventions</td>
</tr>
<tr>
<td></td>
<td>• Blocks gastrointestinal lipases thus preventing systemic absorption of triglycerides</td>
</tr>
<tr>
<td></td>
<td>• Diarrhoea is a common side effect</td>
</tr>
</tbody>
</table>

4.1 Medications that cause weight gain

- Be mindful of medications that may be a source of weight gain in a relatively short period of time\(^4\) (see Table 2)

Table 2. Common medications associated with weight gain 12 weeks from commencement\(^3\)

<table>
<thead>
<tr>
<th>Medications</th>
<th>Common uses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atypical antipsychotics, including clozapine, olanzapine</td>
<td>Bipolar disorder</td>
</tr>
<tr>
<td>Beta-adrenergic blockers, particularly propranolol</td>
<td>Hypertension, anxiety</td>
</tr>
<tr>
<td>Insulin</td>
<td>Diabetes mellitus</td>
</tr>
<tr>
<td>Lithium</td>
<td>Bipolar disorder</td>
</tr>
<tr>
<td>Pizotifen</td>
<td>Migraine, cluster headache</td>
</tr>
<tr>
<td>Sodium valproate</td>
<td>Epilepsy, psychosis</td>
</tr>
<tr>
<td>Sulphonylureas, including chlorpropamide, glibencla-</td>
<td>Type 2 diabetes</td>
</tr>
<tr>
<td>mide, glimepiride and glipizide</td>
<td></td>
</tr>
<tr>
<td>Thiazolidinediones, including pioglitazone</td>
<td>Type 2 diabetes</td>
</tr>
<tr>
<td>Tricyclic antidepressants, including amitriptyline</td>
<td>Depression</td>
</tr>
<tr>
<td>Anabolic steroids</td>
<td>Various endocrine disorders</td>
</tr>
</tbody>
</table>
**5. Care plan**

<table>
<thead>
<tr>
<th>Action</th>
<th>Dx</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>BMI</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Waist circumference</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Blood pressure</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Fasting lipids</td>
<td>✓</td>
<td>12 mthly</td>
</tr>
<tr>
<td>Fasting blood sugar</td>
<td>✓</td>
<td>12 mthly</td>
</tr>
<tr>
<td>Weight loss plans</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Behavioural change</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Client self management support</td>
<td>✓</td>
<td>Review every 2 wks for 3 mths then mthly for 12 mths. Continue review until weight loss achieved</td>
</tr>
<tr>
<td>Lifestyle modifications</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Diet modifications</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Social emotional wellbeing</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Influenza vaccine</td>
<td>✓</td>
<td>Recommended - see the current edition of the <em>Australian Immunisation Handbook</em> for schedule</td>
</tr>
<tr>
<td>Pneumococcal vaccine</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Dietitian</td>
<td>✓</td>
<td>1 wk</td>
</tr>
<tr>
<td>RN/HW R/V</td>
<td>✓</td>
<td>Each visit</td>
</tr>
<tr>
<td>MO/NP R/V</td>
<td>✓</td>
<td>3 mthly</td>
</tr>
</tbody>
</table>

*Overweight and Obesity in Adults*
6. References


2. The Royal Australian and New Zealand College of Obstetricians and Gynaecologists (2013) Management of Obesity in Pregnancy; C-Obs 49


7. Resources


Overweight and obesity in children

High risk groups
- Children born to mothers with poor nutritional habits or with greater than the recommended weight gain during pregnancy
- Low birth weight infants
- Children who were not breastfed
- Children born into socioeconomic disadvantage and/or living in rural and remote regions
- Children of mothers who smoked during pregnancy\(^1,^2\)
- Children whose diets are high in fats and sugars

Considerations for women of child-bearing age
- Parental influence on child’s food choices
- Diabetes in pregnancy increases the risk of macrosomia (oversize baby), early onset obesity and type 2 diabetes in the child
- Excess weight gain during pregnancy is associated with an increased risk of babies developing metabolic syndrome and obesity in later life\(^2\)
- Babies born to mothers who smoke during pregnancy have a higher risk of being overweight or obese as adolescents and adults\(^2\)

Referral
- Refer the child to paediatric services if they:
  - are aged 2 - 18 years and have a BMI well above the 95th percentile on US-CDC growth charts or the 97th percentile on WHO charts
  - are under 2 years of age, above the 97th percentile on WHO growth charts and gaining weight rapidly
  - have a suspected co-morbidity that requires urgent weight management e.g. sleep apnoea, orthopaedic problems, risk factors for cardiovascular disease or type 2 diabetes, psychological distress
  - have a suspected underlying medical or endocrine cause or there are concerns about height and development

1. What is overweight or obesity in children?
- Overweight and obesity is defined as abnormal or excessive fat accumulation that may impair health\(^3\)
- The term, overweight, generally indicates that a person has more body fat than is considered healthy for the optimal functioning of the body
- The fundamental cause of overweight and obesity is an energy imbalance between calories consumed and calories expended i.e. a high-fat, energy-dense diet combined with a sedentary lifestyle e.g. screen based activities and a reduction in physical activity\(^1,^3\)
- An elevated BMI in childhood is associated with a high risk of obesity in adulthood and associated co-morbidities including type 2 diabetes, hypertension, stroke and
• Aboriginal and/or Torres Strait Islander children and adolescents have a high incidence of obesity

2. Diagnosis of overweight or obesity in children

• Taking a history, a clinical assessment and a body mass index (BMI) for age is the widely accepted practice to define overweight or obesity in children over the age of 2 years

• Growth monitoring of Australian children aged 0 - 2 years is based on age, length and weight using the WHO growth charts

• Growth monitoring of Australian children 2 - 18 years of age is done using either the US-CDC or WHO growth charts (see Resource 1)

• BMI is measured the same way in children as it is in adults; weight (in kilograms) divided by height (in metres) squared (kg/m²)

• Measuring waist circumference alone to identify overweight and obesity in children is not recommended

• Waist to height ratio of > 0.5 may be used to consider further assessment of cardiovascular risk in children

3. Management

• Focusing on family health behaviours with frequent health professional contact produce better outcomes than child focused dietary and physical activities alone

• Management should focus on weight maintenance rather than weight loss for most children and adolescents

• Early weight management gives children and adolescents the opportunity to learn positive lifestyle behaviours, and reduce their risk of obesity, diabetes and cardiovascular diseases in adulthood

3.1 Support child self management

• Managing overweight and obesity in children involves building a therapeutic partnership with parents or caregivers to support children to live healthy lives by
  – helping the child choose nutritious healthy foods
  – encouraging the child to improve activity levels
  – setting an example by improving family lifestyle behaviours

• Encourage family based goal setting toward lifestyle modification and behavioural change

• Provide resources (see Resource 2) and discuss the positive effects of lifestyle modification (see Lifestyle modification section) on weight with particular regard to diet and nutrition (Diet and nutrition, page 14) and physical activity (Physical activity, page 26)

• Weight reduction can be achieved by reducing energy intake, increasing physical activity and supporting behavioural change

• Discuss with adolescents and carers, overweight and obesity and the risks associated
with developing chronic diseases in adulthood

3.2 Social emotional support

- Be mindful that weight may be a sensitive topic for children, particularly if they have experienced teasing or bullying

- Depression and anxiety can be screened for by using a self- or clinician-rated mood scale (see Resource 3, for examples). Rating scales should be supplemented by a clinical assessment by a suitably qualified clinician to make a diagnosis

- Refer children and adolescents to a suitably qualified mental health clinician, psychologist or social worker for help with disordered (dysfunctional) eating, poor body image, depression and anxiety and weight-related bullying if present

- Acknowledge child or carer concerns and reassure them that good adherence to appropriate treatment can improve the symptoms of the condition

3.3 Weight management program

- Weight management in children and adolescents focuses on lifestyle interventions

- Weight loss is not recommended for most children and should be limited to postpubertal adolescents who are assessed as obese

- The aim of maintaining weight is for the child to grow toward normal BMI without losing weight

- Involving the parent or carer and child to develop a weight management program will improve weight management

- Encourage the child and carer to make goals to change lifestyle behaviours and identify ways to manage hunger

- Set and review goals around sustainable family lifestyle changes

- Encourage regular weight monitoring (see Resource 4)

- Consider age appropriate incentives for overweight or obese children to improve weight management in the short term e.g. consider activity based incentives such as swimming, fishing or trips to the park, over food rewards or gift cards which encourage sedentary behaviour

- Encourage the child and carer to take action (e.g. seeing a health professional) when no progress toward goals has been achieved

- Encourage frequent review of progress by health professional in the short term as this improves the outcome of weight management interventions

- Review should include
  - changes in weight by doing the child’s BMI (3 monthly minimum)
  - child and family eating and physical activity habits and behaviours
  - psychosocial factors around weight control behaviours (dietary restrictions, exercise, weight loss products etc.), body image, family functioning and relationships

- Referral for specialist intervention should be considered when
  - lifestyle changes have been unsuccessful in reducing child’s BMI
– development of social and emotional issues
– inability to implement lifestyle changes due to complex family problems
– parents feel unable to influence the child’s sedentary time or change eating habits or food choices

• Ensure ongoing management by single health professional as an adolescent transitions from paediatric to adult health services¹

3.4 Physical activity

• See Physical activity, page 26

• Children should accumulate at least 60 minutes of moderate to vigorous intensity physical activity every day⁶

• Physical activity should include a variety of aerobic activities, including some vigorous intensity activity⁶

• Explain that being active is good for overall health as well as being fun

• Encourage parents and family to¹
  – be active with children
  – get involved in local activities
  – make use of local opportunities for physical activity like pools and walking tracks
  – be good role models by being physically active themselves
  – support children to include physical activity in routine daily activities like walking to school
  – encourage children to be involved in team sports

• To reduce health risks children should minimise the time they spend being sedentary every day⁶

• Limit electronic media for entertainment (screen based activities) to less than 2 hours a day⁶

• Break up long periods of sitting as often as possible

3.5 Diet and nutrition

• See Diet and nutrition, page 14

• Infants, children and adolescents need sufficient nutritious food to grow and develop normally to maintain a rate of growth consistent with the norms for age, sex and stage of physiological maturity²

• Breastfeeding provides health benefits to infants including protection against obesity, reduced risk of infection, asthma, hypertension and other chronic diseases in later life²

• When discussing dietary approaches for weight management consider¹,²
  – the degree of overweight or obesity
  – dietary preferences of the individual and their family
  – the availability, affordability and the ability to store healthy foods
  – a sustainable eating plan to gradually change eating habits
  – the presence of psychosocial pressures affecting the current eating pattern
Overweight and obesity in children

4. Medic

- A family approach to improving nutrition and role modelling
- Regular meals, including breakfast and snacks in a social family environment
- Separating mealtimes from watching television or other screen-based activities
- Encouraging children to listen to internal hunger cues and to eat to appetite
- Having healthy foods readily available
- Avoid being restrictive or controlling of the child’s food intake
- Explaining the concept of ‘often’ or ‘sometimes’ foods
- Some school canteens base available foods on a traffic light system (see Resource 2)
  - Green foods always on the menu
  - Amber foods to select carefully and
  - Red foods which are not recommended
- Avoid using foods as treats or rewards
- Comforting children with attention, listening and affection instead of food
- Encourage children to develop ways of regulating emotions that don’t involve food

- Provide the child and carer with nutrition and diet-related resources (see Resource 2)
- Eat plenty of
  - Vegetables, including different types and colours and legumes/beans
  - Fruit
  - Breads, cereals, rice, pasta, noodles, polenta, couscous, oats, quinoa and barley
  - Lean meats and poultry, fish, eggs, tofu, nuts and seeds and legumes/beans
  - Reduced fat milk, yoghurt and cheese from 2 years of age onwards (full fat dairy options are appropriate for children under 2 years of age)
- Limit intake of all other foods including saturated fat, added salt and sugars
- Only drink water
- Refer child to a dietitian if they have specific dietary restrictions or needs
- Under recommendations of a specialist team, a very low-energy diet may be considered in obese post-pubertal adolescents

3.6 Surgery

- For post-pubertal adolescents with a BMI > 40 kg/m² (or > 35 kg/m² with obesity-related complications), bariatric surgery may be considered if other interventions have been unsuccessful in producing weight loss
- When indicated, bariatric surgery should be delivered by a multidisciplinary team (i.e. surgeons, dietitians, nurses, psychologists and MOs), including an overall clinical pathway for weight management
4. Medications

• Medications should only be considered in cases where there is severe obesity and the presence of associated co-morbidities. These should be delivered through specialist clinics and as an adjunct where lifestyle interventions alone have failed1,2,7

• Lifestyle modification should be sufficient for weight loss

• Weight loss medications have shown only slight improvements in weight loss compared with lifestyle modification7

• MO/NP will discuss medication options and the need for specialist referral with the family and child

5. Care plan

| Table 1. Care plan for overweight or obese children |
|-----------------|--------|-----------------|
| Action          | Dx     | Ongoing         |
| Height          | ✓      | With BMI until stops growing |
| Weight          | ✓      | Mthly for 3 mths then 3 mthly |
| BMI             | ✓      | As the clinical presentation dictates otherwise 12 mthly |
| Waist circumference | ✓  |                   |
| Blood pressure  | ✓      |                   |
| Fasting lipids  | ✓      |                   |
| Fasting blood sugar | ✓  |                   |
| Weight loss plan| ✓      | Review every 2 wks for 3 mths then mthly for 12 mths. Continue review until weight loss achieved |
| Behavioural change | ✓  |                   |
| Client self management support | ✓  |                   |
| Lifestyle modification | ✓  |                   |
| Diet modification | ✓  |                   |
| Social emotional wellbeing | ✓  |                   |
| Influenza vaccine |        | Recommended - see the current edition of the Australian Immunisation Handbook for schedule |
| Pneumococcal vaccine |        |                   |
| Dietitian       | ✓      | 1 wk 3 mthly     |
| RN/HW R/V       | ✓      | Each visit       |
| MO/NP R/V       | ✓      | 3 mthly 12 mthly |
6. References


7. Resources


Poor growth in children

High risk groups
- Low birth weight infants
- Infants born prematurely
- Children transitioning from breastfeeding to solids (6 - 18 months)
- Children with birth defects
- Children with organic pathology (physical illness)
- Children from low income and socially disadvantaged backgrounds including Aboriginal and/or Torres Strait Islander children
- Children from homes where there is family dysfunction

Considerations for women of child-bearing age
- Prevention of poor growth and micronutrient deficiencies through healthy food and fluid intake, plus multi-micronutrient supplements
- Avoid alcohol and cigarettes pre and postnatally
- Promote continued breastfeeding complemented by nutritious foods after 6 months of age

Urgent referral
- Refer to the MO/NP if the child has any of the following
  - a weight that has crossed 2 or more centile lines downwards on their growth chart
  - has acute poor growth (see Figure 1)
  - has chronic poor growth or stunting (see Figure 1)
  - is severely anaemic (Hb < 80 g/L)
  - has no identified carer able to offer adequate nutrition to the child
  - suspected child abuse or neglect

Child safety reporting
- Child abuse or neglect can contribute to poor growth in children
- Make a child safety report if the child has no identified carer able or willing to offer adequate nutrition to the child
- See Appendix 2: Child safety reporting, page 498

1. What is poor growth in children?
- Poor growth is an imbalance between nutrient requirements and dietary intake, negatively affecting growth and development
- As a result, over an extended period of time children fail to physically grow or gain weight as expected. This is also known as failure to thrive (FTT)
- The causes of poor growth are multi-factorial and should be viewed as a causal framework rather than independent factors resulting in poor growth. These include direct or immediate causes, underlying causes and peripheral causes (see Table 1)
- Children with poor early nutrition are at increased risk of
poor growth
poor or delayed cognitive, motor and socioemotional development
developing chronic disease and obesity as adults
decreased learning capacity and school performance
decreased work capacity and economic productivity
intergenerational consequences

Table 1. Causes and processes of poor growth

<table>
<thead>
<tr>
<th>Causes</th>
<th>Processes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Immediate</td>
<td></td>
</tr>
<tr>
<td><strong>Inadequate intake</strong></td>
<td>• Poor breastfeeding practise</td>
</tr>
<tr>
<td></td>
<td>• Receives formula feeds which have been incorrectly prepared</td>
</tr>
<tr>
<td></td>
<td>• Not provided enough food or fed often enough</td>
</tr>
<tr>
<td></td>
<td>• Delayed introduction of solids (around 6 months)</td>
</tr>
<tr>
<td></td>
<td>• Poor chewing or swallowing ability</td>
</tr>
<tr>
<td></td>
<td>• Decreased appetite due to micronutrient deficiencies</td>
</tr>
<tr>
<td><strong>Disease/medical</strong></td>
<td>• Cannot feed well due to neurological, cardiovascular or respiratory problems</td>
</tr>
<tr>
<td></td>
<td>• Persistent vomiting</td>
</tr>
<tr>
<td></td>
<td>• Poor absorption of nutrients caused by intestinal parasites, chronic diarrhoea or malabsorption syndromes</td>
</tr>
<tr>
<td></td>
<td>• Syndromes such as fetal alcohol syndrome, other genetic disorders or intra-uterine growth restriction</td>
</tr>
<tr>
<td></td>
<td>• Low birth weight</td>
</tr>
<tr>
<td></td>
<td>• Chronic diseases with infections</td>
</tr>
<tr>
<td><strong>Household food insecurity</strong></td>
<td>• Competition for food with others in the home</td>
</tr>
<tr>
<td></td>
<td>• Mother/carers lack adequate resources to provide the food needed</td>
</tr>
<tr>
<td></td>
<td>• Poor financial control</td>
</tr>
<tr>
<td></td>
<td>• Low education level</td>
</tr>
<tr>
<td></td>
<td>• Poor family planning practises</td>
</tr>
<tr>
<td></td>
<td>• Family violence</td>
</tr>
<tr>
<td></td>
<td>• Psycho-social issues including depression, behavioural disorders and addictions (gambling, alcohol and other drugs)</td>
</tr>
<tr>
<td>Underlying</td>
<td></td>
</tr>
<tr>
<td><strong>Inadequate care and feeding practices</strong></td>
<td>• Infections from poor hygiene practises including when preparing food and using bottles</td>
</tr>
<tr>
<td></td>
<td>• Provision of food and drinks of poor nutritional value</td>
</tr>
<tr>
<td></td>
<td>• Decreased appetite due to psychosocial neglect</td>
</tr>
<tr>
<td></td>
<td>• Food refusal due to coercive feeding practises</td>
</tr>
<tr>
<td></td>
<td>• Distractions at meal times</td>
</tr>
<tr>
<td><strong>Overcrowding, unhealthy household environment and inadequate health services</strong></td>
<td>• Unhealthy/unsafe living environment</td>
</tr>
<tr>
<td></td>
<td>• Lack of access to safe water, sanitation and basic hygiene practises</td>
</tr>
<tr>
<td></td>
<td>• Poor access to maternal and child health services</td>
</tr>
<tr>
<td>Peripheral</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Poverty</td>
</tr>
<tr>
<td></td>
<td>• Social and economic inequity</td>
</tr>
</tbody>
</table>
2. Diagnosis of poor growth

- If suspected during a routine child health check, diagnosis of poor growth is made following a comprehensive general and nutritional assessment of
  - a detailed maternal history including: pregnancy, mother's health, birth parameters, gestational age, general medical and family/sibling history, use of medications and allergies
  - diet history including: a feeding history, breastfeeding, use of formula and other milks, introduction of solids, type and quantity of food and appetite
  - sociocultural practices of the family including: child caregiver relationships, daily schedules, cultural practices/beliefs, shopping, food preparation, household stressors, family networks and social support
  - the child's general physical examination including: anthropometric measurements to ensure normal growth trends by plotting corresponding weight for age, height/length for age, weight for height percentiles and head circumference where appropriate using the
  - World Health Organisation (WHO) growth charts for children aged 0 - 2 years and
  - Centre for Disease Control (CDC) growth chart for children aged 2 - 18 years

- A suspicion of poor growth is made when
  - there are underlying causes of poor growth (see Table 1)
  - the child's weight for age centile tracks in a flat line, crosses 2 centiles or is below the 10th centile at first presentation (see Figure 1)

- How a child's growth differs from the median and their level of poor growth is determined by plotting the child's 'z' scores (weight for length and age for length) on the appropriate WHO z-score growth chart

- See Resource 1. for further details and use of the WHO z-score charts

3. Management

- Managing children with moderate acute poor growth involves building a therapeutic partnership with family or carers and collaborating with the multidisciplinary health care team to support the child to maintain healthy growth

- In managing poor growth in children the following issues must be considered
  - determining the severity of poor growth
  - assessing and addressing any underlying causes of the child's poor growth (see Table 1)
  - past or current medical history
  - pathology results

- The primary steps to re-establishing a child's weight are to
  - support continued breastfeeding in infants
  - use therapeutic supplements until appetite is restored
  - once appetite is restored reintroduce nutritious foods
Maternal nutrition history and examination  
Child nutrition history and examination  
Sociocultural beliefs and practises  
Psycho-social assessment

Assess growth by plotting weight and length for age on growth chart and review

Suspicion of undernourished child if weight and/or length has
• Flatlined or
• Crossed 2 centiles or
• Child below the 10th centile at first presentation

Assess how growth differs from the median by plotting the child’s ‘z’ scores (weight for length and age for length) on the appropriate growth chart

Weight for length ‘z’ chart
• Weight -3  
Severe acute poor growth

Weight for length ‘z’ chart
• Weight -2 to -3  
Moderate acute poor growth

Length for age ‘z’ chart
• Length -2  
Stunting or chronic poor growth

Refer to MO/NP  
See 3. Management  
Refer to MO/NP

Figure 1. Determining type of poor growth and care pathway

3.1 Support carer management of condition

• Work with family to identify a carer who is willing and able to provide for child’s needs and support goals for change
• Provide information about the child’s poor growth, causes and management
• Provide weekly follow up until initial target weight is achieved
• Provide relevant nutrition resources (see Diet and nutrition, page 14)
• Encourage the family or carers to identify barriers to adequate lifestyle modification and clinical adherence and to develop goals to overcome those barriers based on their capacity and understanding
• If appropriate, engage the school for support to ensure the child is being fed
3.2 Social emotional support
• Acknowledge any child and parent concerns and reassure them that provision of adequate nutritional intake will improve the condition

3.3 Breastfeeding
• Up to the age of 6 months the aim is to encourage exclusive breastfeeding
• If a child is breastfeeding, continue to support the mother to maintain this practice (see Resource 2)
• A baby is getting enough breastmilk if they gain weight and length and have 5 - 7 wet nappies per day
• See Diet and nutrition, page 14

3.4 Supplementary feeding
• Supplementary feeding is not suitable for all children. Consult a dietitian for children who are
  – younger than 2 years of age
  – weigh less than 8 kg
  – lactose intolerant
  – allergic to peanuts or other foods
  – deficient in particular micronutrients
• Supplementary feeds help to restore normal appetite by providing micronutrients as well as energy to re-establish normal healthy growth
• The child may require coaxing to take supplementary feeds at first but once appetite is re-established, they will consume more and be interested in eating again
• Most undernourished children need to take supplementary feeds as high energy fluids at first, then increasing amounts of food
• Ways of encouraging children to take supplementary feeds include
  – add flavouring to the made-up supplement
  – freeze the made-up supplement as an icy pole
  – add the supplement powder to porridge or cereals

3.5 Supplement amount
• The dietitian will determine the amount of supplement required for the child to grow in weight and length
• Encourage the family or carer to give as much of the recommended supplementary amount as the child will take
• Give the supplement slowly over ½ - 1 hr from a cup. Too quickly may cause diarrhoea

3.6 Formula
• Infant formula should be used up to 12 months of age if baby is not being breastfed

3.7 Solids introduction
• Introduction of first foods should begin around 6 months, starting with iron fortified
infant cereal and/or iron rich foods such as puréed meat or tofu, followed by other foods from the five food groups (see Diet and nutrition, page 14)

- Introduce different tastes and textures as the baby grows
- By 12 months of age, infants should be consuming a wide variety of nutritious foods enjoyed by the rest of the family

### 3.8 Food

- Small frequent serves of nutrient rich foods and/or snacks will restore appetite in the undernourished child (see Table 2)
- Continue to provide supplements until sufficient weight and length have been achieved
- Sometimes provide extra nutrition to the child by adding grated cheese, avocado, margarine or a teaspoon of smooth peanut butter to foods
- Supplements can be substituted for cow’s milk to mix with cereals
- Encourage fruit and vegetables
- See Diet and nutrition, page 14

| High energy intake (fats and sugars) without adequate macronutrients and micronutrients (fruits, vegetables and lean meats) will result in excess fat deposits and predisposes the undernourished child to chronic diseases in later life |

### 3.9 Drinks

- To grow, the undernourished child is required to drink nutritional supplements
- Provide milk or water if child is thirsty when not drinking supplements
- Unmodified milk from animal sources including cow’s milk should not be given as a main drink to infants under 12 months of age
- For older children consider flavoured full cream milk, either alone or mixed with the supplement
- Follow on formulas are not recommended
- Fruit juice is not recommended
- Avoid cordial, soft drink, tea, herbal teas, coffee, fruit juice, sports drinks or any sugar sweetened drinks as they lack nutrition and will displace nutritious supplements
- See Diet and nutrition, page 14

| Soy (except soy infant formula) and other nutritionally incomplete plant-based milks (e.g. rice, oat, coconut or almond milk) are inappropriate alternatives to breast milk or formula in the first 12 months |
Table 2. Foods for the child with poor growth

<table>
<thead>
<tr>
<th>Meat and meat alternatives (high protein)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Includes meat, chicken, fish or bush tucker meats</td>
</tr>
<tr>
<td>• Meat alternatives include baked beans, lentils, kidney beans and tofu</td>
</tr>
<tr>
<td>• Include at each main meal and snacks as appropriate</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cheese (high protein)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Serve on crackers/sandwiches</td>
</tr>
<tr>
<td>• Grate onto vegetables</td>
</tr>
<tr>
<td>• Add to rice or pasta</td>
</tr>
<tr>
<td>• Cut into small blocks as a snack</td>
</tr>
<tr>
<td>• Make cheese sauce to add to meals/vegetables</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Eggs (high protein)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Cook hardboiled eggs for snacks or add to a salad plate</td>
</tr>
<tr>
<td>• Mash egg with mayonnaise as a sandwich filler or stir through potato salad</td>
</tr>
<tr>
<td>• Make an omelette or quiche with chopped meat, vegetables and cheese</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Nuts and seeds (high protein)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Whole nuts are a choking hazard for children under 3 years of age</td>
</tr>
<tr>
<td>• Use smooth peanut butter or other nut pastes in preference to jam or yeast spreads</td>
</tr>
<tr>
<td>• Use hummus or tahini as a dip or spread</td>
</tr>
<tr>
<td>• Serve whole roasted nuts as a snack if age appropriate</td>
</tr>
<tr>
<td>• Use in baking e.g. almond meal</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Avocado</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Spread on crackers, toast or sandwiches</td>
</tr>
<tr>
<td>• Blend into vegetable mixtures</td>
</tr>
<tr>
<td>• Add in salads</td>
</tr>
<tr>
<td>• Guacamole dip</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Supplements (consider before milk) (high protein)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Blend supplements with frozen fruit (e.g. berries, bananas), ice cream or yoghurt. Add honey or other flavourings</td>
</tr>
<tr>
<td>• Make soups, puddings, custards, desserts or packet mixes with milk instead of water</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Small amounts of margarine and oil (essential fatty acids)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Add to vegetables</td>
</tr>
<tr>
<td>• Add to rice or pasta after cooling</td>
</tr>
<tr>
<td>• Spread on bread and on savoury biscuits</td>
</tr>
<tr>
<td>• Add to soups</td>
</tr>
</tbody>
</table>

Encourage fruit and vegetables every day. Avoid ‘junk’ food which replaces nutrient rich foods the child requires to grow healthily. Provide 3 meals and 3 snacks a day as well as ongoing supplements.

3.10 Encouraging eating

- Young children with poor appetites need persistent encouragement to take enough supplement
- What and how much?
  - small regular amounts of nutritious food
– the same foods the family are eating
– finger foods
– avoid drinks and snacks before meals

• Mealtime environment
  – model behaviour by eating together as a family
  – avoid negative comments about food
  – keep calm and relaxed, avoid nagging and punishment
  – allow independence
  – avoid distractions e.g. television

• Mealtime routines
  – provide consistent time and location for meals
  – 20 to 30 minutes for main meals, 10 to 20 minutes for snacks

• Food exploration
  – make food look appealing e.g. favourite foods in the shape of a face
  – serve foods or drinks in colourful cups, bowls or plates
  – try different foods and often
  – involve children in choosing the ingredients
  – encourage children to cook, mix and prepare food

• Praising good behaviour, ignoring poor behaviour
  – encourage good eating behaviours by cuddles, smiling and telling children how well they are eating
  – ignore poor eating behaviours such as not eating, eating slowly or spitting food out
  – avoid nagging or berating
  – praise regularly

• Avoid unhealthy food bribes
  – unhealthy food bribes reinforces that they are preferable to healthy foods e.g. offering icecream if the child eats their vegetables
  – avoid substituting favourite foods (e.g. chips) for uneaten healthy foods. Children learn they will be rewarded for refusing foods
  – offer non food rewards for eating well, such as a game, book or trip to the park

• It may take 1 - 2 months and a lot of perseverance to restore a child’s healthy appetite

3.11 Growth monitoring

• A child’s weight will naturally fluctuate over time
• Continue to monitor the child’s weight and length trend over time according to routine child health check schedule
• To protect against future chronic conditions the child should grow well in height while continuing to be a healthy weight
• Follow up daily to monitor supplement intake
The MO/NP should review a child who still has poor appetite or is not consuming enough supplement after 1 - 2 weeks.

4. Medications

- See local policies and guidelines for eligibility, supply and costing of enteral products (see Resource 3)

4.1 Nutritional supplements

- Nutritional supplements (e.g. Pediasure) is available in powder or tetrapaks and are suitable for children who are more than 8 kg or over 1 year of age.
- Ensure family or carer understand mixing powdered supplement as per product directions prior to leaving the clinic.
- For tube/enteral feeding follow MO/NP instructions for flow rate, volume, dilution and need for additional fluid.

<table>
<thead>
<tr>
<th>Class</th>
<th>Recommended Drug</th>
<th>Tips</th>
</tr>
</thead>
<tbody>
<tr>
<td>Giardia treatment</td>
<td>• Tinidazole 50 mg/kg/dose stat (max 2 gm)</td>
<td>• Routinely at diagnosis or if giardia confirmed from stool OCP</td>
</tr>
<tr>
<td></td>
<td>• Metronidazole 30 mg/kg once daily for 3 days (max 2 g)</td>
<td></td>
</tr>
<tr>
<td>Antihelmintics</td>
<td>• Albendazole</td>
<td>• The taste is poorly tolerated</td>
</tr>
<tr>
<td></td>
<td>• Child &gt; 6 months and &lt; 10 kg dose 200 mg stat</td>
<td>• For roundworm and threadworm</td>
</tr>
<tr>
<td></td>
<td>• Child &gt; 10 kg dose 400 mg stat</td>
<td>• Routinely at diagnosis or if stool positive</td>
</tr>
<tr>
<td></td>
<td>• Albendazole</td>
<td>• Repeat every 6 months</td>
</tr>
<tr>
<td></td>
<td>• Daily 3 days</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• For hookworms, strongyloides, cutaneous larva migrans and whipworm</td>
</tr>
<tr>
<td>Iron supplement</td>
<td>• Ferrous sulphate</td>
<td>• Routine supplementation for 3 months to meet increased iron</td>
</tr>
<tr>
<td></td>
<td>• 3 - 6 mg/kg/day up to max 100 - 210 mg of elemental iron daily</td>
<td>requirements of catch up growth</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Delay until any infections are treated in the undernourished or</td>
</tr>
<tr>
<td></td>
<td></td>
<td>acutely unwell child due to the risk of triggering further infections</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• May cause nausea, bloating, constipation, diarrhoea. Warn</td>
</tr>
<tr>
<td></td>
<td></td>
<td>parents that this medication causes black stools</td>
</tr>
</tbody>
</table>
### 5. Care plan

#### Table 4. Care plan for undernourished children

<table>
<thead>
<tr>
<th>Action</th>
<th>Dx</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>✓</td>
<td>Repeat at 4, 8 and 12 wks</td>
</tr>
<tr>
<td>Weight</td>
<td>✓</td>
<td>Wkly under 3 mths of age otherwise fortnightly until target weight is achieved</td>
</tr>
<tr>
<td>Head circumference</td>
<td>✓</td>
<td>Repeat at 8 wks</td>
</tr>
<tr>
<td>History and exam</td>
<td>✓</td>
<td>Repeat if unwell or poor weight/length gain</td>
</tr>
<tr>
<td>Social emotional well being of carer</td>
<td>✓</td>
<td>Each visit</td>
</tr>
<tr>
<td>Check diet history/food security</td>
<td>✓</td>
<td>Each visit</td>
</tr>
<tr>
<td>Check Hb, urine and stool MCS and stool OCP</td>
<td>✓</td>
<td>Repeat as required</td>
</tr>
<tr>
<td>Carer education</td>
<td>✓</td>
<td>Each visit</td>
</tr>
<tr>
<td>Nutrition supplement</td>
<td>✓</td>
<td>Daily continuing until target weight/length achieved</td>
</tr>
<tr>
<td>Food prescription</td>
<td>✓</td>
<td>Ongoing</td>
</tr>
<tr>
<td>HW/CHN R/V</td>
<td>✓</td>
<td>At least wkly for 8 wks or until target weight/length achieved</td>
</tr>
<tr>
<td>Dietitian</td>
<td>✓</td>
<td>At least wkly for 8 wks or until target weight/length achieved</td>
</tr>
<tr>
<td>MO/NP R/V</td>
<td>✓</td>
<td>Repeat if unwell or poor weight/length gain</td>
</tr>
<tr>
<td>Social worker</td>
<td>✓</td>
<td>Depending on issues</td>
</tr>
<tr>
<td>Paediatrician</td>
<td></td>
<td>As determined by MO/NP or acutely unwell</td>
</tr>
<tr>
<td>Multidisciplinary team</td>
<td></td>
<td>If poor growth and poor growth persist at 6 wks despite appropriate interventions</td>
</tr>
<tr>
<td>Immunisations</td>
<td>✓</td>
<td>See the current edition of the <em>Australian Immunisation Handbook</em> for schedule</td>
</tr>
</tbody>
</table>
6. References

10. NACCHO/RACGP. National guide to a preventive health assessment for Aboriginal and Torres Strait Islander people. 2nd edn. South Melbourne: The RACGP, 2012

7. Resources

Section 2: Management of diagnosed conditions

Poor growth in children

Medical Society of Queensland 2013-2014.


Section 2: Management of diagnosed conditions | 289
Rheumatic heart disease

High risk groups
- People with a history of acute rheumatic fever (ARF) and a diagnosis of rheumatic heart disease (RHD)
- Aboriginal and Torres Strait Islander people (children aged between 5 and 14 are most at risk) and immigrants from developing countries

Considerations for women of child-bearing age
- Increased cardiac load during pregnancy will exacerbate pre-existing rheumatic valvular heart disease
- Importance of early diagnosis and regular secondary prophylaxis will help prevent deterioration of disease to a point where pregnancy is a risk
- Secondary prophylaxis is safe and should be continued during pregnancy
- Antibiotic prophylaxis to prevent endocarditis if prolonged labour and/or ruptured membranes
- Pre-conception counselling and assessment for all women with known rheumatic valvular disease

Urgent referral
- Cardiologist, MO/NP or paediatrician if suspicion of a diagnosis exists or there are signs of heart failure
- 2 kg weight gain or loss over 48 hours

Acute rheumatic fever (ARF)
- For diagnosis and management of ARF refer to the current edition of the PCCM or see The Australian guideline for the prevention, diagnosis and management of acute rheumatic fever and rheumatic heart disease (2nd edition) (see Resource 1)

Notifiable disease

1. What is rheumatic heart disease (RHD)?
- When a person becomes infected by Group A Streptococcus bacterium (GAS), the immune response can cause acute generalised inflammation that affects the heart, joints, brain and skin. This is called acute rheumatic fever (ARF)
- Recurrent ARF can cause permanent damage to the heart valves - most commonly the mitral and aortic valves
- This damage is known as rheumatic heart disease (RHD)
- RHD can be classified as mild, moderate or severe
- In a mild case there will be no clinical evidence of heart failure
- In severe cases there are signs of valvular disease, oedema, angina and syncope
2. Diagnosis of RHD

- All people with suspected or definite ARF should undergo echocardiography to identify evidence and severity of carditis.\(^1\)
- Diagnosis of RHD is based on the degree of damage to the heart (see Table 1).
- Many people with established RHD do not have a documented history of ARF however previous ARF is assumed and recurrences must be prevented.\(^1\)
- All suspected cases of ARF require discussion with, or review by, a medical specialist.

### Table 1. Classification of rheumatic heart disease

<table>
<thead>
<tr>
<th>Class</th>
<th>Definition of category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hx ARF or no RHD Priority 4.</td>
<td>No pathological mitral or aortic regurgitation, but may have minor morphological changes to mitral or aortic valves on echocardiography</td>
</tr>
<tr>
<td>Mild RHD Priority 3.</td>
<td>Mild mitral or aortic regurgitation clinically and on echocardiography, with no clinical evidence of heart failure, and no evidence of cardiac chamber enlargement on echocardiography</td>
</tr>
<tr>
<td>Moderate RHD Priority 2.</td>
<td>Any valve lesion of moderate severity clinically (e.g. mild - moderate cardiomegaly and/or mild - moderate heart failure) or on echocardiography, Mild mitral regurgitation together with mild aortic regurgitation clinically or on echocardiography, Mild or moderate mitral or aortic stenosis, Any pulmonary or tricuspid valve lesion co-existing with a left-sided valve lesion</td>
</tr>
<tr>
<td>Severe RHD Priority 1.</td>
<td>Any clinically severe valve lesion (e.g. moderate to severe cardiomegaly or heart failure) on echocardiography, Any impending or previous cardiac valve surgery</td>
</tr>
</tbody>
</table>

3. Management

- The fundamental long term goal to manage RHD is to prevent ARF recurrences and therefore prevent the progression of valve disease.
- This is achieved by regular delivery of secondary prophylaxis with intramuscular LA Bicillin (see Table 2).
- Where adherence to secondary prevention is poor there is greater need for surgical intervention and long term surgical outcomes are poor.\(^1\)

3.1 Client education and health promotion

- See Lifestyle modification section.
- Discuss what RHD is, how it progresses and its association with throat and skin infections.
- Recognising the signs and symptoms of recurrent ARF and of RHD.
- The need for timely access to health services and follow up.
- Encourage the client to identify barriers to adequate lifestyle modification and medical.
adherence and to set goals to overcome those barriers based on their capacity and understanding
• Provide relevant service and educational resources (see Resource 1)

3.2 Social emotional support
• A self- or clinician-rated mood scale can be used to assess for altered mood (for examples see Resource 2). Rating scales should be supplemented by a clinical assessment by suitably qualified mental health clinician to make a diagnosis
• Acknowledge any client concerns and reassure them that good adherence to appropriate treatment can improve the symptoms of their condition

3.3 Secondary prophylaxis (antibiotics)
• All clients with evidence of RHD and a history of ARF should have secondary antibiotic prophylaxis to control streptococcal infections (see Table 2)
• Discuss the effectiveness of Bicillin regimes to prevent recurrence of ARF and minimise RHD
• Consider adverse reactions to medications
• See 4.1 Secondary prophylaxis and 4.2 Bicillin administration technique for further details

3.4 Regular physical health and specialist review
• Follow the care plan for RHD
• Access to timely specialist physician, paediatric and/or cardiologist services for examination of heart and lungs
• Echocardiography
• Examination of throat, teeth and skin every presentation
• Assessment for shortness of breath, ankle swelling, palpitations or dizziness and chest pain

3.5 Dental care
• The risk of infective endocarditis and further heart valve damage increases with poor dental hygiene and oral infections
• 6 - 12 monthly dental care (depending on classification level) is essential for clients with a history of ARF and RHD
• Discuss dental hygiene and oral health at each visit
• Where appropriate, antibiotic prophylaxis are given prior to dental procedures
• A dental assessment and any treatment is required prior to valvular surgery

3.6 Recall and review
• Place client on a facility ARF/RHD recall system
• Provide client with the date of the next scheduled Bicillin injection
• Recall client from 21 days after the last injection to ensure that injections are given no
more than 28 days apart

- Provide the client and other health services with Bicillin prophylaxis details when client is travelling to different communities
- Contact the RHD Register and Control Program (ArfRhdRegister@health.qld.gov.au – 1300 135854) to
  - request educational resources
  - share follow up and Bicillin administration details
  - ensure your ARF/RHD clients correctly appear on the Bicillin and echocardiogram reminder lists sent out to your service monthly

### 3.7 Surgery

- Surgery is determined by the severity of damage to the heart valves (severe RHD)
- Early referral to a cardiologist is required to identify heart failure and consideration for valve repair
- Repair or replacement of damaged heart valves prevents left ventricular dysfunction and severe pulmonary hypertension
- Heart valve replacement risks include stroke and infective endocarditis
- Repair is the preferred option for young people for this reason

### 3.8 Special management considerations

- A boarding school child needs to have consent and access to Bicillin injections to continue treatment
- A documented Bicillin management regime needs to be developed in consultation with the child, family and the school
- If a client relocates, provide the respective health service with RHD health records to provide continuation of care

### 4. Medications

- Primary prophylaxis involves prompt treatment with antibiotics for treatment of streptococcal infection
- Secondary prophylaxis involves regular administration of Bicillin to prevent recurrent ARF (see Table 2)

#### 4.1 Secondary prophylaxis

- Decisions to cease secondary prophylaxis should be based on clinical and echocardiographic assessment by a specialist ARF/RHD physician
- All persons with
  - ARF or RHD should have prophylaxis for a minimum of 10 years after most recent episode of ARF or until age 21 years (whichever is longer). Clients > 25 years of age who are diagnosed with RHD, without any documented history of prior ARF, should receive prophylaxis until the age of 35 years and then
  - no RHD or mild RHD, if clinically assessed by echocardiography can discontinue prophylaxis at this time
- **moderate RHD** continue prophylaxis until 35 years of age
- **severe RHD** continue prophylaxis until 40 years of age. Although the risk of recurrence is extremely low in people aged > 40 years, in some cases prophylaxis may be continued beyond the age of 40 years, or even for life e.g. when a client decides they want to reduce even a minimal risk of recurrence.

### Table 2. Antibiotic regimens for secondary prevention

<table>
<thead>
<tr>
<th>Antibiotic</th>
<th>Dose</th>
<th>Route</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First line</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Benzathine penicillin G (Bicillin)</td>
<td>≥ 20 kg: 900 mg (1,200,000 U)</td>
<td>Deep IM</td>
<td>28 days</td>
</tr>
<tr>
<td></td>
<td>&lt; 20 kg: 450 mg (600,000 U)</td>
<td>injection</td>
<td></td>
</tr>
<tr>
<td><strong>Second line</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phenoxythymethylpenicillin (Penicillin V)</td>
<td>250 mg</td>
<td>Oral</td>
<td>Twice daily</td>
</tr>
<tr>
<td><strong>Following documented penicillin allergy</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Erythromycin</td>
<td>250 mg</td>
<td>Oral</td>
<td>Twice daily</td>
</tr>
</tbody>
</table>

Adapted with permission from Australian guideline for prevention, diagnosis and management of acute rheumatic fever and rheumatic heart disease (2nd edition). © 2014 National Heart Foundation of Australia.

### 4.2 Bicillin administration technique

- Initial Bicillin administration will determine success or failure of the client to adhere to the regimen, especially children
- Administer Bicillin in conjunction with procedural interventions involving
  - distraction techniques for children
  - application of pain relief such as EMLA cream (30 - 60 minutes prior), cold spray (15 seconds prior), ice pack (for 5 minutes) or pressure (for 15 seconds) to the injection site if required
  - ensure Bicillin solution is warmed to room temperature by rolling between the hands
  - inject slowly over 2 minutes to avoid pain from solution under pressure
  - apply ice pack afterwards and encourage normal ambulation
- It is not recommended to mix lignocaine with Bicillin

### 4.3 Anticoagulation therapy

- Used for clients who have had heart valve surgery
- Clients will be discharged from hospital and commenced on anticoagulation therapy. With reference to therapy duration and INR therapeutic range see Table 3.
- Monitor INR levels using a recall system and RHD care plan
- Contact the MO/NP if the INR result is outside the acceptable range (determined by the MO) (see Table 4)
Table 3. Indications for warfarin therapy duration and target INR

<table>
<thead>
<tr>
<th>Indication</th>
<th>Minimum recommended duration</th>
<th>Target INR range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low risk heart valves (includes bio prosthetic)</td>
<td>3 months</td>
<td>2 - 3</td>
</tr>
<tr>
<td>High risk mechanical heart valve</td>
<td>Life long</td>
<td>2.5 - 3.5</td>
</tr>
</tbody>
</table>

Table 4. Warfarin dosing regime for INR target range of 2 - 3

<table>
<thead>
<tr>
<th>INR</th>
<th>Dosage adjustment</th>
</tr>
</thead>
<tbody>
<tr>
<td>INR &lt; 1.5</td>
<td>• Increase weekly dose by 20%</td>
</tr>
<tr>
<td>1.5 - 1.9</td>
<td>• Increase weekly dose by 10%</td>
</tr>
<tr>
<td>2 - 3</td>
<td>• No change</td>
</tr>
</tbody>
</table>
| 3.1 - 3.9 | • No change  
|          | • Recheck in one week                                                                                       |
|          | • If persistent, decrease weekly dose by 10% - 20%                                                          |
| 4 - 4.9 | • Omit one dose  
|          | • Decrease weekly dose by 10% - 20%  
|          | • Recheck INR in 2 to 5 days                                                                                |
| INR 5 - 9 and no bleeding | • Cease warfarin  
|          | • If bleeding risk high give vitamin K 1 - 2 mg orally or 0.5 - 1 mg IV  
|          | • Check INR in 6 - 12 hours                                                                                |
|          | • Resume lower dose of warfarin once INR < 5                                                                 |
| INR > 9 | • Cease warfarin  
|          | • Seek senior medical advice                                                                               |
|          | • Refer to the Guidelines for Warfarin Management in the Community (*see Resource 5*)                     |

*Dose modification is required for clients with mechanical heart valves as the target INR range is higher (2.5 - 3.5).

4.4 Client anticoagulation education

- Always take the same brand of warfarin tablets
- Take warfarin tablets at about the same time every day
- Inform a doctor if a painful, purplish, bruise-like rash develops
- Use a booklet to tick the days after taking a dose so that any missed doses can easily be identified
- Warfarin is affected by vitamin K which is found in certain foods e.g. green leafy vegetables. Eat a normal, balanced diet without dramatic changes, to keep intake of vitamin K stable
- Avoid excessive alcohol consumption (see Alcohol reduction, page 4)
- Avoid drinking large amounts of cranberry juice as this may increase the effects of warfarin
• Inform any health care professional including dentists that a client is taking warfarin
• Ensure clients have appointments for regular blood tests in case the dose of warfarin needs adjusting and ensure they have been advised of the next dose to take when the test result is known
• Refer client to the MO/NP if they feel unwell for any reason including
  – unexplained bruising
  – bleeding
  – pink, red or dark brown urine
  – red or black faeces
  – bleeding from gums or nose
  – dizziness
  – trouble breathing or chest pain
  – severe headache
  – unusual pain or weakness
  – dark, purplish or mottled fingers or toes
  – vomiting or coughing up blood
  – excessive menstrual bleeding

Many medications interact with warfarin. The MO/NP or pharmacist should review every client on warfarin before starting or stopping other medications, vitamin supplements, herbal or over-the-counter products.
## 5. Care plan

**Table 5. Care plan for people with rheumatic heart disease**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Bicillin</td>
<td>✓</td>
<td>Nil</td>
<td>No more than 28 days apart</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HW/RN R/V</td>
<td>✓</td>
<td>12 mthly</td>
<td>4 wkly</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td>✓</td>
<td>12 mthly then once only when client stops growing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>✓</td>
<td>12 mthly</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BMI</td>
<td>✓</td>
<td>12 mthly</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Waist circumference</td>
<td>✓</td>
<td>12 mthly</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pulse</td>
<td>✓</td>
<td>12 mthly</td>
<td>6 mthly</td>
<td>3 mthly</td>
<td></td>
</tr>
<tr>
<td>Blood pressure</td>
<td>✓</td>
<td>12 mthly</td>
<td>6 mthly</td>
<td>3 mthly</td>
<td></td>
</tr>
<tr>
<td>Anticoagulation therapy</td>
<td>✓</td>
<td>Nil</td>
<td>As recommended by MO/NP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>INR</td>
<td>✓</td>
<td>Nil</td>
<td>As recommended by MO/NP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ECG</td>
<td>✓</td>
<td>Nil</td>
<td>12 mthly</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Echocardiogram</td>
<td>✓</td>
<td>As requested by MO/NP</td>
<td>Child 2 yrlly Adult 2 - 3 yrlly</td>
<td>12 mthly</td>
<td>3 - 6 mthly</td>
</tr>
<tr>
<td>Lifestyle modification</td>
<td>✓</td>
<td>12 mthly</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self manage education</td>
<td>✓</td>
<td>12 mthly</td>
<td>4 wkly</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Skin and throat</td>
<td>✓</td>
<td>At each presentation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oral care</td>
<td>✓</td>
<td>At each presentation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MO/NP R/V</td>
<td>✓</td>
<td>12 mthly</td>
<td>6 mthly</td>
<td>3 - 6 mthly</td>
<td></td>
</tr>
<tr>
<td>Dentist</td>
<td>✓</td>
<td>12 mthly</td>
<td>Within 3 mths of Dx</td>
<td>then 6 mthly</td>
<td></td>
</tr>
<tr>
<td>Medication R/V</td>
<td>✓</td>
<td>12 mthly</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Antibiotic cover</td>
<td>✓</td>
<td>For any <em>Streptococcal</em> infection or as per MO, dentist or specialist prior to invasive procedure</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Influenza vaccine</td>
<td>✓</td>
<td>Recommended. See the current edition of the <em>Australian Immunisation Handbook</em> for schedule</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pneumococcal vaccine</td>
<td>✓</td>
<td>Recommended. See the current edition of the <em>Australian Immunisation Handbook</em> for schedule</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social emotional wellbeing</td>
<td>✓</td>
<td>12 mthly</td>
<td>6 mthly</td>
<td>3 mthly</td>
<td></td>
</tr>
<tr>
<td>Care plan</td>
<td>✓</td>
<td>12 mthly</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Specialist MO</td>
<td>✓</td>
<td>As referred with new symptoms</td>
<td>12 mthly</td>
<td>3 - 6 mthly</td>
<td></td>
</tr>
<tr>
<td>Cardiac rehab</td>
<td>✓</td>
<td>And with any new symptoms/suspected disease progression</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
6. References
1. RHDAustralia (ARF/RHD writing group), National Heart Foundation of Australia and the Cardiac Society of Australia and New Zealand. Australian guideline for prevention, diagnosis and management of acute rheumatic fever and rheumatic heart disease (2nd edition). 2012

7. Resources
1. RHDAustralia website for client support and resources available at http://www.rhdaustralia.org.au/
4. The RHD Register and Control Program (ArfRhdRegister@health.qld.gov.au) Ph. 1300 135 854
Section 2: Management of diagnosed conditions

RHEUMATIC HEART DISEASE
Stroke and transient ischaemic attack

High risk groups

- Previous history of stroke or transient ischaemic attack (TIA)
- Over 60 years of age
- Those with hypertension, diabetes or dyslipidaemia
- Those with atrial fibrillation (AF)
- Smokers and those who drink excessive amounts of alcohol\(^1\),\(^2\)

Considerations for women of child-bearing age

- Stroke in women aged 15 - 44 years is uncommon\(^3\)
- Pregnant women with a past history of stroke or TIA or who are at risk of thromboembolic conditions should be referred to an obstetrician
- Warfarin is contraindicated in pregnancy
- Oestrogen-containing contraceptive pill is contraindicated in women who have had a stroke or TIA\(^4\)

Urgent referral

- Refer to the current edition of the *Primary Clinical Care Manual* (PCCM) and the MO/NP for acute diagnosis or management of a stroke or TIA
- Use the acronym FAST to identify any warning signs or symptoms of a stroke or TIA
  - F - Facial weakness
  - A - Arm and/or leg weakness
  - S - Speech difficulty
  - T - Time to act fast

Special considerations

- In managing a stroke or TIA the following co-morbidities and screening must be considered
  - Diabetes type 2, page 196
  - Chronic kidney disease, page 112
  - Hypertension, page 228
  - Coronary heart disease, page 142
  - Chronic heart failure, page 100
  - Overweight and obesity in adults, page 287
  - Dyslipidaemia, page 210
  - Atrial fibrillation
1. What is a stroke and transient ischaemic attack (TIA)?

- The symptoms for a stroke and TIA are the same, however stroke symptoms last longer than 24 hours and result in infarction (death) of neurological (brain) tissue.
- Symptoms include:
  - unilateral weakness, clumsiness or numbness (note: isolated sensory symptoms are unlikely to be due to TIA/stroke)
  - speech disturbance (trouble talking or understanding speech)
  - difficulty recognising or naming things
  - double vision or sudden loss of vision in one or both eyes
  - sudden loss of balance

1.1 Transient ischaemic attack (TIA)

- TIA is a transient episode of neurological dysfunction caused by focal brain ischaemia without infarction.
- Most episodes last less than an hour and symptoms resolve within 24 hours.
- TIAs are a warning sign of impending stroke with significant risk within the first 48 hours.
- Urgent identification of TIAs and commencement of preventative behaviours and treatment can prevent client from having a stroke.

1.2 Stroke

- A stroke (also known as a cerebrovascular accident or CVA) is the result of disrupted arterial blood supply to the brain due to a
  - blockage (ischaemic stroke/cerebral infarction) or
  - rupture (haemorrhagic stroke)
- This results in death of brain tissue and focal (specific) neurological deficits.

2. Diagnosis of a stroke or TIA

- Diagnosis of stroke/TIA is made by:
  - history and clinical presentation of neurological symptoms
  - a CT or MRI scan of the brain to detect infarct or haemorrhage and exclude other pathologies
  - an ECG to exclude atrial fibrillation (AF), a major source of thrombi which cause cerebral blockages
  - a carotid doppler to exclude atherosclerotic plaque and vessel occlusion
  - an echocardiogram to assess heart function and exclude micro thrombi.
3. Management

- Managing the stroke or TIA client includes building a therapeutic partnership with caregivers in order to support the client to rehabilitate and maintain an active productive life

3.1 Factors complicating management

- In managing a stroke or TIA the following co-morbidities and screening must be considered
  - hypertension is the major risk factor for both first and subsequent stroke³ (see Hypertension, page 228)
  - diabetes and impaired glucose tolerance are risk factors for subsequent strokes³ (see Diabetes type 2, page 196)
  - Chronic kidney disease, page 112
  - Coronary heart disease, page 142
  - Chronic heart failure, page 100
  - high cholesterol levels are associated with stroke while cholesterol reduction reduces stroke risk within 12 months of commencing therapy³ (see Dyslipidaemia, page 210)
  - Overweight and obesity in adults, page 260
  - Smoking cessation, page 44
  - Alcohol reduction, page 4
  - atrial fibrillation which is associated with high risk of recurrent stroke and treatment with anticoagulant medications substantially reduces this

- It is important to check for these complications along with calculation of absolute cardiovascular risk using the CVD risk tool (see Appendix 2: Australian cardiovascular risk charts, page 494)

- Reducing cardiovascular risk requires regular assessment and control of blood pressure and lipids

- Table 1. provides target values for those with co-morbidities

<table>
<thead>
<tr>
<th>Table 1. Target management values for co-morbidities⁵</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measurement</td>
</tr>
<tr>
<td>Lipids</td>
</tr>
<tr>
<td>Blood pressure</td>
</tr>
<tr>
<td>BMI</td>
</tr>
<tr>
<td>Random BGL</td>
</tr>
<tr>
<td>Waist circumference</td>
</tr>
</tbody>
</table>
3.2 Support client self management

- Discuss the importance of how to prevent further strokes and TIAs by way of lifestyle modification (see Lifestyle modification section)
- Provide relevant stroke and TIA resources (see Resources 1)
- Discuss early warning signs for immediate medical attention (and phoning 000) by using the acronym FAST
  - F - Facial weakness
  - A - Arm and/or leg weakness
  - S - Speech difficulty
  - T - Time to act fast
- Discuss the need for blood pressure and blood glucose monitoring and control
- Discuss the risk factors for stroke and TIA such as: history or family history of vascular disease, hypertension, obesity, dyslipidaemia, physical inactivity, atrial fibrillation, excessive alcohol and smoking
- Encourage the client to identify barriers to adequate lifestyle modification and medical adherence and create goals to overcome those barriers based on their individual capacity and understanding

3.3 Social emotional support

- Depression is the most common mood disorder after a stroke and often resolves within a few months without antidepressants or active management
- Generalised anxiety and agoraphobia are the most common anxiety disorders following a stroke
- Depression and anxiety can be screened for by using a self- or clinician-rated mood scale (see Resource 2. for examples). Rating scales should be supplemented by a clinical assessment by a suitably qualified clinician to make a diagnosis
- Acknowledge any client concerns and reassure them that good adherence to appropriate treatment can improve the symptoms of their condition
- The client should be encouraged and supported to
  - be as independent as is feasible and safe
  - participate in leisure and productive activities
  - re-engage in family and community roles
  - seek medical approval to return to driving (if appropriate)
  - access the wider community
  - maintain quality relationships with family and friends, including sexual relationships
- The Rural Stroke Outreach Service can provide an appropriate tool to guide this process as needed (see Resource 3)
3.4 Carer support
- Caring for a stroke client is a source of carer stress and burden
- Provide the carer with resources to assist with their own needs (see Resources 4)
- Ensure carer is supported and engaged in service coordination
- Refer carers in remote areas to available carer support services
- Carers may experience isolation and abuse if client has become violent or agitated
- Referral to respite allows carers to have a break and enables clients to stay in their home longer (see Resource 5)

3.5 Smoking cessation
- Smoking increases the risk of stroke due to narrowing of blood vessels and changes in blood dynamics
- The risk of stroke from smoking disappears 5 years after giving up cigarettes
- Refer to the MO/NP and the Quitline for smoking cessation support (see Resource 6)
- See Smoking cessation, page 44

3.6 Diet and nutrition
- Dehydration and malnutrition are common after a stroke due to swallowing impairment, immobility and communication difficulty, leading to increased complications and mortality
- Encourage the carer to make preferred fluids and foods available and provide supervision during meals
- A diet high in fruit, vegetables and oily fish reduces the risk of further strokes
- Refer to a speech therapist to assess for any swallowing impairment
- Refer to a dietitian to assist with malnourished clients
- See Diet and nutrition, page 14

3.7 Alcohol reduction
- Excessive alcohol consumption increases the risk of subsequent strokes
- Limit alcohol intake to 1 - 2 standard drinks per day
- Refer to Alcohol, Tobacco and Other Drugs (ATODs) to support alcohol reduction (see Resource 7)
- See Alcohol reduction, page 4

3.8 Physical activity
- Physical activity has a protective effect against stroke
- Cardiovascular deconditioning occurs as a result of immobility after a stroke
- Fitness training for stroke clients can lead to improved blood pressure and reduction in cardiovascular risk
• 40 minutes of moderate physical activity on most days of the week should begin once sufficient strength returns3
• See Physical activity, page 26

3.9 Falls prevention
• 79% of all clients are at risk of a fall after a stroke with 7% of all stroke clients having had a documented incident3
• Screen for individual falls risk (see Resource 8)
• Review medications and minimise sedatives especially benzodiazepines
• Refer to a physiotherapist and a balance and strength group
• Refer to an occupational therapist to assess whether home modifications are required to minimise slip and fall hazards

3.10 Rehabilitation
• Stroke rehabilitation involves multidisciplinary tailored interventions, usually including an occupational therapist, starting the first day after a stroke to maximise a person’s functionality in their community3
• All clients will be screened and assessed for cognitive, sensorimotor, physical and communication deficits shortly after the acute incident and tailored interventions will be documented and implemented in consultation with the client and carer3
• Amount and intensity of rehabilitation should be at least 1 hour of active practise per day, 5 days per week, within the first 6 months after the stroke event3
• Encourage clients, carers and/or family to continue rehabilitative interventions while the client is at home
• Some practical rehabilitation interventions are shown in Table 2.3

| Table 2. Stroke rehabilitation prompts for client, carer and/or family4,3 |
|-----------------------------|-----------------------------|
| Weakness                    | Loss of sensation           |
| • 70% present with arm or leg weakness | • 50% have some sort of sensory deficit |
| • Referral to physiotherapist who will facilitate therapeutic strategies | • Sensory specific training for focused tasks e.g. training to recognise hot or cold water in the context of testing tap water temperature |
| • Repetitive resistance exercises, muscle contractions and strength training | • Touching of various materials to parts of the body including water, sand, play dough and various textured objects |
| (continued)
### Table 2. Stroke rehabilitation prompts for client, carer and/or family (continued)

<table>
<thead>
<tr>
<th>Activities of daily living</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Occupational therapy referral</td>
</tr>
<tr>
<td>• Task specific training</td>
</tr>
<tr>
<td>• Assistance of aids e.g. eating utensils, walkers, alarms, etc.</td>
</tr>
<tr>
<td><strong>Upper limb activity</strong></td>
</tr>
<tr>
<td>• Repetitive practise to use upper limbs</td>
</tr>
<tr>
<td>• Practise in front of a mirror</td>
</tr>
<tr>
<td>• Mechanical assistance e.g. upper limb strengthening devices and exercises</td>
</tr>
<tr>
<td>• Mental practise</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Standing up from sitting and remaining standing</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Repetitive practise with or without assistance</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Walking</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Repetitive practise</td>
</tr>
<tr>
<td>• Use of a treadmill</td>
</tr>
<tr>
<td>• Physically positioning client’s feet</td>
</tr>
<tr>
<td>• Use of foot-ankle orthotics for those with persistent foot drop</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Weakness</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Practising to sit and reaching beyond arm’s length with assistance or supervision</td>
</tr>
</tbody>
</table>

**Unilateral spatial neglect (failure to respond to stimuli or move towards one side)**

| • Modification of client’s environment to favour dominant side |
| • Training to visually scan an environment |
| • Drawing attention to and activating the affected limb |
| • Touching the limb |

**Apraxia (impaired planning and sequencing of movement)**

| • Physically guide limbs through particular movements |
| • Break tasks into smaller steps |
| • Verbalising the actions |
| • Touch and apply weight to the limbs |

**Dysarthria (difficulty speaking due to poor mouth muscle strength) and dyspraxia (impaired sequencing of muscle use for speaking)**

| • Referral to a speech pathologist who will facilitate therapeutic strategies |
| • Oral muscle exercises |
| • Repetitive practise speaking |
| • Prompting |

**Aphasia (inability to speak) and dysphasia (impaired ability to speak)**

| • Referral to a speech pathologist who will facilitate therapeutic strategies |
| • Encourage other forms of communication e.g. writing or via electronic medium |

**Dysphagia (difficulty swallowing)**

| • Referral to a speech pathologist who will facilitate therapeutic strategies |
| • Support safe swallowing by positioning and altering food and fluids |
| • Monitor eating, diet intake and tolerance |
| • Weight loss and recurrent chest infections need urgent referral to MO/NP |
### Table 2. Stroke rehabilitation prompts for client, carer and/or family (continued)\(^1,3\)

<table>
<thead>
<tr>
<th>Hemianopia (visual field loss)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Affects 33% of stroke victims</td>
</tr>
<tr>
<td>• Referral to an ophthalmologist who will facilitate therapeutic strategies</td>
</tr>
<tr>
<td>• Therapy may include vision restoration therapy, attentional cueing, Fresnel Prism glasses and computer based visual restitution training</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Agnosia (inability to recognise sounds, smells, body parts or objects)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Help client to use their intact senses</td>
</tr>
<tr>
<td>• Use labels, shapes, distinct features and verbal reasoning</td>
</tr>
<tr>
<td>• This is particularly important for dangerous household items e.g. stove</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Memory and executive functioning (initiation of behaviour, planning and problem solving)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Memory games and tasks</td>
</tr>
<tr>
<td>• Repetition of behaviours or activities</td>
</tr>
<tr>
<td>• Use of notebooks, digital organisers and alarms</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Memory, attention and concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Repetitive attention tasks e.g. games (cards, match, fish), cooking</td>
</tr>
<tr>
<td>• Memory training using alerts, calendars or diaries</td>
</tr>
</tbody>
</table>

### 3.11 Oral hygiene
- Physical weakness, dysphasia, lack of coordination and cognitive problems can lead to poor oral hygiene\(^3\)
- All clients should have education to maintain good oral hygiene or carers should be trained to assess and manage oral hygiene (see Dental caries and periodontal disease, page 162)

### 3.12 Contracture prevention
- Contracture is a shortening of soft tissues that results in poor range of motion (ROM) of the affected limb and impaired movement\(^3\)
- People with severe weakness are at most risk because the joint or muscle is not moved or lengthened regularly
- Early tailored rehabilitation intervention should be provided for clients at risk of contractures

### 3.13 Pain management
- Shoulder pain commonly develops after a stroke and is usually managed with shoulder strapping and education to prevent trauma\(^3\)
- Central post stroke pain (CPSP) is a burning pricking sensation made worse by touch, water or movement and can be managed with tricyclic antidepressants or anticonvulsants prescribed by the MO/NP or a specialist pain management team\(^3\)
3.14 Oedema

- Immobile clients are at risk of developing swelling of the feet or hands due to weakness and an inability to move
- Management to prevent or reduce swelling include: pressure garments, electrical stimulation, continuous passive movement and elevation of limbs when resting

3.15 Fatigue

- Fatigue that is unrelated to exertion levels and not relieved by rest, occurs in most clients after a stroke
- The client and carer should be supported to improve sleep patterns and to avoid sedatives and excessive alcohol
- Any therapy should be arranged for periods of the day when the client is most alert

3.16 Urinary and faecal incontinence

- Urinary and faecal incontinence is common after a stroke due to weakness and cognitive or perceptual impairments
- Refer all incontinent clients to a continence advisor or continence nurse for specialist review
- For confirmed urinary incontinence
  - a continence management plan should be developed, documented, implemented and monitored with the client and carer
  - indwelling catheters should be avoided except with acute urinary retention
  - use of anticholinergic drugs can be trialled for urge incontinence
  - use of a voiding regime to assist with bladder retraining should be trialled
  - use of continence aids e.g. urinary pads, pants, uridomes, etc.
- For confirmed faecal incontinence
  - a bowel habit retraining regime should be employed using the type and timing of a client’s diet to exploit the gastro-colic reflex i.e. the urge to defecate after food
  - use of continence aids
- If continence is not achievable then refer eligible clients to Medical Aids Subsidy Scheme (MASS) to access continence aids (see Resource 9)

3.17 Behavioural change

- Personality and behavioural changes are common after a stroke e.g. irritability, aggression, apathy, disinhibition, impulsivity, lack of insight and rapid mood changes (sudden switch between crying and laughing) (see Resource 10)
- These changes can contribute to significant carer burden and stress
- Provide client and carer access to personality and behavioural change programs to support management of challenging behaviour e.g. anger management or cognitive behaviour therapy (CBT)
3.18 Deep vein thrombosis (DVT) and pulmonary embolism (PE)

- Reduced mobility, stroke severity, age, dehydration and delayed stroke prevention activities are associated with DVT and PE which account for nearly a third of all deaths after a stroke.
- Mobilisation and adequate hydration should be encouraged.
- Antiplatelet therapy is used to prevent DVT and PE (see 4. Medications).
- Antithrombotic therapy and antithrombotic stockings are not recommended for the prevention of DVT and PE.

3.19 Pressure area care

- Age, stroke severity, immobility, incontinence, nutritional status and diabetes are contributing factors to localised tissue damage due to pressure, shearing or friction.
- Clients should be assessed for the risk of developing pressure ulcers using The Waterlow Pressure Ulcer Risk Assessment Tool (see Resource 11).
- Management of pressure ulcers involves:
  - addressing contributing factors above
  - wound care
  - use of pressure beds, mattresses or cushions
  - regular mobilisation and repositioning.

3.20 Obstructive sleep apnoea (OSA)

- OSA occurs in 32% - 80% of clients following a stroke.
- Measure the client’s daytime sleepiness by performing the Epworth Sleepiness Scale (see Resource 12).
- If they score highly refer to a sleep specialist to exclude OSA.
- Weight reduction and continuous positive airway pressure (CPAP) therapy are the accepted effective treatments for OSA.

3.21 Palliation support

- Palliative care should be considered in all clients where the possibility of significant deterioration is high.
- In conjunction with the client and the multidisciplinary team arrange for a visiting physiotherapist and/or occupational therapist for home assessment and other supports such as wheel chairs and bedding.
- Assess impact of the client’s function on employment, finances, family routines and emotions.
- Feelings of grief and loss need to be anticipated from the time of diagnosis to death. Grief and bereavement counselling should be available to clients, family and carers.
- A conference with involved clinicians and the family can provide an opportunity to discuss end-of-life issues.
- The use of advance care planning (i.e. enduring powers of attorney and/or advanced directives) is necessary.
health directives) will assist the client retain some control over their care and personal lives

- Refer eligible clients to Home and Community Care (HACC) services and Medical Aid Subsidy Scheme (MASS) (see Resource 13)

4. Medications

4.1 Acute stroke

- For initial therapy for acute TIA or stroke refer to the current edition of the Primary Clinical Care Manual (PCCM)

4.2 Secondary prevention of further TIA or stroke

- Antihypertensives
  - recommended for the prevention of recurrent stroke and other vascular events in persons who have had an ischaemic stroke
  - this benefit extends to persons with or without a history of hypertension
  - ACE inhibitors are most effective
  - alternatives include calcium channel blockers and low dose thiazide diuretics
  - beta blockers appear ineffective in preventing stroke

- Antiplatelet agents
  - recommended for clients with non-cardioembolic ischaemic stroke or TIA to reduce the risk of recurrent strokes and TIAs
  - there are 3 antiplatelet drugs commonly used; aspirin, clopidogrel and combination aspirin and dipyridamole (Asasantin®)
  - Aspirin or combination low dose aspirin and extended-release dipyridamole (200 mg twice a day) are recommended for secondary prevention of stroke, regardless of absolute risk of recurrent stroke
  - Aspirin and dipyridamole combination should be considered in clients with recurrent stroke events despite aspirin therapy
  - Clopidogrel is equally effective for clients where aspirin is contraindicated or not tolerated

4.3 Anticoagulation

- For ischaemic stroke or TIA clients with persistent or paroxysmal (intermittent) atrial fibrillation, anticoagulation with adjusted dose warfarin (target INR range 2.0 - 3.0) or a novel oral anticoagulant medication (e.g. rivaroxaban) is recommended to prevent cardioembolic clots

- Monitor INR levels (2.0 - 3.0) using Table 3. as a guide

- For those with AF who have had a TIA or stroke, reassess annually whether they should be anticoagulated weighing the benefits and risks using the Cotswold Heritage and Detecting Society (CHADS)² score for risk of further thromboembolus and HAS-BLED score to assess risk of bleeding (see Resource 14)
Table 3. Warfarin dosing regime for INR target range of 2.0 - 3.0*

<table>
<thead>
<tr>
<th>INR</th>
<th>Dosage adjustment</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 1.5</td>
<td>• Increase weekly dose by 20%</td>
</tr>
<tr>
<td>1.5 - 1.9</td>
<td>• Increase weekly dose by 10%</td>
</tr>
<tr>
<td>2 - 3</td>
<td>• No change</td>
</tr>
<tr>
<td>3.1 - 3.9</td>
<td>• No change&lt;br&gt;• Recheck in one week&lt;br&gt;• If persistent, decrease weekly dose by 10 - 20%</td>
</tr>
<tr>
<td>4 - 4.9</td>
<td>• Omit one dose&lt;br&gt;• Decrease weekly dose by 10% - 20%&lt;br&gt;• Recheck INR in 2 - 5 days</td>
</tr>
<tr>
<td>INR 5 - 9 and no bleeding</td>
<td>• Cease warfarin&lt;br&gt;• If bleeding risk high give vitamin K 1 - 2 mg orally or 0.5 - 1 mg IV&lt;br&gt;• Check INR in 6 - 12 hours&lt;br&gt;• Resume lower dose of warfarin once INR &lt; 5</td>
</tr>
<tr>
<td>INR &gt; 9</td>
<td>• Cease warfarin&lt;br&gt;• Seek senior medical advice&lt;br&gt;• Refer to the Guidelines for Warfarin Management in the Community (see Resource 15)</td>
</tr>
</tbody>
</table>

*Dose modification is required for clients with mechanical heart valves as the target INR range is higher (2.5 - 3.5)

4.4 Client warfarin education

- Many medications interact with warfarin. The MO/NP or pharmacist should review every client on warfarin before starting or stopping other medications, vitamin supplements, herbal or over-the-counter products
- Always take the same brand of warfarin tablets
- Take warfarin tablets at about the same time every day
- Inform a doctor if a painful, purplish, bruise-like rash develops
- Use a booklet to tick the days after taking a dose so that any missed doses can easily be identified
- Warfarin is affected by vitamin K which is found in certain foods e.g. green leafy vegetables. Eat a normal, balanced diet without dramatic changes, to keep intake of vitamin K stable
- Avoid drinking large amounts of cranberry juice as this may increase the effects of warfarin
- Ensure clients have appointments for regular blood tests in case the dose of warfarin needs adjusting and ensure they have been advised of the next dose to take when the test result is known
4.5 Generic client anticoagulation education

- Avoid excessive alcohol consumption
- Client or carer to inform other health care professionals they are taking warfarin
- Refer client to the MO/NP if they feel unwell for
  - unexplained bruising or bleeding
  - pink, red or dark brown urine
  - red or black faeces
  - bleeding from gums or nose
  - dizziness
  - trouble breathing or chest pain
  - severe headache
  - unusual pain or weakness
  - dark, purplish or mottled fingers or toes
  - vomiting or coughing up blood or
  - excessive menstrual bleeding

Many medications interact with warfarin. The MO/NP or pharmacist should review every client on warfarin before starting or stopping other medications, vitamin supplements, herbal or over-the-counter products.
### Table 4. Medications for stroke and TIA\(^1,6,8,9\)

<table>
<thead>
<tr>
<th>Class</th>
<th>Suggested drug and dose</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>For the prevention of a stroke or TIA in high risk people</strong></td>
<td></td>
</tr>
</tbody>
</table>
| **Antiplatelet** (in order of preference) | • Aspirin 75 - 150 mg daily  
• Aspirin is cheap and effective  
• Clopidogrel 75 mg daily  
• For use when aspirin is not tolerated or is contraindicated |
| **Anticoagulant** | • Recommended for clients with atrial fibrillation, cardioembolic stroke from valvular heart disease or recent myocardial infarction, unless contraindicated  
• The new oral anticoagulants (NOACs) are alternatives to warfarin in clients without a prosthetic heart valve or significant valvular disease  
• Warfarin 5 mg daily for 2 days then titrated to INR 2 - 3  
• Rivaroxaban 20 mg once daily (15 mg once daily if CrCl 30 - 49 mL/min, don’t use if < 30 mL/min)  
• Apixaban 5 mg twice daily (2.5 mg twice daily if at least 2 of: weight < 60 kg, age > 80 years or serum Cr > 133 umol/l. Don’t use if < 25 mL/min)  
• Dabigatran 150 mg twice daily (110 mg twice daily if age > 75 or CrCl 30 - 50 mL/min, don’t use if < 30 mL/min) |
| **For those who have had an ischaemic stroke or TIA - as above as well as the following** |
| **Antiplatelet** (preferred) | • Combined dipyridamole/aspirin 200/25 mg b.d.  
• Recommended as secondary prevention  
• Use clopidogrel 75 mg daily for clients intolerant of aspirin |
| **Antihypertensives** | • See Hypertension, page 228  
• Recommended for all clients after stroke or TIA, regardless of hypertension history  
• Beta blockers are not recommended |
| **Statins** | • See Dyslipidaemia, page 210  
• Recommended for all clients after ischaemic stroke or TIA, regardless of lipid history |
| **For central post stroke pain (CPSP) - a trial of medications should be considered when CPSP interferes with functional tasks** |
| **Tricyclic antidepressants** | Amitriptyline 10 - 25 mg at night, up to 75 - 100 mg at night |
| **Anticonvulsants** | Gabapentin 100 - 300 mg daily, slowly increase up to 2400 mg daily  
Pregabalin 75 mg daily, slowly increase up to 300 mg twice daily  
Carbamazepine 50 mg daily, slowly increase up to 300 mg twice daily (Carbamazepine has many drug interactions) |
| **SNRIs** | Duloxetine 30 mg daily, up to 60 g daily  
Venlafaxine 75 mg daily up to 150 mg daily |

*For those who have had a haemorrhagic stroke or TIA, as above except antplatelet (aspirin) and anticoagulants are contraindicated and lipid lowering therapy is not necessary*
## 5. Care plans

### Table 5. Care plan for clients at high risk of stroke or TIA

<table>
<thead>
<tr>
<th>Action</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pulse</td>
<td>3 mth then 12 mthly</td>
</tr>
<tr>
<td>TIA screen</td>
<td>3 mthly or as indicated by condition</td>
</tr>
<tr>
<td>Stroke prevention education</td>
<td>3 mthly (or as indicated by condition) then 12 mthly</td>
</tr>
<tr>
<td>CHADS² score</td>
<td>If AF present then annually</td>
</tr>
<tr>
<td>Lifestyle modification</td>
<td>Each visit</td>
</tr>
<tr>
<td>Influenza vaccine</td>
<td>Recommended. See the current edition of the <em>Australian Immunisation Handbook</em> for schedule</td>
</tr>
<tr>
<td>Pneumococcal vaccine</td>
<td></td>
</tr>
<tr>
<td>MO/NP R/V</td>
<td>3 mthly (or as indicated by condition) then 12 mthly</td>
</tr>
</tbody>
</table>

### Table 6. Care plan for post stroke or TIA clients

<table>
<thead>
<tr>
<th>Action</th>
<th>Dx Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blood pressure</td>
<td>✅ Within 1 mth of discharge or first presentation post stroke then 3 mthly or as condition indicates</td>
</tr>
<tr>
<td>BMI</td>
<td>✅ 12 mthly or as condition indicates</td>
</tr>
<tr>
<td>Weight</td>
<td>✅ 12 mthly or as condition indicates</td>
</tr>
<tr>
<td>Pulse rate</td>
<td>✅ 12 mthly or as condition indicates</td>
</tr>
<tr>
<td>Fasting blood lipids</td>
<td>✅ 12 mthly or as condition indicates</td>
</tr>
<tr>
<td>Fasting blood glucose</td>
<td>✅ 12 mthly or as condition indicates</td>
</tr>
<tr>
<td>INR</td>
<td>✅ Wkly until stable then as per MO</td>
</tr>
<tr>
<td>Assess falls risk</td>
<td>✅ As client situation changes</td>
</tr>
<tr>
<td>Client education</td>
<td>✅ Within 1 mth of discharge or first presentation post stroke then 3 mthly</td>
</tr>
<tr>
<td>Carer support</td>
<td>✅ Each visit</td>
</tr>
<tr>
<td>Lifestyle modification</td>
<td>✅ Each visit</td>
</tr>
<tr>
<td>Social emotional wellbeing</td>
<td>✅ Each visit</td>
</tr>
<tr>
<td>Influenza vaccine</td>
<td>Recommended - see the current edition of the <em>Australian Immunisation Handbook</em> for schedule</td>
</tr>
<tr>
<td>Pneumococcal vaccine</td>
<td></td>
</tr>
<tr>
<td>Dentist</td>
<td>✅ 12 mthly</td>
</tr>
<tr>
<td>HW/RN R/V</td>
<td>✅ 3 mthly</td>
</tr>
<tr>
<td>MO/NP R/V</td>
<td>✅ 6 mthly</td>
</tr>
<tr>
<td>Physiotherapist</td>
<td>✅ At the discretion of the physiotherapist</td>
</tr>
<tr>
<td>Speech pathologist</td>
<td>✅ At the discretion of the speech pathologist</td>
</tr>
<tr>
<td>Dietitian</td>
<td>✅ At the discretion of the dietitian</td>
</tr>
</tbody>
</table>
6. References

7. Resources
Section 3

Child health checks
Notes
Section 3: Child health checks

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Alcohol, tobacco and other drugs (ATODs) - child

- Diseases that are caused by the use of alcohol, tobacco or other drugs (ATODs) are responsible for high morbidity and mortality rates globally.
- Preventing risky behaviour and promoting healthy choices in childhood can produce positive health outcomes in adulthood.\(^1\)
- Asking ATODs questions provides an opportunity to identify risky behaviours and support children to make healthy lifestyle choices including low risk alcohol consumption and ceasing smoking and other drugs.\(^1\)
- Reassure the child that what they say and any discussions are confidential.
- Refer to Smoking cessation, page 44 and Alcohol reduction, page 4.
- Online training for health checks and preventative care is available via PARROT at www.health.qld.gov.au/parrot.

Child safety notification

- If there is a suspicion of harm or neglect consider a referral to child safety (see Appendix 2: Child safety reporting, page 498).

Health check recommendations

All children opportunistically from the age of 8 years

1. Procedure

- Ask the child the ATODs questions according to their age (see Table 1).
- The presence of parents and other authority figures may affect the answers children give. With consent and where appropriate, interview the child alone for honest answers.
- Using the answers to guide you, identify if the child uses ATODs.
- Provide brief intervention.
- Determine if the client requires a referral and make a referral and place on a follow up and recall register if required.

2. Results

- The preferred response to the ATODs questions is ‘no’.
- If the child answers ‘no’ provide positive feedback and reinforce their healthy lifestyle choice.
- If the child answers ‘yes’ to any of the ATODs questions then provide brief intervention and make a referral to the appropriate service.
Table 1. Age related ATODs questions

<table>
<thead>
<tr>
<th>Questions</th>
<th>Explore</th>
</tr>
</thead>
</table>
| Does the child smoke? (cigarettes, cannabis, etc.) | • How often does the child smoke e.g. daily, weekly, sometimes?  
• How many cigarettes do they smoke?  
• When do they smoke?  
• Identify triggers e.g. when they’re stressed? at school? with friends and peers?  
• Where do they get their cigarettes from?  
• Why do they smoke?  
• How does it make them feel? |
| Does the child drink any alcohol?               | • Clarify if the child drinks beer, wine, UDLs, premix or spirits  
• How often does the child drink e.g. daily, weekly, sometimes?  
• How many drinks do they have?  
• When do they drink?  
• Identify triggers e.g. when they’re stressed? at school? with friends and peers?  
• Where do they get their alcohol from?  
• Why do they drink?  
• How does it make them feel? |
| Does the child use any drugs or other substances? | • Clarify other substances for the child e.g. inhalants, cannabis, crystal meth, etc.  
• How often does the child do drugs e.g. daily, weekly, sometimes?  
• How much drugs do they do?  
• When do they do drugs?  
• Identify triggers e.g. when they’re stressed? at school? with friends and peers?  
• Where do they get their drugs from?  
• Why do they do drugs?  
• How does it make them feel? |

3. Brief intervention

• See Alcohol reduction, page 4 and Smoking cessation, page 44

• Provide self help material for older children for any drug taking behaviour (see Resource 1)

• Offer an intensive, proactive cessation support program (see Resource 2)

• Avoid minimising their harmful behaviour and the negative health effects on the body

• Use a matrix of questions to motivate children to think critically about their ATODs taking behaviour (see Table 2)

• Ask the child if they are talking to, or have someone to talk to about their ATODs taking

• Encourage the child to talk to someone they feel safe with

• Encourage the child to seek help from the health service to give up their habit

• Provide resources (see Resources list)
Table 2. Motivational questions

<table>
<thead>
<tr>
<th>What are the good things about smoking, drinking alcohol or taking drugs?</th>
<th>What are the bad things about smoking, drinking alcohol or taking drugs?</th>
</tr>
</thead>
<tbody>
<tr>
<td>• All my friends do it</td>
<td>• Costs a lot of money</td>
</tr>
<tr>
<td>• Makes me look cool</td>
<td>• Makes my chest feel tight, makes me short of breath</td>
</tr>
<tr>
<td>• Relaxes me</td>
<td>• Can’t run around, go diving or play sport because of breathlessness</td>
</tr>
<tr>
<td>• Gets me started</td>
<td>• Makes me cough</td>
</tr>
<tr>
<td>• Tastes good</td>
<td>• Gives me bad breath</td>
</tr>
<tr>
<td>• Keeps me awake</td>
<td>• Everyone bludges a smoke off me</td>
</tr>
<tr>
<td>• Gives me a boost</td>
<td>• Hate craving for a smoke</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>What are the good things about STOPPING smoking, drinking alcohol or taking drugs?</th>
<th>What are the bad things about STOPPING smoking, drinking alcohol or taking drugs?</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Won’t be breathless any more</td>
<td>• Friends may not want to play with me</td>
</tr>
<tr>
<td>• Will have more money</td>
<td>• Not look cool</td>
</tr>
<tr>
<td>• Can save up for something special</td>
<td></td>
</tr>
<tr>
<td>• Will feel stronger</td>
<td></td>
</tr>
</tbody>
</table>

4. Referral

• If there are any concerns about the child’s social and emotional wellbeing referral must be made to the MO/NP and/or local SEWB services and/or a child safety notification made (see Appendix 2: Child safety reporting, page 498)

• If any harmful drug taking behaviours are identified, refer to an appropriate source (see Table 3)

• Offer immediate support by referring the child and parent to the MO/NP or mental health worker if you have urgent concerns for the child’s level of ATODs taking

5. Follow up

• Place the child on a recall register to monitor ATODs use and to ensure any referrals are actioned

• Provide the child or parent with details for the next scheduled follow up appointment
### Table 3. Referral options

<table>
<thead>
<tr>
<th>Queensland Health</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Health worker or registered nurse</td>
</tr>
<tr>
<td>• Your local Child Protection Liaison Officer or Safe Kids or Child Safety Services Regional Intake Services (see Appendix 2: Child safety reporting, page 498)</td>
</tr>
<tr>
<td>• Psychologist or social worker</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cultural services</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Aboriginal and Torres Strait Islander Legal Service (Qld) Ltd at <a href="http://www.atsils.com.au/">http://www.atsils.com.au/</a></td>
</tr>
<tr>
<td>• Minister/Pastor</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Other services</th>
</tr>
</thead>
<tbody>
<tr>
<td>• School nurse</td>
</tr>
<tr>
<td>• Headspace, the national youth mental health foundation available at <a href="http://www.headspace.org.au/">www.headspace.org.au/</a></td>
</tr>
<tr>
<td>• Quitline 137 848</td>
</tr>
<tr>
<td>• Royal Flying Doctor Service nurse or doctor</td>
</tr>
<tr>
<td>• School Principal or student guidance officer</td>
</tr>
</tbody>
</table>
6. References


7. Resources

5. Quit phone apps - My Quitbuddy: Provides a countdown for quitting and stats to track quitting progress, such as number of days smoke-free, cigarettes avoided and money saved; Quit for you - Quit for Two: Provides support and encouragement to help patients give up smoking. Both available for download from Apple iTunes and Google Play stores
8. OxyGen Fact sheets, curriculum resources and youth focused activities to support smoking prevention available at www.oxygen.org.au/
10. The National Cannabis Prevention and Information Centre. Information, stories and brief motivational interviewing activities targeted at young people as well as classroom activities for secondary school students available at https://ncpic.org.au/
Birth information

- Recording the child’s birth information allows clinicians to
  - maintain consistency with a child’s personal health history as they grow and develop
  - ensure any perinatal appointments or follow up are supported
- All information should be directly transcribed from a discharge summary or the child’s Personal Health Record (PHR) booklet (baby book)

Health check recommendations

All children at first presentation

1. **Procedure**

- Transfer all postnatal discharge summary or PHR information as per Table 1. to the well baby health check form
- Ask the questions as per Table 1.
- Ensure any identified concerns, appointments or abnormalities have been referred or followed up, if not, refer and place the baby on a recall register

<table>
<thead>
<tr>
<th>Information and questions</th>
<th>Explore</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discharge summary received</td>
<td>• Received from the referring or birth hospital</td>
</tr>
<tr>
<td>Birth weight</td>
<td></td>
</tr>
<tr>
<td>Birth length</td>
<td>• As per <a href="http://www.bodymeasurements.com">Body measurements - child, page 336</a></td>
</tr>
<tr>
<td>Birth head circumference</td>
<td></td>
</tr>
<tr>
<td>Gestation</td>
<td>• &lt; 37 weeks is premature</td>
</tr>
<tr>
<td>Apgar score 1 minute</td>
<td>• Scale from 1 (not responding) to 10 (alert and active)</td>
</tr>
<tr>
<td>Apgar score 5 minute</td>
<td>• Measured at 1 and 5 minutes after delivery</td>
</tr>
<tr>
<td>Method of delivery</td>
<td>• Normal vaginal birth (NVB), caesarian section (CS), forceps or vacuum extraction</td>
</tr>
<tr>
<td>Newborn hearing test attended</td>
<td>• Yes or no</td>
</tr>
<tr>
<td>Immunisation status current</td>
<td>• Hepatitis B and/or tuberculosis vaccines</td>
</tr>
<tr>
<td></td>
<td>• Vitamin K supplement</td>
</tr>
</tbody>
</table>
Table 1. Birth information and questions for 1 - 6 weeks of age (continued)

<table>
<thead>
<tr>
<th>Information and questions</th>
<th>Explore</th>
</tr>
</thead>
</table>
| Guthrie test (heel prick) attended               | • Test for
|                                                 |   – phenylketonuria (PKU)
|                                                 |   – primary congenital hypothyroidism (CH)
|                                                 |   – cystic fibrosis (CF)                                               |
| Was the baby treated for jaundice?               | • Yellowing of the skin and mucous membranes                           |
| Did the baby have any breathing problems or      | • Yes or no                                                            |
| convulsions?                                     |                                                                         |
| Was the baby ventilated                         | • Assisted breathing
|                                                 |   • For how long?                                                      |

2. Results

2.1 Gestation

• For baby born premature (< 37 weeks)
  – the baby is at increased risk of vaccine preventable infections
  – the baby’s immunisation schedule will alter
  – any body measurements will need to be corrected

2.2 Method of delivery

• The method of delivery will alert the clinician to certain considerations

  • Caesarian wounds sometimes require wound care particularly in the overweight or obese

  • Forceps delivery may leave marks on the sides of the baby’s head

  • Vacuum extraction leaves the baby with a cone or large bump on the top of the head

  • Any clinical concerns around method of delivery should always be referred to the MO or NP

2.3 Hearing test

• For abnormal hearing test results, ensure any appointments or referrals are acted upon

2.4 Guthrie test

• The birthing hospital will notify the parent of any abnormal test results and follow up appointments will be arranged

2.5 Jaundice

• Most jaundice is physiological and affects 50 - 60% of term babies, usually 48 - 72 hours after birth

• As blood cells and haemoglobin are constantly being produced and destroyed, bilirubin is released

• Before baby is born, bilirubin is removed through the placenta but, once born, the baby’s own liver removes the bilirubin
• This process can be difficult for a newborn’s liver and bilirubin may build up causing the skin and mucous membranes to turn yellow.
• As bilirubin increases, jaundice appears first on the face and head, then body, then finally the palms of the hands and soles of the feet.
• A simple test is to gently press your fingertip on the tip of the baby's nose or forehead. When the finger is lifted the skin should be white if normal, or yellow if jaundice is present (see Table 2).
• Those with darker skin tones are harder to assess. Always refer if unsure.
• If bilirubin concentrations increase and jaundice continues, hearing problems or brain damage may result.
• Phototherapy (light therapy) and breastfeeding facilitates bilirubin elimination.
• Jaundice should disappear by 2 weeks of age.

<p>| Table 2. Kramar’s rule to estimating jaundice in babies |</p>
<table>
<thead>
<tr>
<th>Zone</th>
<th>Effect on child</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Limited to head and neck</td>
<td>Continue to encourage 3rd hourly breastfeeding and filtered light</td>
</tr>
</tbody>
</table>
| 2    | Upper trunk  
Baby may be tired | Observe |
| 3    | Lower trunk and thighs  
Baby will be tired and listless | Continue to encourage 3rd hourly breastfeeding and filtered light |
| 4    | Over arms, legs and below knees  
Baby will be tired and listless  
Is at risk of cerebral palsy, deafness and brain damage | Refer urgently |
| 5    | Hands and feet  
Baby will be tired and listless  
Is at risk of cerebral palsy, deafness and brain damage | |

3. Brief intervention
• Provide the parent with anticipatory guidance with expectations in the coming months including
  – breastfeeding or artificial feeding
  – safe sleeping and SIDS
  – milestones in the coming months
  – infant reflexes information
  – vision and hearing information
• Praise successes

4. Referral
• Ensure any birthing hospital appointments or referrals are acted upon by the parents for
  – abnormal hearing test results
  – abnormal Guthrie test results
Section 3: Child health checks

5. Follow up

- Place the baby or parent on a recall register and continue to monitor to ensure any referrals are actioned
- Provide the parent with details for the next scheduled follow up appointment

6. References

Birth mother’s history

- Information regarding the mother’s health and lifestyle before, during and after pregnancy is useful to determine a baby’s health risk of future chronic illnesses and maternal attachment (bonding)

- Online training for health checks and preventative care is available via PARROT at www.health.qld.gov.au/parrot

Child safety notification

- If there is a suspicion of harm or neglect consider a referral to child safety (see Appendix 2: Child safety reporting, page 498)

Health check recommendations

All mothers of newborn babies during first postnatal visit

1. Procedure

- Ask the mother the questions and be prepared to explore further as per Table 1.

- Provide the mother with brief intervention if required

- Determine if the mother requires a referral according to the answers and place on a follow up and recall register if required

Table 1. Questions to ask of a child’s mother at 1 - 6 weeks

<table>
<thead>
<tr>
<th>Questions</th>
<th>Explore</th>
</tr>
</thead>
<tbody>
<tr>
<td>Was this pregnancy planned?</td>
<td>• How does mum feel toward this child?</td>
</tr>
<tr>
<td></td>
<td>• What is the EPDS score? (see Resource 1)</td>
</tr>
<tr>
<td>Did the mother smoke during this pregnancy?</td>
<td>• For how long?</td>
</tr>
<tr>
<td></td>
<td>• How much?</td>
</tr>
<tr>
<td>Is the mother still smoking?</td>
<td>• How many?</td>
</tr>
<tr>
<td>Did the mother drink alcohol during this pregnancy?</td>
<td>• For how long?</td>
</tr>
<tr>
<td></td>
<td>• How much?</td>
</tr>
<tr>
<td>Did the mother use drugs/substances during pregnancy?</td>
<td>• For how long?</td>
</tr>
<tr>
<td></td>
<td>• How much?</td>
</tr>
<tr>
<td>Did the mother have diabetes during this pregnancy?</td>
<td>• Gestational or type 1 or 2?</td>
</tr>
<tr>
<td></td>
<td>• Was the diabetes well managed?</td>
</tr>
<tr>
<td></td>
<td>• Is the diabetes still well managed?</td>
</tr>
<tr>
<td>Did the mother have a complete antenatal STI screen?</td>
<td>• What were the results?</td>
</tr>
<tr>
<td></td>
<td>• Was successful treatment given?</td>
</tr>
<tr>
<td>How many children in the mother’s care?</td>
<td>• All own children?</td>
</tr>
<tr>
<td></td>
<td>• Any support?</td>
</tr>
<tr>
<td></td>
<td>• Finances?</td>
</tr>
</tbody>
</table>
2. Results

2.1 Unplanned pregnancy

- Identifying if a pregnancy is planned or unplanned can help determine whether a parent will have low or high levels of secure attachment (bonding) with their infant
- Unplanned pregnancies are associated with higher levels of postnatal depression

2.2 Smoking during pregnancy and breastfeeding

- Smoking during pregnancy is associated with an increased risk of
  - miscarriage
  - preterm birth
  - low birth weight which makes babies more vulnerable to infections and birth defects such as cleft lip and cleft palate
  - babies small for gestational age
  - Sudden Infant Death Syndrome (SIDS)
- Smoking whilst breastfeeding or around a baby is associated with
  - ear infections
  - SIDS
  - asthma
  - chest infections such as pneumonia and bronchitis
  - slow lung growth
  - coughing

2.3 Alcohol use during pregnancy and breastfeeding

- Drinking alcohol during pregnancy is associated with
  - poor physical growth and mental development
  - weak sucking reflex
  - breathing difficulties at birth
  - muscle weakness
  - poor sleep patterns
  - behavioural problems
  - learning difficulties
  - increased risk of congenital abnormalities of the heart and kidneys
  - poor educational outcomes, social problems and alcoholism
  - children with fetal alcohol spectrum disorder (FASD)
- Alcohol passes from the mother to baby through breast milk and affects the baby’s developing brain and slows development
- Alcohol can effect the way a parent cares for their baby or children such as
  - dropping the baby
  - rolling on the baby when asleep
  - poor supervision of baby or child
2.4 Drugs and substance use in pregnancy
• Illicit drug use during pregnancy is associated with neonatal withdrawals and death

2.5 Diabetes during pregnancy
• Gestational diabetes mellitus (GDM) is associated with babies that
  – are large
  – have low blood glucose levels
  – have jaundice at birth
• Babies with these features may grow into children who are at higher risk of
  – obesity
  – hypertension
  – chronic heart disease and
  – diabetes

2.6 Antenatal STI screen
• Sexually transmitted infections (STIs) can be passed from the mother to the fetus during pregnancy and labour
• Antenatal STI screen includes
  – pap smear test
  – urine or swab PCR for chlamydia, gonorrhea and trichomoniasis
  – blood for Hepatitis B and C, HIV and syphilis
• See the current edition of the Primary Clinical Care Manual (PCCM)

2.7 Children in mother’s care
• Asking the mother the number of children in her care will alert the clinician to issues which could impact on the family such as those highlighted under the social emotional wellbeing section of the health checks

3. Brief intervention
3.1 Unplanned pregnancy
• Perform an Edinburgh Postnatal Depression Scale (EPDS) (see Resource 1)
• Observe parent child interaction and model bonding with the baby
• Take this opportunity to discuss contraception and safe sexual practices (see Sexual and reproductive health, page 32)

3.2 Parental and/or household smokers
• Do not expose a baby or child to cigarette smoke
• All smokers in the home to smoke outside
• After a cigarette, wash hands and change shirt prior to handling a baby due to smoke particles persisting on these surfaces
• Offer Quitline details (see Resource 2)
3.3 Mothers who drink alcohol

- There are no safe levels of alcohol consumption in pregnancy. If a mother plans to fall pregnant or is pregnant avoid alcohol completely.
- If a breastfeeding mother plans to drink, express breast milk to supply milk during and after the drinking session. Express the next 2 scheduled breastfeeding amounts and discard before re-establishing normal routine.
- If planning to drink alcohol arrange a carer to care for their children.
- See Alcohol reduction, page 4 for further resources.
- See Developmental delay in children, page 184 if child shows sign of FASD.

3.4 Mothers who use drugs and/or other substances

- If a mother plans to fall pregnant, avoid any illicit drugs and substances during pregnancy.

3.5 Women with diabetes during pregnancy

- Women who have diabetes and who become pregnant or develop gestational diabetes require close management, monitoring and follow up. See the current edition of the PCCM for management and intervention.
- See Diabetes type 2, page 196.

3.6 Postnatal sexual health

- Discuss contraception and safe sexual practices (see Sexual and reproductive health, page 32).

4. Referral

- If there are any concerns about the child’s social and emotional wellbeing referral must be made to the MO/NP and/or local SEWB services and/or a child safety notification made (see Appendix 2: Child safety reporting, page 498).
- For an unplanned child, an EDPS score > 13 or the parent child attachment (bonding) is poor then refer:
  - to a child health home visiting program e.g. Family CARE
  - mother to a psychologist, mental health or social worker
  - to an attachment based parenting program e.g. Circle of security
  - to a behavioural based parenting program e.g. Triple P
  - to Parents Under Pressure (PUP) program.
- For smoking parents refer to:
  - Quitline 137848 (see Resource 2)
  - Smoking cessation, page 44.
- For mothers or parents who drank excessively antenatally or continue to drink excessively refer to:
  - ATODs (see Resource 4)
  - Alcohol reduction, page 4.
— Developmental delay in children, page 184

• For mothers or parents who use illicit drugs or drugs of dependance refer to ATODs (see Resource 4)

• For mother who had diabetes during pregnancy
  — see Diabetes type 2, page 196
  — refer to the current edition of the PCCM

• If the mother did not have an antenatal STI screen
  — refer the mother for, or perform a full STI screen
  — if positive for any STIs the baby will require screening (refer to the current edition of the PCCM)

5. Follow up

• Place the mother and child on a recall register and continue to monitor to ensure any referrals are actioned

• Provide the parent with details for the next scheduled follow up appointment

6. References


7. Resources


Section 3: Child health checks

Birth mother's history

(see edition of any family gathering of full.au/docs/ASS)
Body measurements - child

- Measuring a child’s weight, length or height, fontanelle and head circumference is a useful way to monitor expected growth and identify and act on any disruption to growth¹
- Calculating body mass index (BMI) in children is a useful way to identify underweight, overweight or obesity²
- The World Health Organisation (WHO) standard growth charts are used for those under 2 years of age and the Centre for Disease Control (CDC) Standard Child Growth charts used for those over 2 years of age
- Online training for health checks and preventative care is available via PARROT at www.health.qld.gov.au/parrot

Health check recommendations

| All children should have their weight, length (or height) and head circumference (to 2 years) measured regularly as part of their routine child health checks |
| All Aboriginal and/or Torres Strait Islander children should continue to have body measurements annually from 4 years of age |
| All children should have their fontanelles palpated to 6 months of age then again at 18 months of age |
| All children should have their BMI calculated from 2 years of age |
| If a child is over 10 years of age with a BMI > 85th percentile for age and sex see Special considerations, page 410 |

1. Procedure

- Perform the measurement as per Table 1.
- Plot the measurements using the World Health Organisation (WHO) growth standards for under 2 years and the Centre for Disease Control (CDC) growth standards for over 2 years
  - length/height for age
  - weight for height
  - body mass index for age (see Resource 1)
- Allowance for gestational age for growth and development is made for children born prematurely. Children born
  - less than 37 weeks gestation have their age corrected for 1 year
  - less than 32 weeks gestation have their age corrected for 2 years
Determining corrected age
Corrected age = baby’s gestational age (how old the baby is since birth) minus the number of weeks premature e.g. a 4 month old baby (gestational age) minus 8 weeks (born at 32 weeks) = 2 months (corrected age)

- Using the measurements ascertain the child’s BMI from 2 years of age
- If any anomalies are identified, make a referral to an appropriate clinician
- Provide brief intervention if required
- Determine if the child requires a referral or further assessment according to the measurements (see Special considerations, page 410) and place on a follow up and recall register if required

Table 1. Body measurements for children

<table>
<thead>
<tr>
<th>Measurement</th>
<th>Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>• Weigh using baby scales or stand-on scales</td>
</tr>
<tr>
<td>Length or height</td>
<td>• Measure length using a measuring board or height using a stadiometer</td>
</tr>
<tr>
<td>Head circumference</td>
<td>• Measure using flexible tape measure</td>
</tr>
<tr>
<td>Fontanelle</td>
<td>• Palpate frontal and occipital (rear) fontanelles</td>
</tr>
<tr>
<td>BMI</td>
<td>• Over 2 years</td>
</tr>
<tr>
<td></td>
<td>• Calculate using formula (see 4. Body mass index)</td>
</tr>
</tbody>
</table>

1.1 Weighing children < 2 years of age
- Ensure the baby scales are accurate and regularly calibrated
- Bare weigh all babies to 2 years of age
- Zero the scales if required
- Record the weight to the nearest gram (gm)

1.2 Weighing children > 2 years of age
- Ensure the stand-on scales are accurate and regularly calibrated
- Ensure the child removes all heavy clothing, jewellery, shoes, belts, wallets and jumpers
- Zero scales if required
- Position the child in the centre of the scales so that their body weight is evenly distributed
- Record the weight to the nearest gram (gm)

1.3 Measuring children’s length < 2 years of age
- For accuracy, this measurement requires 2 people
• Ensure the measuring board is accurate. Flexible plastic portable measuring boards are less accurate
• Remove baby’s shoes and any excessive clothing
• Lay baby supine (on their back) on the measuring board
• Ask the parent to place their hands on either side of the baby’s head and hold the baby’s crown (very top of the head) against the headboard
• Inform the parent that you will shortly extend the baby’s legs and for them to ensure the crown stays against the headboard
• Ensure the shoulders and buttocks are flat against the measuring board
• Extend both the baby’s legs at the hips keeping the knees flat against the board by adding a slight amount of traction (pull)
• Slide the foot plate level with the base of both the baby’s feet
• The length is recorded to the nearest millimetre (mm)

1.4 Measuring children’s height > 2 years of age
• Ensure the stadiometer is accurate
• Ensure the child removes their shoes
• Position the child so their head, back, buttocks and heels are against the wall
• Ask them to stand straight with weight distributed evenly, heels together, looking forward with arms hanging freely by their sides
• Pull the stadiometer measuring plate down to the top of their scalp
• Record the measurement to the nearest millimetre (mm)

1.5 Calculating body mass index (BMI)
• For over 2 years of age, calculate BMI using normal adult calculation then plot on BMI-for-age growth charts
• BMI is calculated as weight (in kilograms) divided by height (in metres) squared (kg/m²)
• BMI can also be calculated by plotting weight and height on a BMI chart or by using an online calculator (see Resource 2)

\[ \text{BMI} = \frac{\text{Weight in kilograms (kgs)}}{\text{Height in metres squared (m}^2)} \]

1.6 Measuring children’s head circumference < 2 years of age
• Use a flexible tape measure
• Position the child laying down, sitting up or in the parent’s arms
• Remove any objects from the child’s hair
• Identify the broadest section of the child’s skull
• Place the measuring tape evenly and firmly around the child’s head, ensuring that the broadest section is measured from the frontal skull to the occiput at the rear
• Measure to nearest millimetre (mm)
• Repeat measurement
• If the two measurements differ by more than 3 mm take a third measurement
• Record the average of the 2 largest measurements

1.7 Palpating fontanelles < 2 years of age
• Sit or lay the child on examination table or have the parent hold them in their arms
• Gently palpate the anterior (front) and posterior (rear) fontanelles for openness, size, whether they are bulging or are depressed

2. Results

2.1 Weight gain for children to 12 months
• A general guide for weight gain variation is
  – an initial weight loss (up to 10% of the birth weight) after birth
  – weight gains by 4 - 6 days of age
  – return to birth weight by 2 weeks of age
  – gains of 150 - 200 g/wk up to 3 months
  – gains of 100 - 150 g/wk from 3 - 6 months
  – gains of 70 - 90 g/wk up to 12 months

2.2 BMI for children > 2 years
• BMI categories for children using the CDC BMI-for-age standard growth charts are as follows
  – < 5th centile – underweight
  – 25th to 84th centile – healthy weight
  – 85th to 94th centile – overweight
  – > 95th centile – obese

2.3 Children’s fontanelles
• In infants younger than 6 months, the anterior fontanelle diameter generally does not exceed 4 - 5 cm
• The anterior fontanelle should feel soft and slightly depressed and some pulsation may be felt
• In a markedly depressed fontanelle the cranial bones around the edge of the fontanelle can be easily palpated. This usually indicates dehydration
• A bulging fontanelle feels tense, sometimes palpated during prolonged crying
• A bulging fontanelle with marked pulsations may indicate increased intracranial pressure due to infection
• The fontanelles should get progressively smaller beyond 6 months of age
• The anterior fontanelle closes completely by 18 - 24 months of age and posterior fontanelle by about 2 months

3. Brief intervention
• Discuss with parents the risks of an elevated BMI in childhood and its association with obesity in adulthood, type 2 diabetes, hypertension, stroke and depression\(^1,2\)
• Provide diet and nutrition related resources (see Resources 3, 4, 5, 6, 7, 8 and 9)
• Refer to Poor growth in children, page 278
• Refer to Overweight and obesity in children, page 270
• Refer to Diet and nutrition, page 14
• Refer to Physical activity, page 26

4. Referral
• Urgently refer any child if their fontanelle is bulging or depressed
• Refer to a MO/NP, child health nurse or dietitian for further investigations if the child’s
  – measurements are above the 97th centile or below the 3rd centile
  – different body measurements vary by 2 or more centiles when compared with one
    another e.g. weight on the 10th centile and length on the 75th centile
  – records indicate the child has crossed 2 centiles in a downward or upward trajectory
    for any measurement
  – BMI result indicates underweight, overweight or obese classification
  – if the child’s fontanelles have marked bulging, depression, are too wide, close early or
    remain open longer than expected for age

5. Follow up
• Place the child on a recall register to monitor growth if required and to ensure any
  referrals are actioned
• Provide the parent or child with details for the next scheduled follow up appointment
6. References


7. Resources


5. The Australian Dietary Guidelines available at www.eatforhealth.gov.au


Clinical measurements - child

Breathing
• Undertaken to identify any underlying respiratory issues attributed to exposure to environmental irritants (e.g. cigarette smoke), chest infections or congenital abnormalities

Femoral pulses
• Undertaken to ascertain if there is sufficient arterial blood flow to the legs
• Insufficient flow may indicate aortic coarctation or narrowing of the aorta

Heart sounds\(^1,2,3\)
• Auscultating (listening to) the heart gathers information about heart valve function and anatomical defects including rheumatic heart disease (RHD)
• Aboriginal and Torres Strait Islander peoples have the highest rates of RHD in the world, often attributed to living conditions

Haemoglobin (Hb)\(^2,3,4\)
• Measured to identify iron deficiency anaemia due largely to: poor early nutrition, infestations of parasites and infections
• Anaemia is common in Aboriginal and Torres Strait Islander children particularly in those aged 6 - 30 months, low birth weight and premature infants and infants weaned to poor diets
• Adolescent girls have higher iron requirements peaking at puberty due to menses
• At a time of rapid brain growth and development in infants and young children, iron deficiency is associated with developmental delay of cognitive function and leads to poor psychomotor development
• Online training for health checks and preventative care is available via PARROT at www.health.qld.gov.au/parrot

Health check recommendations

<table>
<thead>
<tr>
<th>Femoral pulses in all children to 6 months of age</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breathing and heart sounds in all children to &lt; 5 years of age</td>
</tr>
<tr>
<td>Annual haemoglobin in all Aboriginal and Torres Strait Islander children between 6 months and &lt; 3 years of age, and all girls aged 10 to &lt; 15 years of age</td>
</tr>
</tbody>
</table>

1. Procedure
• Ask the child or carer the clinical measurements questions or perform the appropriate measurement as per Table 1.
• The questions may provide answers requiring further clarity. Be prepared to explore answers further
• Identify if the child has measurements outside normal limits
• Provide brief intervention and resources if required
• Ensure the child is placed onto a follow up and recall register and monitor according to requirements
• Determine if the child requires a referral according to answers and measurement results, make a referral and place on a follow up and recall register if required

<table>
<thead>
<tr>
<th>Table 1. Clinical measurement questions for children</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Assess</strong></td>
</tr>
<tr>
<td>Femoral pulses</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Heart sounds</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Haemoglobin</td>
</tr>
</tbody>
</table>

1.1 Breathing procedure

• Observe the child’s chest rise and fall or using a stethoscope listen to the child’s breathing
• Count the respirations over 60 seconds

1.2 Femoral pulses procedure

• Position the child lying supine (on their back) with their inguinal (groin) area exposed
• Flex the hips and gently abduct the legs
• Place the tips of 2 or 3 fingers along the inguinal ligament midway between the iliac crest and the pubic symphysis
• Palpate both left and right femoral pulses simultaneously to make certain they are equal and strong
• Femoral pulses can be difficult to palpate and may take some time while repositioning fingers
• If the pulses can not be palpated refer to another clinician to assess

1.3 Heart sounds procedure

• A suitably trained clinician will check heart sounds (see Resource 1)
1.4 Haemoglobin (Hb) procedure

- Clinicians should refer to the product instructions to familiarise themselves with the type of haemoglobinometer they are using
- Ensure the haemoglobinometer is calibrated and the cuvettes have not expired
- Avoid squeezing or ‘milking’ the finger before or after puncture, this will give a false reading

2. Results

2.1 Breathing result

- See Table 2. for respiratory rates for healthy children
- The child should not get breathless at rest or walking short distances or wake at night breathless
- It is normal to be breathless after running or playing provided the recovery to normal breathing occurs quickly
- Be mindful that children can be exposed to irritants such as cigarette smoke, open fires and dust which will exacerbate noisy breathing, breathlessness, coughing and wheezing
- Children who present with noisy breathing, wheezing, breathlessness and persistent coughing should be referred to the MO or NP

2.2 Femoral pulses result

- Both pulses should be strong and equal
- Femoral pulses should not be weak, unequal or absent

2.3 Heart sounds result

- Heart sounds should be free of murmurs, gallops, clicks or other abnormal sounds

2.4 Haemoglobin result

- The target haemoglobin level is > 110 g/L
- Anaemia is indicated by haemoglobin levels outlined in Table 3.
Table 3. Haemoglobin levels that indicate anaemia in children\textsuperscript{4,5}

<table>
<thead>
<tr>
<th>Age</th>
<th>Haemoglobin g/L</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any age</td>
<td>&lt; 80</td>
</tr>
<tr>
<td>6 - 12 months</td>
<td>&lt; 105</td>
</tr>
<tr>
<td>over 12 months</td>
<td>&lt; 110</td>
</tr>
<tr>
<td>Girls over 12 years</td>
<td>&lt; 120</td>
</tr>
<tr>
<td>Boys over 12 years</td>
<td>&lt; 130</td>
</tr>
</tbody>
</table>

3. Brief intervention

- To improve haemoglobin levels children from 6 months of age should be encouraged to eat iron rich food as part of a nutritionally balanced diet including:
  - baby cereals with added iron
  - baked beans
  - eggs
  - green leafy vegetables
  - peanut butter
  - lean minced beef, stewing beef, lamb, pork, turtle, kangaroo or dugong
  - liver
  - fish
  - chicken (no skin)

- Avoid foods low in iron or iron depleting foods such as:
  - chicken nuggets, kabananas, meat pies or sausage rolls
  - custard
  - cups of tea
  - cow’s milk, powdered milk or coconut milk for children under 1 year old

4. Referral

- Any child whose clinical measurements continue to be abnormal despite brief intervention require further investigation and should be referred to the MO/NP

- For any concerns about any child refer to a senior clinician

5. Follow up

- Place the child on a recall register to monitor any abnormal clinical measurements and to ensure any referrals are actioned

- Provide the child or carer with details for the next scheduled follow up appointment
6. References


2. NACCHO. National Guide to a Preventive Health Assessment for Aboriginal and Torres Strait Islander people. 2nd Edition. South Melbourne. The RACGP 2012


7. Resources

Continence and elimination - child

- Nocturnal enuresis (bed wetting) is common in Australia with approximately 1 in 5 children wetting the bed
- 3 - 5% of children aged between 5 and 17 have a daytime enuresis problem
- ⅓ of these children will also experience nocturnal enuresis
- Day enuresis is more common in girls than boys
- Nocturnal enuresis is more common in boys
- These problems tend to improve with age but children do not necessarily grow out of it
- About 1 - 3% of children experience faecal incontinence
- For parents, the main concern is often the emotional and social effects on their children
- Children can experience feelings of embarrassment that can lead to low self esteem
- Other issues include sleep disruption, laundry workload and costs
- Online training for health checks and preventative care is available via PARROT at www.health.qld.gov.au/parrot

Child safety notification

- If there is a suspicion of harm or neglect consider a referral to child safety (see Appendix 2: Child safety reporting, page 498)

Health check recommendations

All children from birth to under 6 months, 4 years and 7 years of age

1. Procedure

- Ask the parent or child the age appropriate questions for the child (see Table 1)
- Children from birth to under 6 months are checked for elimination issues
- 4 and 7 year olds are checked for continence
- Children between 6 months and 3 years of age are not checked for continence or elimination issues as this age group are learning bladder and bowel control which is a normal developmental stage during this period
- Determine if the child requires further assessment
- Determine if the child requires a referral according to the results and make referral
- Ensure child is placed onto a follow up and recall register and monitor according to requirements
Table 1. Age appropriate continence questions for children

<table>
<thead>
<tr>
<th>Questions</th>
<th>Answers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birth to &lt; 6 months of age</td>
<td></td>
</tr>
</tbody>
</table>
| How many wet nappies does the baby have per day? | • Are the nappies full?  
• What colour is the urine?  
• Is the urine offensive to smell? |
| Is the parent worried about their baby’s bowel movements? | • What is the consistency of the stools?  
• What colour? |
| 4 years and 7 years of age | |
| Is the child independent in toileting? | • Handwashing? |
| Is the child incontinent of urine or faeces? | • When? Where?  
• What happens before and after the incident? |
| Does the child wet the bed? | • When?  
• Daytime sleep also? |

2. Results

• Be mindful that incontinence in children can also be attributed to urogenital infections and sexual abuse
• If a continence issue is identified provide brief intervention and make a referral to the appropriate source

3. Brief intervention

3.1 Birth to < 6 months of age

• It is normal for a fully breastfed child to not have a bowel motion for several days to a week
• Bottlefed children should have a dirty nappy daily to every few days
• Up to the age of 6 months babies should have 5 - 8 wet nappies each day, more for cloth nappies  
  – the urine should be a pale straw colour  
  – the smell should not be offensive
• Refer to Diet and nutrition, page 14

3.2 Children age 4 years and 7 years old

• Most children have gained daytime bladder control by the age of 4 years
• Nocturnal enuresis (bed wetting) is a very common problem in young children and is a condition that can continue into teen years  
  – 20% of 5 year olds bedwet  
  – 7% of 7 year olds bedwet  
  – 1 - 2% of teenagers bedwet

---

1. Reference to external sources should be included.
• Once the child is 5½ years they can access an enuresis treatment programme if the family wishes
• By 7½ years of age enuresis begins to impact socially and it is recommended the child is referred to an enuresis treatment programme
• Children at these ages with disabilities or medical conditions may not be independent in toileting
• 1 - 3% of children will have faecal soiling
• Almost all cases of soiling happen because the large bowel is not emptying properly and the child's bowel is overloaded with faeces
• Refer to Diet and nutrition, page 14

4. Referral

• For any suspicion of incontinence due to any abuse refer to Appendix 2: Child safety reporting, page 498

• For a child up to the age of 6 months old refer to the MO/NP or child health nurse if
  – the urine colour is dark yellow or the baby is having < 5 wet nappies a day despite encouraging more fluids or breastfeeding
  – according to the parent the faeces is foul smelling, watery, discoloured (white, green, or bloodstained) or hard

• Refer to the child health nurse for children under 6 years of age for
  – infant elimination concerns
  – behaviour related continence and elimination concerns

• Refer to the MO/NP and continence services for children over 4 years of age if
  – the child who has been dry suddenly starts wetting at night
  – the wetting is frequent after school age
  – the wetting bothers the child or makes them upset or angry, or the child wants to become dry
  – a child over 4 years of age regularly wets during the day
  – a child has regular bowel accidents (skid marks or larger amounts of faeces) after the age of 4 years of age
  – toilet training has been successful then the child later starts to soil

• If you have any concerns about a child’s continence refer to the MO/NP

• If the child has chronic diarrhoea, acute gastroenteritis and dehydration, or constipation refer to the current edition of the Primary Clinical Care Manual (PCCM)

5. Follow up

• Place the child on a recall register to monitor continence and ensure that any referrals are actioned

• Provide the child or parent with details for the next scheduled follow up appointment
6. References

7. Resources
1. The Continence Foundation of Australia website with many resources available at www.continence.org.au
2. The Dry Night a resource for parents available at http://www.continence.org.au/resources.php/o1tA0000001b1dyIAA/the-dry-night-a-guide-for-parents
4. The Continence Foundation of Australia Victorian Branch website available at www.continencevictoria.org.au
6. ERIC - every child has the right to go website available at www.eric.org.uk
Developmental milestones

- Developmental milestones are a set of age-specific tasks that most children can do at a certain age range
- Milestones are used to check how children are developing
- The age at which a normally developing child reaches milestones can vary
- Child development refers to how a child becomes able to do more complex things as they get older
- Playing with, talking to, stimulating, and reading to children assists child development
- Online training for health checks and preventative care is available via PARROT at www.health.qld.gov.au/parrot

Note

- This health check is not meant as a thorough developmental screen rather a check to identify if a thorough developmental screen is required
- If there is any concern or doubt about the child’s developmental milestones, refer early - do not wait

Health check recommendations

<table>
<thead>
<tr>
<th>All children under the age of 5 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Within 3 months of a child under 5 years of age entering foster care</td>
</tr>
</tbody>
</table>

1. Procedure

- Note the developmental milestone questions (see Table 1) and ascertain if the child has met the milestone by
  - asking the parent or carer
  - performing the assessment on the child or
  - observing the child’s interaction with the parent and environment
- Parents are often the best historians as to how their child is developing. Be mindful to listen to any concerns that a parent has in regards to their child
- If the child’s age falls between the age brackets, refer to the previous age bracket e.g. a 15 month old would be checked against the 12 month bracket
- Identify if the child does or does not achieve the milestone criteria
- Determine if the child requires a referral according to the criteria and place on a follow up and recall register if required
### Table 1. Age related developmental milestones

<table>
<thead>
<tr>
<th>6 months</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Social emotional</strong></td>
<td>• Smiles or squeals in response to people</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Communication</strong></td>
<td>• Starting to babble</td>
<td>• Recognises their name when called</td>
<td></td>
</tr>
<tr>
<td><strong>Fine motor and cognition</strong></td>
<td>• Reaching and holding toys</td>
<td>• Hands not frequently clenched</td>
<td></td>
</tr>
<tr>
<td><strong>Gross motor</strong></td>
<td>• Rolling</td>
<td>• Holding head and shoulders up when on tummy</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>9 months</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Social emotional</strong></td>
<td>• Shares enjoyment with others using eye contact or facial expression</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Communication</strong></td>
<td>• Gesturing e.g. pointing, waving, showing</td>
<td>• Recognises family names</td>
<td>• Using 2 part babble e.g. mama, dada, gaga</td>
</tr>
<tr>
<td><strong>Fine motor and cognition</strong></td>
<td>• Holds and releases toys</td>
<td>• Moves toys from one hand to another</td>
<td></td>
</tr>
<tr>
<td><strong>Gross motor</strong></td>
<td>• Sits without support</td>
<td>• Moves e.g. creeping or crawling motion</td>
<td>• Bears weight on legs well when held upright</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>12 months</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Social emotional</strong></td>
<td>• Notices someone new</td>
<td>• Plays early turn based games e.g. peekaboo</td>
<td></td>
</tr>
<tr>
<td><strong>Communication</strong></td>
<td>• Babbles phrases that sound like talking</td>
<td>• Uses at least one word with meaning even if not pronounced correctly</td>
<td>• Responds to familiar words</td>
</tr>
<tr>
<td><strong>Fine motor and cognition</strong></td>
<td>• Majority of nutrition lumpy, soft solids</td>
<td>• Able to chew solid food</td>
<td>• Able to pick up small items using index finger and thumb</td>
</tr>
<tr>
<td><strong>Gross motor</strong></td>
<td>• Sits without support</td>
<td>• Moves e.g. creeping or crawling motion</td>
<td>• Bears weight on legs well when held upright</td>
</tr>
</tbody>
</table>

*These are definitive milestone cutoffs. Failing one or more criteria for a child’s age indicates a delay in development and requires a comprehensive developmental screen (see Resource 1)*

(continued)
<table>
<thead>
<tr>
<th>18 months</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Social emotional</strong></td>
</tr>
</tbody>
</table>
| **Communication** | • Strangers can understand some of child’s speech  
• Understands at least 2 familiar requests e.g. where is the ball?  
• Uses words rather than gestures to communicate (around 5 - 20 real words) |
| **Fine motor and cognition** | • Holds or scribbles with a crayon  
• Attempts to build a tower with blocks |
| **Gross motor** | • Attempts to walk without support  
• Stands alone |

<table>
<thead>
<tr>
<th>2 years</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Social emotional</strong></td>
</tr>
</tbody>
</table>
| **Communication** | • Strangers can understand half of child’s speech  
• Follows simple 2 step instructions e.g. pick up the ball and give it to me  
• Uses at least 50 words  
• Uses phrases of 2 or more words e.g. push car |
| **Fine motor and cognition** | • Interested in self care skills e.g. feeding or dressing |
| **Gross motor** | • Able to run  
• Able to use stairs holding on  
• Able to throw a ball |

<table>
<thead>
<tr>
<th>3 years</th>
</tr>
</thead>
</table>
| **Social emotional** | • Interest in pretend play  
• Notices and understands feelings in themselves and others e.g. happy or sad |
| **Communication** | • Strangers can understand most of child’s speech  
• Uses simple sentences of 3 - 5 words e.g. big car go  
• Interested in and responds to why, who, where, when and how questions |
| **Fine motor and cognition** | • Helps with self care e.g. feeding or dressing  
• Manipulates small objects e.g. threading beads |
| **Gross motor** | • Runs well  
• Walks up and down stairs  
• Kicks and throws a ball  
• Jumps with 2 feet together |

These are definitive milestone cutoffs. Failing one or more criteria for a child’s age indicates a delay in development and requires a comprehensive developmental screen (see Resource 1)
Table 1. Age related developmental milestones (continued)\(^{1,2}\)

<table>
<thead>
<tr>
<th>4 years</th>
<th>5 years and over</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social emotional</td>
<td>Able and willing to play co-operatively</td>
</tr>
<tr>
<td>Communication</td>
<td>Strangers can understand all of child’s speech</td>
</tr>
<tr>
<td></td>
<td>Uses the words ‘and’, ‘like’, ‘because’ and ‘but’ to tell a long story or sing songs</td>
</tr>
<tr>
<td></td>
<td>Able to follow 3 step directions e.g get the ball, bounce it, then give it to me</td>
</tr>
<tr>
<td>Fine motor and cognition</td>
<td>Toilet trained by day</td>
</tr>
<tr>
<td></td>
<td>Able to draw lines and circles</td>
</tr>
<tr>
<td>Gross motor</td>
<td>Pedals a tricycle</td>
</tr>
<tr>
<td></td>
<td>Catches, throws and kicks a ball</td>
</tr>
<tr>
<td></td>
<td>Able to balance well standing on one leg</td>
</tr>
</tbody>
</table>

\(\text{5 years and over}\)

- Any milestone deficits in children over the age of 5 years will be identified in the school setting

These are definitive milestone cutoffs. Failing one or more criteria for a child’s age indicates a delay in development and requires a comprehensive developmental screen (see Resource 1)

A comprehensive developmental screen and urgent referral is required if at any age any of the following are present

- Any parental concerns
- Loose and floppy movements (low tone) or stiff and tense (high tone)
- Difference in strength, movement and tone between right and left sides of body
- Poor interaction with adults or other children
- Lack of response to sound or visual stimuli
- Significant loss of skills
- Not achieving indicated developmental milestones
- Lack of or limited eye contact

2. Results

- A fail in one or more criteria indicates a developmental delay and requires a full developmental screen undertaken by a suitably trained clinician using a screening tool such as
  - The Parental Evaluation of Developmental Status (PEDS) for 0 - 6 year olds
  - The Ages and Stages Questionnaire (ASQ) for 0 - 6 year olds (see Resource 1)
3. Brief intervention

- If a child is progressing well with their milestone development provide the parent with expected milestone resources and discuss as required (see Resource 3)
- Encourage parents to interact with their children including
  - reading
  - talking
  - physical play

4. Referral

- Referral is required at any age if there is
  - lack of or limited eye contact
  - strong parental concerns
  - loose and floppy movements (low tone) or stiff and tense (high tone)
  - difference in strength, movement and tone between right and left sides of body
  - poor interaction with adults or other children
  - lack of response to sound or visual stimuli
  - significant loss of skills
  - not achieving indicated developmental milestones
- For delays in the
  - social emotional domain refer to a speech pathologist and/or occupational therapist
  - communication domain refer to a speech pathologist
  - fine motor and cognition refer to a physiotherapist and/or occupational therapist
  - gross motor refer to a physiotherapist and/or occupational therapist

5. Follow up

- Place the child on a recall register to monitor the child’s developmental progress and to ensure any referrals are actioned
- Provide the parent with details for the next scheduled follow up appointment

6. References


7. Resources

Section 3: Child health checks | Developmental Milestones
Ears and hearing - child

• Untreated ear disease can cause long term hearing loss.1
• Hearing loss can affect a child’s
  – speech and language
  – ability to play and develop socially and emotionally
  – ability to learn and have positive educational outcomes
• In later life hearing loss can be associated with poor
  – school completion rates
  – health literacy levels
  – vocational and job prospects
• Up to 91% of Aboriginal and Torres Strait Islander children in remote communities present with chronic suppurative otitis media (CSOM).1
• Assessing ears and hearing in children less than 4 years of age by otoscopy and tympanometry should be performed by an appropriately trained clinician
• Online training for health checks and preventative care is available via PARROT at www.health.qld.gov.au/parrot

Health check recommendations

All children have a hearing screen at birth. Any audiology results and follow up will be documented in the child’s Personal Health Record booklet

All children if clinically indicated

Aboriginal and Torres Strait Islander children annually

All 5 and 12 year olds

All 5 to < 15 year olds who answer ‘yes’ to assessment criteria below

1. Procedure

• Introduce the questions by asking about any concerns the parent or carer may have about their child’s hearing
• Ask the questions according to the child’s age (see Table 1) and perform the corresponding procedure
• Determine if the child requires a referral according to the criteria and place on a follow up and recall register if required
Table 1. Age appropriate questions and procedures for child ears and hearing

<table>
<thead>
<tr>
<th>Questions</th>
<th>Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1 - 6 weeks</strong></td>
<td></td>
</tr>
<tr>
<td>Is the baby startled by loud noises such as a loud clap?</td>
<td>• Yes or no</td>
</tr>
<tr>
<td>Has the baby been free of ear infections or discharge?</td>
<td>• Tummy time, rolling, crawling, cruising, etc.</td>
</tr>
<tr>
<td><strong>2 - 12 months</strong></td>
<td></td>
</tr>
<tr>
<td>Does the parent think their baby/child can hear them?</td>
<td>• Otoscopy</td>
</tr>
<tr>
<td>Does the baby/child turn towards sound or voices?</td>
<td>• plus tympanometry for 6 - 12 month olds</td>
</tr>
<tr>
<td>Is the parent happy with their baby's/child's hearing?</td>
<td></td>
</tr>
<tr>
<td>Has the baby/child been free of ear infections or discharge?</td>
<td></td>
</tr>
<tr>
<td><strong>18 months - &lt; 5 years</strong></td>
<td></td>
</tr>
<tr>
<td>As above plus</td>
<td>• Otoscopy and tympanometry</td>
</tr>
<tr>
<td>Does the parent think their child's speech and language is good?</td>
<td>• plus audiometry for 4 year olds</td>
</tr>
<tr>
<td><strong>5 and 12 years of age or Aboriginal and/or Torres Strait Islander annually</strong></td>
<td>• Otoscopy, tympanometry and audiometry</td>
</tr>
<tr>
<td><strong>For all other children between 5 and &lt; 15 years</strong></td>
<td></td>
</tr>
<tr>
<td>Family history of genetic hearing loss?</td>
<td>• If yes to any questions then perform otoscopy, tympanometry and audiometry</td>
</tr>
<tr>
<td>History of frequent ear, nose and throat infections?</td>
<td></td>
</tr>
<tr>
<td>Speaks in loud or monotone voice?</td>
<td></td>
</tr>
<tr>
<td>Does not respond to name?</td>
<td></td>
</tr>
<tr>
<td>Watches others continuously?</td>
<td></td>
</tr>
<tr>
<td>Asks for statements to be repeated?</td>
<td></td>
</tr>
<tr>
<td>Withdraws in a group?</td>
<td></td>
</tr>
<tr>
<td>Has learning problems in class?</td>
<td></td>
</tr>
<tr>
<td>Has disruptive and impulsive behaviour?</td>
<td></td>
</tr>
<tr>
<td>Teacher reports hearing difficulty?</td>
<td></td>
</tr>
<tr>
<td>Parent /carer reports hearing difficulty?</td>
<td></td>
</tr>
</tbody>
</table>

2. **Otoscopy**

- Otoscopy is the visual examination of the ear canal and ear drum
- If the child has ear pain or notable discharge refer to the MO/NP or to the current edition of the *Primary Clinical Care Manual* (PCCM)
2.1 Steps for performing otoscopy

- Explain the procedure to the parent and/or child
- Sit the child and position yourself at the level of the ear
- Select the correct sized speculum (smaller for younger children)
- Ask the child to hold their head still. For an infant, ask the parent to sit the infant on their lap and gently brace the infant’s head against their chest
- Observe the mastoid (the bone behind the ear) and the area under the ear for infection, swelling or tenderness
- Check the pinna for size, shape, colour or lesions
- Check the brightness of the otoscope light against your hand and change batteries if required
- Tilt the child’s head slightly towards their opposite shoulder
- Straighten the child’s ear canal by gently pulling the pinna back
- Hold the otoscope in the pencil grip position
- Use your fingers against the child’s head to anchor the otoscope in case the child suddenly moves
- Slowly insert the tip of the speculum into the ear canal
- Looking through the eyepiece observe the ear canal for
  - discharge
  - redness/swelling
  - fungal infections
  - lumps or bony growths
  - foreign bodies (excluding grommets)
  - wax
  - fluid
- If there is discharge, stop and refer to Figure 2.
- Inspect the tympanic membrane (eardrum) (see Figure 1)
  - colour
    - normal is transparent and shiny
    - dull or opaque may represent fluid behind tympanic membrane
  - cone of light (reflection)
    - right ear at 5 o’clock and left ear at 7 o’clock
    - reflections elsewhere indicates bulging
  - the handle of the malleus
  - perforations
- Repeat the procedure for the other ear
Figure 1. Visual representation of the eardrums

2.2 Otoscopy results

- Refer to Figure 2.

Figure 2. Referral and review process for otoscopy
3. Tympanometry

- Tympanometry is a test of middle ear function and measures
  - ear canal volume (ECV) (normal between 0.5 and 1.5 cm³)
  - middle ear pressure (normal between -200 and +50 daPa) and
  - middle ear compliance or movement (normal between 0.2 and 1.5 cm³)

- If there is discharge from ears do not proceed and refer to the MO/NP or to the current edition of the PCCM

### 3.1 Steps for performing tympanometry

- Ensure tympanometer is calibrated (see device instructions for details)
- Remove any used probe tips from the tympanometer
- Use a clean probe tip for each child
- To make a clean seal, choose the correct sized probe tip according to ear canal shape and size
- Sit the child and position yourself at the level of the ear
- Instruct the child to relax and to not speak or move. For an infant, ask the parent to sit the infant on their lap and gently brace the infant’s head against their chest
- Starting with the right ear first, straighten the child’s ear canal by gently pulling the pinna back
- Push the probe tip gently into the right ear canal and form a seal
- Hold the probe tip still in the ear canal while the test runs
- Note and store the result
- Repeat the steps for the left ear
- Remove the probe tip and clean as per local cleaning guidelines
- Save and print the tympanogram

### 3.2 A leak or blockage

- A leak or blockage can occur for many reasons
  - clogged probe tip
  - probe tip too large or small
  - head movements or swallowing
  - probe tip against the ear canal wall
  - debris, foreign body or wax in ear canal
  - discharging ear

- To rectify try
  - a different sized probe tip
  - cleaning probe tip
  - reposition the probe tip in the ear canal
3.3 Tympanometry results

- Review the tympanometry trace types below then refer to Figure 3.

**Type A normal peak**
- Ear canal volume (ECV) = 1 cm³ (0.5 - 1.5 is normal)
- Middle ear movement (compliance) = 0.9 cm³ (0.2 - 1.5 is normal)
- Middle ear pressure = 0 daPa (-200 to +50 is normal)

**Type B**
- No middle ear movement
- No middle ear pressure

**Possible causes**
- Usually otitis media
- Otosclerosis (stiff middle ear bones due to bony growths)
- Badly scarred eardrum
- Eardrum perforation (hole)
- Grommet
- Ear canal blockage
- Wax

**Type C peak to left**
- Normal ear canal volume
- Normal middle ear movement
- Negative middle ear pressure

**Possible causes**
- Eustachian tube not working properly
- URTI
- Fluid moving into middle ear
4. Audiometry

- Audiometry measures the ability of the ear to
  - detect the pitch of a sound as hertz (Hz)
  - detect the loudness of a sound as decibels (dB)
- Audiometry is a simple and quick test to identify those children at risk of hearing problems requiring further assessment

4.1 Steps for performing audiometry

- Ensure testing is in a quiet room. If a quiet room is not available, do not continue with audiometry screening
- Ensure audiometer is calibrated (see device instructions for details)
- Explain the procedure to the child
- Instruct the younger child to place a coin or rock into a container when they hear a sound or instruct the older child to raise their hand
- Sit the child facing away from you and the audiometer to avoid any visual prompts e.g. the tester pushing buttons or looking up at them
- Position the headphones on the child
- Place the correctly identified ear muff over the appropriate side ear
- Check the headphone position to provide a snug seal, ensuring they are free of hair or clips
- Set hertz (Hz) dial to 4000 Hz
- Set decibel (dB) to 50 dB
- Do a test sound with the child and repeat until they respond comfortably
- If child can hear the sound and understands the procedure then begin testing
- Ensure the sounds are presented at irregular intervals so the child does not anticipate them
- Test one ear first
- If the child indicates they can hear the sound then reduce sound to 35 dB and repeat
- If the child indicates they can hear the sound then reduce to 25 dB and repeat
- If the child does not respond then increase by 5 dB stages until the child responds
- Do not go above 80 dB
- Record the result that the child responds to twice at the lowest perceived dB
- Do the same for the other ear
- Repeat the procedure for both ears at 2000 Hz and 1000 Hz
- To pass, the child needs to respond twice at 25 dB at 1000 Hz, 2000 Hz and 4000 Hz
4.2 Audiometry results

- Ascertain whether child passes or fails audiometry then refer to Figure 3.

Figure 3. Referral and review process for tympanometry and audiometry results

5. Brief intervention

- Discuss
  - nose blowing
  - hand washing
  - avoiding prop feeding a child
  - avoiding feeding a child to sleep
  - avoiding leaving bottles in a child’s cot
  - avoiding loud noises (especially electronic devices with earbud speakers)
  - avoiding cigarette smoke
  - only swimming in running water or swimming pools
  - eating healthy foods
  - avoid putting anything in child’s ears (including cotton buds)
6. Referral
   - Make a referral as per Figure 2. and Figure 3.
   - If you have any concerns about a child’s ability to hear refer to the MO or NP
   - If the child has ear pain or discharge, manage as per the current edition of the PCCM

7. Follow up
   - Place the child on a recall register to monitor and ensure any referrals have been actioned
   - Provide the child, parent or carer with details for the next scheduled follow up appointment

8. References
2. Queensland Government (2013) 7 steps to healthy ears. Deadly ears brochure

9. Resources
Environment

- Exposure to environmental hazards such as: pollutants and chemicals, cigarette smoke, overcrowding, unsafe and unhygienic living arrangements and unsafe sleeping arrangements, all influence health.
- Avoiding these environmental hazards are vitally important to prevent childhood injury and illness.
- The clinician can offer brief intervention that promotes positive learning and development environments where children are safe to play, explore and learn.
- Online training for health checks and preventative care is available via PARROT at www.health.qld.gov.au/parrot.

Note

- For information regarding domestic violence see Social emotional wellbeing - child, page 404.

Child safety notification

- If there is a suspicion of harm or neglect make a referral to child safety (see Appendix 2: Child safety reporting, page 498).

Health check recommendations

All Aboriginal and Torres Strait Islander children at every health check.

All children < 15 years of age opportunistically.

1. Procedure

- Ask the age appropriate questions as per Table 1.
- Provide brief intervention if the parent answers other than the ideal.
- Be prepared to explore the issues further and/or refer for further support.
- If required place on a recall and follow up register.
Table 1. Age related environment questions

<table>
<thead>
<tr>
<th>Question</th>
<th>Explore</th>
</tr>
</thead>
<tbody>
<tr>
<td>From birth to under 18 months</td>
<td></td>
</tr>
<tr>
<td>Where does the infant sleep?</td>
<td>• If permitted view sleeping area or cot</td>
</tr>
<tr>
<td></td>
<td>• Assess for safety</td>
</tr>
<tr>
<td>Is the infant placed on their</td>
<td>• Ask</td>
</tr>
<tr>
<td>back to sleep?</td>
<td></td>
</tr>
<tr>
<td>For all children</td>
<td></td>
</tr>
<tr>
<td>Is the child exposed to</td>
<td>• Are there smokers living with the child?</td>
</tr>
<tr>
<td>cigarette smoke?</td>
<td>• How many?</td>
</tr>
<tr>
<td></td>
<td>• Where do they smoke?</td>
</tr>
<tr>
<td>How many people live in the</td>
<td>• The number of bedrooms?</td>
</tr>
<tr>
<td>house?</td>
<td>• Bedding arrangements</td>
</tr>
<tr>
<td></td>
<td>• Observe for safety and hygiene concerns</td>
</tr>
</tbody>
</table>

2. Results

2.1 Exposure to cigarette smoke\(^1\,\,^2\)

- When exposed to secondhand smoke children experience higher rates of
  - respiratory infections
  - middle ear infections
  - meningococcal infections
  - asthma
  - sudden infant death syndrome
- Occasional exposure to secondhand cigarette smoke, even on smoker's clothing, is harmful, especially to children

2.2 Overcrowding\(^3\,\,^4\)

- Overcrowding of dwellings increases the stress on kitchens, bathrooms, laundry facilities and sewerage systems
- In turn, this increases the risks of poor personal hygiene, places unnecessary strain on interpersonal relationships and exposes the family to domestic violence
- Aboriginal and/or Torres Strait Islander children are 5 times more likely to live in overcrowded housing

2.3 Sudden unexpected deaths in infancy (SUDI) and sudden infant death syndrome (SIDS)\(^5\)

- Between 1989 and 2012 there were 4,571 sudden unexpected deaths in infancy (including SIDS)
- The rate decreased by 80% within this same time frame with an estimated 7,990 lives saved directly attributed to risk reduction campaigns
2.4 Injury prevention

- Falls, drowning, poisoning, road safety incidents, burns and scalds are amongst the leading causes of hospital admission, death and disability for Australia’s children.
- Injury is preventable, yet there are approximately 250 deaths and more than 50,000 child hospitalisations due to injury each year in Australia.

3. Brief intervention

3.1 Exposure to cigarette smoke

- Babies and children should not, at any time, be exposed to secondhand smoke from smokers including in the house or in a confined space such as a motor vehicle.

3.2 Overcrowding

- Discuss basic hygiene principles with the parent and child including:
  - washing and drying hands after toileting, changing nappies and before food preparation and eating
  - the importance of coughing and sneezing into arm rather than hands and washing hands after blowing or wiping nose
  - the importance of oral hygiene and brushing teeth at least twice daily
  - not sharing toothbrushes and razors
  - regularly washing bed linen and clothes
  - regularly removing garbage away from living areas
  - ensuring pets are kept separate from living areas, especially where there is food preparation

3.3 SUDI, SIDS and a safe sleeping environment

- Providing safe sleeping information and strategies (see Resource 1)
- To reduce the risk of SIDS:
  - sleep baby on the back from birth
  - sleep baby with head and face uncovered
  - provide a safe cot, safe mattress, safe bedding and safe sleeping place
  - sleep baby in their own cot or bassinette in the same room as the parents for the first 6 to 12 months rather than bed sharing
  - avoid exposing baby to tobacco smoke before and after birth
  - encourage breastfeeding
- To provide a safe sleeping environment for an infant:
  - put baby's feet at the bottom end of the cot
  - ensure the cot meets Australian standards
  - use a firm, clean mattress that fits firmly in the cot
  - tuck bedding in securely
  - keep extra padding, quilts, doonas, duvets, pillows, cot bumpers, sheepskins and soft toys out of the cot or sleeping place (including travel or porta cots)
- The risk of SIDS significantly increases when

3.4 Injuries

- [Further details on injuries prevention and management]

4. R...
– the infant sleeps prone (front) or on their side
– soft surfaces with loose bedding are present
– a room is hot with excess clothing and bedding
– sharing a bed (or sleeping space) especially with smokers
– the infant is exposed to tobacco smoke
– the infant is not immunised\(^5,6\)

• Bouncinettes, prams and strollers are not designed as sleeping products and babies should not be left unsupervised if they fall asleep in these environments\(^5\)

3.4 Injury Prevention

• Discussion of the child’s environment should include injury prevention and awareness strategies (see Resource 2) including
  – the importance of supervision of small children
  – teaching children what is safe and what is not
  – fire safety e.g. stove tops, ovens and matches
  – water safety e.g. swimming pools and rivers
  – suffocation and strangulation risks e.g. plastic bags and blind cords
  – window and balcony safety e.g. falls from a height
  – kitchen safety e.g. knives
  – toys and equipment safety e.g. choking hazards on small parts or jamming fingers
  – car safety e.g. child car seat restraints

• Encourage the parent to keep an updated list of emergency numbers near the telephone or in their mobile phones including
  – poisons information centre (131126)
  – local children’s hospital
  – family doctor
  – maternal and child health nurse
  – all-night chemist
  – trusted neighbours
  – relatives

4. Referral

• For any identified overcrowding or housing issues, advocate and refer the client or family to
  – the Department of Housing and Public Works (see Resource 3)
  – housing co-ops
  – regional community housing providers
  – councils

• If there are any child safety concerns make a referral to the appropriate services (see Appendix 2: Child safety reporting, page 498)
5. Follow up

- Place the family on a recall register and continue to monitor if behaviours change and to ensure any referrals are actioned.
- Provide the parent and/or child with details for the next scheduled follow-up appointment.

6. References

3. Queensland Health 2010: Making Tracks towards closing the gap in health outcomes for Indigenous Queenslanders by 2033 - policy and accountability framework, Brisbane 2010

7. Resources

Eyes and vision - child

• Undiagnosed eye and vision problems in children may lead to difficulty with learning, not being able to play sport and not having confidence in dealing with social situations

• Aboriginal and Torres Strait Islander children especially in remote areas have better vision than their non-Aboriginal and non-Torres Strait Islander peers

• Test all children with their prescribed glasses or contact lenses

• If there is trouble with their glasses refer them back to their optometrist

• Online training for health checks and preventative care is available via PARROT at www.health.qld.gov.au/parrot

Health check recommendations

<table>
<thead>
<tr>
<th>All children from birth to &lt; 15 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Aboriginal and Torres Strait Islander children annually</td>
</tr>
</tbody>
</table>

1. Procedure

• Ask the parent or child the age appropriate questions according to Table 1.

• Determine if the child requires any visual assessments

• Determine if the child requires a referral according to the procedures and place on a follow up and recall register if required

• During testing, observe the child’s behaviour, e.g. holding head forward, frowning or blinking

• Squinting for example may indicate they are having difficulty seeing clearly

2. Eye appearance

• Sit child on chair. For security and compliance younger children should sit on parent’s lap

• Ask the parent to hold the child’s forehead if needed

• Check external and anterior eye

• With your thumb lift each eyelid (right first)

• Use a pen torch to check for inturned eyelashes (trichiasis) and any scarring of the upper lid (trachoma - see resources for further diagnosis and management)

• Check for scarring, cysts or styes

• Droopy eyelids (ptosis)

• Sore or watery eye (trichiasis, epiphora)
• Check conjunctiva and cornea for inflammation, swelling or discharge (conjunctivitis)
• Check pupils for asymmetry
• Abnormal movements (nystagmus)

### Table 1. Age appropriate questions and procedures for child eyes and vision

<table>
<thead>
<tr>
<th>Questions</th>
<th>Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 18 months</td>
<td>• Fixates and follows an object</td>
</tr>
<tr>
<td>6 - 18 months</td>
<td>• Corneal light reflex</td>
</tr>
<tr>
<td>1 - 6 weeks, 2 - 18 months</td>
<td>• Red eye reflex</td>
</tr>
<tr>
<td>1 - 6 weeks, 2 and 4 months</td>
<td>• Eye appearance</td>
</tr>
<tr>
<td>3 to &lt; 5 years, 6 and 12 year olds</td>
<td>• Cover test</td>
</tr>
<tr>
<td>All other children between 5 and &lt; 15 years of age</td>
<td>• Visual acuity</td>
</tr>
<tr>
<td>Does child have any trouble seeing things?</td>
<td>• Red eye reflex</td>
</tr>
<tr>
<td>Does child have difficulty seeing what the teacher writes on the board?</td>
<td>• Fixates and follows an object</td>
</tr>
<tr>
<td>Does child have trouble seeing the television screen?</td>
<td>• If yes to any questions then perform a cover test and a visual acuity test</td>
</tr>
<tr>
<td>Does child get a headache if they read for more than 10 minutes?</td>
<td></td>
</tr>
<tr>
<td>Has child ever had an eye injury?</td>
<td>• If yes to any questions then perform a cover test and a visual acuity test</td>
</tr>
<tr>
<td>Does the parent, teacher or health professional report a problem with vision, eye appearance or learning problems?</td>
<td></td>
</tr>
<tr>
<td>Is there a family history of eye problems during childhood?</td>
<td></td>
</tr>
<tr>
<td>Are there any current medical problems?</td>
<td>• If yes to any questions then perform a cover test and a visual acuity test</td>
</tr>
</tbody>
</table>

### 3. Fixates and follows an object

• Hold a pen or toy (for younger children) 30 cm away and slowly move it up, down, left and right in an 'H' pattern
• Watch the child’s eyes track the object
• Ask the child to focus on something 6 metres away (picture). For younger children take a
toy 6 metres away and observe them tracking it
- A 6 month old child should be able to fixate and follow an object at 30 cm and at 6 metres
- There should be no abnormal eye movements

4. Red eye reflex
   - Ophthalmoscopy to be done by trained clinician
   - Get the child to look at a distant point e.g. your ear, the wall
   - Direct the ophthalmoscope light at the pupil from 30 cm away
   - Look through the scope slowly moving back and forth, up and down until you see a red reflex (the blood at the rear of the retina)
   - No red eye reflex may indicate a tumour, congenital cataract or haemorrhage

5. Corneal light reflex
   - Generally the child can be looking anywhere for this test
   - Shine a pencil torch between the child’s eyes at a distance of 30 cm
   - Observe the light reflecting in both eyes
   - If the reflection is in the same place on both corneas each eye is fixing on an object equally
   - If the reflection is in different places on both corneas the eyes are not fixing on an object equally
   - This test is a preliminary step to the cover test which will tell you which eye is affected

6. Visual acuity test (VA)
   - Place a Snellen eye chart or a Tumbling E eye chart 6 metres away (or 3 metres if using a scaled down chart) in a well lit area at eye level.
   - The clinician can also hold the chart while pointing to the letters and checking that the child’s other eye is covered
   - The Tumbling E eye chart is best for younger children
   - To test the right eye, cover the left eye using a patch or a piece of card or plastic glasses with one side covered
   - Explain to the child to state the letter you point at
   - Point clearly to the letter being tested. Start at the top of the chart and go across the whole line
   - For younger children using the Tumbling E chart, show them how 3 fingers makes an E and to hold their fingers up, down, left or right to indicate what they see
   - Point clearly to the letter being tested. Start at the top of the chart and go across the whole line
   - If they get 3 or more incorrect letters on a line stop, go up a line and repeat
• Allow 2 attempts
• It is not necessary for the client to read the whole chart but most of the lowest line reached must be tested
• The line used to record visual acuity is the last line the person can read without making any mistakes
• Cover the right eye and check the left eye

6.1 Recording visual acuity
• Normal visual acuity is written as 6/6
• The first number 6 refers to the distance that the person is standing away from the chart in metres
• The second number is the lowest line that the person can read on the chart without error e.g. 6, 9, 12, 18, 24, 36 or 60. These numbers are found underneath the corresponding line on the chart

7. Cover test
• A cover test is performed to detect the alignment of the eyes to identify a squint (strabismus) or amblyopia
• Ask the child to look at a distant target i.e. something specific more than 6 metres away, and encourage the child to keep their eyes still
• Cover their right eye with a card or piece of paper and observe the left eye
• Any corrective movement of the left eye (to re-establish fixation) indicates a squint
• Smoothly and slowly remove the card and observe the right eye
• Any movement of the right eye to establish fixation indicates a squint
• Repeat these steps for the left eye
• If needed repeat until satisfied that the test has been performed adequately
• Movements of the cover should be smooth and slow so the eye has time to fixate and blinking is not provoked
• Repeat all of the above steps for a near target e.g. your ear or a pencil

8. Referral
• Refer to the MO/NP, optometrist or ophthalmologist for any
  – abnormal eye appearance
  – reported bluriness
  – squinting to see
  – failure of child to fixate or follow an object
  – uneven eye movement
  – no red eye reflex
  – if the child’s visual acuity is outside normal range (e.g. 6/9, 6/12, 6/18, etc) in one or both eyes
– eye movement during cover test is observed

9. Follow up

• Place the child on a recall register to monitor and ensure any referrals have been actioned

• Provide the parent and child with details for the next scheduled follow up appointment

10. References

1. National Aboriginal and Torres Strait Islander Eye Health Survey Minum Barreng (Tracking eyes), University of Melbourne, Centre for Eye Research Australia and the Vision CRC 2009

11. Resources

General appearance

- A head to toe physical observation of a child can identify issues requiring further investigations including
  - structural abnormalities
  - injuries due to trauma and
  - skin complaints

Child safety notification

- Be alert to any general appearances that may indicate child abuse, harm or neglect such as
  - bruises on any part of a child’s body
  - bruises over soft tissue areas (bruises in children commonly occur over bony areas)
  - human bite marks
  - circular cigarette burns anywhere on body
  - scalds from immersion in hot water such as feet, hands or buttocks
  - fractures of any type in children
  - grazes to genitalia

- See Appendix 2: Child safety reporting, page 498
- Online training for health checks and preventative care is available via PARROT at www.health.qld.gov.au/parrot

Health check recommendations

| Head and face, limbs and joints and skin for all children < 15 years of age |
| Genitalia up to 18 months of age for all children |

1. Procedure

- Perform the age related physical observations as per Table 1.
- Provide brief intervention if any issues are identified
- Determine if the child requires a referral according to observations and place on a follow up and recall register if required

2. Head and face

- Observe and/or feel
  - What the child’s face looks like generally
  - Does the child or young person have microcephaly (a small head)?
  - Is there any plagiocephaly (flattened back of head)?
Are there any facial abnormalities e.g. thin upper lip, flattened philtrum (groove between the upper lip and nose), short palpebral fissures (eye openings)
Check nose for alignment and structure
Check the lips for fullness and colour
Open the child’s mouth and look at or feel the palate. Are there ridges? Is it flattened or raised?
Is the hair healthy and shiny or matted and dull? Are there any nits or lice?
Check the ears for size, shape, colour and position level with eyes
Are there any sores or scars?

Table 1. Age related general appearance observations for children

<table>
<thead>
<tr>
<th>Area for observation</th>
<th>Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birth to &lt; 15 years of age</td>
<td></td>
</tr>
<tr>
<td>Head and face</td>
<td>• Observe and/or feel</td>
</tr>
<tr>
<td>Limbs and joints</td>
<td>• Observe and/or feel</td>
</tr>
<tr>
<td>Skin</td>
<td></td>
</tr>
<tr>
<td>Birth to &lt; 18 months</td>
<td></td>
</tr>
<tr>
<td>Genitalia</td>
<td>• Observe and/or feel</td>
</tr>
</tbody>
</table>

3. Limbs and joints
3.1 Birth to < 18 months of age

• Observe and/or feel
  – general posture of the child
  – muscle tone and range of spontaneous movement
  – the general appearance of the limbs
  – for any swelling, tenderness, redness, warm or hot skin or pain around the joints
  – for any signs of injury such as bruising
  – the limbs for malalignment or incorrect anatomical position

• Identify any abnormalities of the hips
  – lay the infant supine (on their back) on the examination table without their nappy
  – extend the infant’s legs
  – ensure the pelvis is horizontal
  – keeping the hips symmetrical, extend the legs and check symmetry of knee creases
  – check for equal leg length
  – place middle fingers of each hand over the greater trochanter (outer side of hip joint) and thumbs on the inner side of the thighs
  – flex the knees and hips to right angles (90°) parallel with the midline
  – attempt to gently abduct (move away from the midline) both legs outward then adduct (move toward the midline) both legs inwards
  – note any limited or unequal movement
– note any dislocation (listen and feel for clicking) or distress caused to the infant

• Identify any posterior abnormalities
  – lay the infant prone (on their stomach) on the examination table without their nappy
  – observe for body symmetry, swellings, dimples, midline of back and buttock creases
  – observe for any birthmarks such as mongolian blue spots
  – note any hairy tufts in the midline (may indicate spina bifida occulta)
  – note any dimples in the midline
  – note any swelling or lumps in the midline (may indicate meningomyelocele)
  – note any deep pilonidal (top of the buttock crease) dimples
  – note any evidence of trauma

3.2 18 months to < 15 years of age

• Observe and/or feel
  – the general appearance of the limbs
  – muscle tone and range of spontaneous movement
  – for any swelling, tenderness, redness, warm or hot skin or pain around the joints
  – for any signs of injury
  – the limbs for malalignment or incorrect anatomical position
  – the child moving, walking, weight bearing and standing
  – any abnormal walking, limping, shuffling, widely placed gait, toe walking, foot flopping, leg lagging, dragging, staggering, unco-ordinated gait

4. Genitalia

• Lay the infant supine (on their back) on the examination table without their nappy

• Observe¹
  – the general appearance of the genital area
  – for evidence of rash, grazing, bruising or any other abnormality
  – for general nappy hygiene issues such as urine burns (nappy rash) or faecal matter
  – for evidence of neglect or sexual abuse
  – for congenital abnormalities, incomplete development or sexual ambiguity

4.1 For girls

• Observe the labia
  – using 2 fingers gently separate the outer labia to reveal the inner labia and clitoris
  – note any discharge or thrush or faecal matter. This is often an ideal opportunity for vaginal hygiene brief intervention
  – partially or fully fused labia may suggest the presence of a scrotum. Do not attempt to separate
  – a urinary opening that is not located below the clitoris may indicate the presence of a penis i.e. ambiguous genitalia
4.2 For boys

- Ensure that hands are warm (when stimulated by cold or touch the cremasteric muscle reflex causes the skin of scrotum to shrink and pull the testicles into the pelvic cavity)

- Inspect the penis for size and the placement of the urethral opening
  - a non-erect penis at birth is 2 - 3 cm in length with a straight projection
  - microphallus (a small penis) may indicate other organ anomalies
  - do not retract the foreskin of an uncircumcised penis more than is necessary to see the urethra

- Check the descent of the testicles by palpating the scrotum
  - place the thumb and index fingers of one hand over the inguinal canals at the base of the scrotal sac to prevent the testicles from escaping into the inguinal canals or abdomen
  - use the other hand to gently inspect the scrotum for the presence of testicles
  - testicles in a newborn are approximately 1 cm in diameter
  - a testicle that cannot be palpated is considered as undescended or retractile and can be discovered by gently palpating the inguinal region
  - oedema of the scrotum is common, especially after a breech delivery

5. Skin

5.1 Infants aged 1 - 6 weeks

- For jaundice in this age group see Birth information, page 326

- Observe the umbilicus
  - the umbilical stump area should be dry, clean, odourless and usually black
  - note any discharge, redness and skin warmth
  - inspect skin folds in the umbilicus for a nodule of granulomatous tissue
  - note any protrusion through the umbilicus or abdominal muscles (hernia) when the infant strains
  - the umbilicus is usually inverted
  - an umbilical hernia forms a visible and palpable bulge and is common in infants

- Observe for mongolian spots or other birthmarks
  - birthmarks can be flat, raised, have regular or irregular borders, and vary in colour from brown, tan, black, or pale blue to pink, red or purple
  - 2 common types of birthmarks are red, vascular birthmarks (e.g. strawberry haemangiomas, port-wine stains and stork bites) and pigmented birthmarks (e.g. moles, café-au-lait spots and mongolian spots)
  - birthmarks are mostly harmless and many fade, shrink or disappear over time
  - mongolian spots are irregular areas of deep bluish-black to grey pigmentation and are usually found on the back, buttocks, shoulders and legs of babies
  - mongolian spots are often mistaken for bruises and occur almost exclusively in babies with dark or olive skin and usually disappear in the preschool years
5.2 Children > 6 weeks of age

- Ask the parent or the child if they have identified any skin issues

- Note skin that
  - has sores, scabs, scars, or is broken, scratched or cut
  - is jaundiced
  - is bruised (note colour: red dark blue are newer bruises or older bruises are purple and yellow)
  - has rashes
  - has mosquito or sandfly bites
  - is itchy or irritated
  - loss of sensation
  - nodules or lumps
  - is sunburnt

Be alert to injuries that may indicate child abuse or neglect

- Bruises on any part of a child’s body
- Bruises over soft tissue areas. Bruises in children commonly occur over bony areas
- Human bite marks
- Circular cigarette burns anywhere on body
- Scalds from immersion in hot water such as feet, hands or buttocks
- Fractures of any type in children
- Grazes to genitalia
- See Appendix 2: Child safety reporting, page 498

6. Brief intervention

- Avoid retracting the foreskin of an uncircumcised penis
  - the foreskin will retract on its own accord at about 4 years of age by way of erection or childhood exploration
  - once the foreskin does retract, educate the child to clean underneath without soap. Soap will cause drying and excoriation

- Clean any non infected sores with soap and water and apply an antiseptic cream or lotion
  - teach children effective hand hygiene as the single most important strategy in preventing contact related infections (see Resource 1)

- Infants under 6 months of age should be kept out of direct sun
  - outdoors protection should include clothing, sunscreen and hats (see Resource 2)
  - child sunscreen should only be applied to areas such as the face, ears and hands if these areas cannot be protected with clothing or wraps
7. Referral

- Refer to the Appendix 2: Child safety reporting, page 498 if there is any suspicion of child abuse, harm or neglect

- Refer to the current edition of the Primary Clinical Care Manual, a MO or NP for
  - any swelling, tenderness, redness or pain around joints which may indicate acute rheumatic fever or rheumatic heart disease
  - any infected sores, scabies and other skin conditions

- Refer to a MO, NP or Child Health Nurse for further investigations if the following is noted
  - thin upper lip, flattened philtrum and short palpebral fissures which may indicate fetal alcohol spectrum disorder (see Developmental delay in children, page 184)
  - any cleft palate or cleft lip which may hinder a baby’s feeding
  - limited abduction of one or both legs or unequal leg length in newborn to 6 months
  - any asymmetrical knee or buttock creases
  - any pilonidal sinuses or deep dimples
  - any ambiguous genitalia or fused labia
  - testicles which are unable to be milked into scrotum
  - one or both testicles are not palpable
  - testicles felt in groin or lower abdomen
  - any unexplained nodules, lumps or other concerns not mentioned here

8. Follow up

- Place the child on a recall register and continue to monitor to ensure any referrals are actioned

- Provide the parent or child with details for the next scheduled follow up appointment

9. References


10. Resources


Infant reflexes

• Infant’s reflexes are tested to assess neurological development and function
• Infant reflexes disappear as the child gets older and are usually absent after 6 months of age except for the blink reflex which persists throughout life
• Any child presenting with absent reflexes or reflexes persisting past the recommended times must be referred to the MO/NP
• Online training for health checks and preventative care is available via PARROT at www.health.qld.gov.au/parrot

1. Procedure

• Perform each reflex assessment
• Use the online video to assist with the assessment (see Resource 1)
• Determine if the infant requires a referral according to a present or absent age related reflex and place on a follow up and recall register if required

1.1 Moro reflex (1 week - 2 months)¹

• With the infant supported in the semi-sitting position, allow the head and trunk to drop back to a 30 degree angle
• Observe the arms adduct (splay outwards) in an embracing motion followed by relaxed flexion
• The legs may follow a similar pattern of response
• This reflex diminishes in strength by 3 - 4 months and disappears by 6 months

1.2 Blink reflex (1 week onwards)²

• Shine a light at the infant’s open eyes or make a sudden sound such as a clap close to the infant’s face
• Observe a quick closure of the eyes and dorsal flexion of the infant’s head
• No response to shining a light into the eyes may indicate poor light perception and should be followed up by the MO/NP
• This is a permanent reflex and should not diminish with time

1.3 Stepping reflex (1 week - 2 months)¹

• Hold the infant upright by supporting under the infant’s arms and allow the soles of the feet to touch the surface of the table
• Observe for alternate flexion and extension of the legs in a simulated walking fashion
• This reflex disappears before voluntary walking

1.4 Grasp or palmar reflex (1 week - 3 months)
• Avoid touching the back of the infant’s hand when assessing this reflex
• Making sure the infant’s head is in midline, touch the palm of the infant’s hand with the tip of a finger
• Note the strong grasp of your finger
• Sucking also facilitates the grasp reflex as does applying light traction to the arm
• This reflex should be strongest between 1 and 2 months of age and disappear by 3 months

1.5 Rooting or sucking reflex (1 week to 4 months)
• Touch one corner of the infant’s mouth
• The infant should open their mouth and turn their head in the direction of the stimulation
• If the infant has been recently fed, minimal or no response is expected

1.6 Plantar or babinski reflex (1 week to 6 months)
• Firmly stroke the lateral plantar surface (sole) of the infant’s foot
• The big toe should move upwards with the other toes fanning out
• This is a normal response in infants but should not be present in children older than 12 months

2. Result
• Note any deficits to reflexes within the scheduled time frames

3. Brief intervention
• Provide the parents with anticipatory guidance in relation to reflex progression and reflex resources (see Resource 1)

4. Referral
• Refer to the MO/NP or paediatrician if
  – there are any age related reflex deficits
  – any infant reflexes persist beyond the recommended time frames
  – the parent has any concerns

5. Follow up
• For any reflex deficits, place the child on a recall register and monitor to ensure any referrals have been actioned
• Provide the parent with details for the next scheduled follow up appointment
6. References


7. Resources

1. See YouTube videos for step by step vision of childhood reflexes available at https://www.youtube.com/watch?v=zk8dmE5tcoY
Nutrition - child

• Many chronic conditions are attributed to poor nutrition, including:
  - type 2 diabetes
  - cardiovascular disease
  - renal disease
  - poor oral health
  - iron deficiency
  - anaemia
  - some forms of cancer
• Poor nutrition from in-utero to 2 years of age is associated with:
  - increased risk of chronic conditions in adulthood
  - poor brain development
• It is important for parents to become healthy role models to encourage and promote breastfeeding and healthy lifelong family eating habits
• Online training for health checks and preventative care is available via PARROT at www.health.qld.gov.au/parrot

Health check recommendations

All children from birth to < 15 years of age annually

1. Procedure
• Ask the parent the nutrition questions according to the child’s age (see Table 1)
• For children eating solids ask what they ate the previous day to determine a dietary pattern
• Identify if the child does or does not meet adequate dietary intake (see Diet and nutrition, page 14)
• Determine if the child requires a referral according to the answers and make a referral and place on a follow up and recall register if required

2. Results
• If at any age a child’s nutritional intake is inadequate then provide support with nutritional brief intervention

3. Brief Intervention
• See Diet and nutrition, page 14
### Table 1: Age related nutrition questions for children

<table>
<thead>
<tr>
<th>Question</th>
<th>Explore</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>0 to &lt; 3 years of age</strong></td>
<td></td>
</tr>
<tr>
<td>Breastfeeding only</td>
<td>• Ask the questions</td>
</tr>
<tr>
<td>Formula feeding only</td>
<td></td>
</tr>
<tr>
<td>Any other food or drink</td>
<td></td>
</tr>
<tr>
<td><strong>6 months to &lt; 3 years</strong></td>
<td></td>
</tr>
<tr>
<td>Eating solids</td>
<td>• Ask the questions</td>
</tr>
<tr>
<td>Uses a bottle</td>
<td></td>
</tr>
<tr>
<td>Uses a cup</td>
<td></td>
</tr>
<tr>
<td><strong>6 months to &lt; 5 years</strong></td>
<td></td>
</tr>
<tr>
<td>Healthy food and drink</td>
<td>• Identify if the parent feeds the child nutritionally rich or poor foods</td>
</tr>
<tr>
<td>Nutritionally poor food and drink</td>
<td></td>
</tr>
<tr>
<td>Is the parent always able to provide the child with food?</td>
<td>• Details and examples are available in Diet and nutrition, page 14</td>
</tr>
<tr>
<td><strong>5 to &lt; 15 years</strong></td>
<td></td>
</tr>
<tr>
<td>What did the child eat yesterday?</td>
<td>• Asking what they ate the previous day helps determine a dietary pattern</td>
</tr>
<tr>
<td>What did the child drink yesterday?</td>
<td></td>
</tr>
<tr>
<td>Is the child always able to access food?</td>
<td>• For details of serve sizes and examples see Diet and nutrition, page 14</td>
</tr>
</tbody>
</table>

### 3.1 Babies aged 0 to < 6 months
- Encourage and support exclusive (only) breastfeeding for optimal growth, health and development until around 6 months of age and can continue breastfeeding until 2 years or older
- Formula fed babies can have an infant formula until 1 year of age
- Infant formula will provide all the iron needed for the first 6 months
- Provide only water, formula or expressed breastmilk in a baby’s bottle
- Babies require no other food or fluids until 6 months of age

### 3.2 Children aged 6 - 9 months
- Children can continue to have breastmilk until 2 years or older
- From 6 months of age the baby requires solid foods as breastmilk and infant formula are not enough to sustain growth and development
- Tips for first foods (see Diet and nutrition, page 14)
  - add breastmilk, formula or water to thin consistency which assists with swallowing
  - provide thicker foods as the child ages and becomes more proficient at swallowing
  - puréed iron rich cereals, vegetables, fruits, fish and eggs
  - yoghurt and cheese
  - by 9 months the baby should be having 3 regular meals each day
– avoid takeaway foods, cakes, biscuits, lollies, ice cream and deep fried foods
– avoid salt, pepper, soy sauce, curry or other spices as they can harm babies underdeveloped kidneys

• Use visual charts to highlight sugar and fat content of food (see Resource 1)

### 3.3 Children aged 12 to 21 months

• Children can continue to have breastmilk until 2 years or older
• If formula fed, the child can switch to full fat cow’s milk from 1 year of age
• Encourage only water and milk as the fluids of choice
• Avoid tea, coffee, cordials, sports and energy drinks and fizzy drinks
• Offer children up to 6 small meals a day including
  – plenty of nutritious fruit, vegetables, meats and dairy
  – eating similar healthy foods as the family
  – children under 2 years can have full fat dairy products
• Use visual charts to highlight sugar and fat content of food (see Resource 1)

### 3.4 Children aged 2 to < 15 years

• Young children and adolescents need sufficient nutritious foods to grow and develop normally including (see Resource 2)
  – a wide variety of nutritious foods
  – vegetables, legumes and fruits
  – cereals including breads, rice, pasta and noodles, preferably wholegrain
  – lean meat, fish, poultry and eggs
  – milks, yoghurts, cheese and/or alternatives. Reduced fat varieties should be encouraged from 2 years of age
  – water
  – foods low in salt

• Avoid or limit nutritionally poor foods and drinks
  – takeaway foods high in saturated fats, salt and sugar
  – foods and treats containing added sugars
  – sausage rolls, meat pies, chicken nuggets and kabanas
  – cakes, biscuits, potato chips and hot chips
  – soft drinks, cordial, fruit juice drinks, 100% fruit juice, tea/coffee, energy drinks and sports drinks
• Use visual charts to highlight sugar and fat content of food (see Resource 1)

Parents who provide children with a regular diet of nutritionally poor foods and drinks predispose their children to chronic conditions later in life
4. Referral

- Consider barriers to healthy eating such as finances, location and availability of nutritious foods and refer accordingly
- Consider referrals to
  - community nutrition team
  - dietitian
  - child health nurse or health worker
  - paediatrician or MO/NP
  - social worker
- If you have any concerns about a child’s nutritional intake refer to the MO/NP

5. Follow up

- Place the child on a recall register to monitor nutrition and to ensure any referrals have been actioned
- Provide the child or parent with details for the next scheduled follow up appointment

6. References


7. Resources

1. Eat for Health resource website available at www.eatforhealth.gov.au

Oral health - child

• Dental caries currently affects more than half the population
• There is an association between periodontal disease and the risk of heart disease, coronary artery disease, otitis media, diabetes, obesity and diets high in sugar and fat^{1,2,3}
• Compared to the overall Australian population of similar age, Aboriginal and Torres Strait Islander children have more than twice the caries and dental decay^{4}
• Children are at highest risk of oral diseases due to a reduced capacity for self care
• Tooth eruption times vary
• Some babies are born with an erupted incisor tooth (neonatal tooth) which is lost soon after birth
• Deciduous (baby) teeth begin to erupt at approximately 6 months of age
• Lower teeth usually erupt before the upper teeth
• Girls usually precede boys in tooth eruption
• The teeth in both jaws usually erupt in pairs, one on the right then one on the left
• All deciduous teeth should have erupted by 3 years of age
• Children under 4 years of age are eligible for free dental care through Queensland Health Adult Oral Health Services if they are a dependant of a person holding a current Health Care Card or Pension Concession Card
• Children should have a dental assessment by 2 years of age
• Online training for health checks and preventative care is available via PARROT at www.health.qld.gov.au/parrot

Health check recommendations

All children > 6 months of age annually

1. Procedure

• Ask the parent or child the age appropriate questions (see Table 1)
• If the parent answers ‘no’ to any questions for a child aged 0 - 4 years then provide brief intervention
• Qualify the 5 to < 15 year old questions and provide brief intervention if required
• Determine if the child requires a referral according to the answers and place on a follow up and recall register if required
Table 1. Age appropriate oral health questions and interventions for children

<table>
<thead>
<tr>
<th>Question</th>
<th>Explore</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>6 months to &lt; 18 months</strong></td>
<td>• Use of a soft toothbrush? • No toothpaste? • Offer brief intervention • Perform visual teeth and gum check</td>
</tr>
<tr>
<td>Does the child have any teeth?</td>
<td></td>
</tr>
<tr>
<td>Does the parent clean the child’s teeth?</td>
<td></td>
</tr>
<tr>
<td><strong>18 months to &lt; 5 years</strong></td>
<td>• Use of a soft toothbrush? • Use of a low fluoride toothpaste? • Offer brief intervention • Perform visual teeth and gum check</td>
</tr>
<tr>
<td>Does the parent clean the child’s teeth twice a day?</td>
<td></td>
</tr>
<tr>
<td><strong>5 years to &lt; 15 years</strong></td>
<td>• Use of a soft toothbrush? • Use of a fluoride toothpaste? • Offer brief intervention • Perform visual teeth and gum check</td>
</tr>
<tr>
<td>How often does the child brush their teeth?</td>
<td></td>
</tr>
<tr>
<td>Has the child had any toothache or bleeding gums in the last 4 weeks?</td>
<td></td>
</tr>
<tr>
<td>Has the child had a dental check up in the last 2 years?</td>
<td></td>
</tr>
</tbody>
</table>

1.1. Visual oral check

- An oral check involves visualising all aspects of the oral cavity; teeth, gums and cheeks
- Don gloves
- Position the child comfortably
- Ensure the room is well lit or have a light available
- Lift the upper lip and lower the bottom lip to view the teeth
- Inspect the outer surfaces of the teeth
- Observe for tooth alignment, frosting (early decay), brown decay (active) and black decay (inactive)
- Using a tongue depressor inspect the oral cavity, gums and rear teeth

2. Results

- The gums surrounding the teeth should be pink with clearly defined and tight margins around each tooth
- The gums should be free of inflammation, swelling and bleeding
- The gums should not be tender or painful
- Loose teeth, or gums which bleed spontaneously or during brushing, are indicative of periodontal disease (see Dental caries and periodontal disease, page 162)
- The mucous membranes inside of the cheeks should be pink, red, smooth and moist
- If at any age a child’s oral health is poor, provide support with brief intervention and make the appropriate referral
3. Brief intervention

3.1 Children aged 0 - 5 years

- Begin cleaning children’s teeth using a damp cloth as soon as they erupt as plaque will begin to form straight away
- From 6 - 18 months of age, in areas of fluoridated water supply, child’s teeth should be brushed twice a day without toothpaste using a small soft toothbrush
- Between 18 months and 5 years of age child’s teeth should be brushed twice a day with a small soft toothbrush with a small pea sized amount of low fluoride toothpaste
- A parent is responsible for cleaning a child’s teeth until 8 years of age as children lack the motivation and the manual dexterity to maintain their oral health thoroughly
- Parents should develop a regular toothbrushing routine for their children from an early age
- Children should not dispense toothpaste without supervision
- Keep toothpaste out of reach of children

For children between 6 and 18 months of age living in areas with unfluoridated water supplies, teeth should be brushed twice a day with a small pea sized amount of low fluoride toothpaste by a responsible adult

- The toothbrushing method is a circular or jiggling motion on both the inside and outside surfaces of the tooth, along the gum margins, then a scrubbing motion along the chewing surfaces
- Encourage the child to spit toothpaste out and not swallow it
- Parents should not share toothbrushes, food utensils or place baby bottles or dummies in their own mouths. This spreads harmful oral bacteria to children which causes decay
- Breastfeeding is best for baby’s teeth
- If bottle feeding, put only breastmilk, formula or water in the bottle. Hold baby close when feeding
- Do not put a baby to bed with a bottle
- Provide healthy food choices
- Tap water is the best choice for a drink
- Juice, sports drinks and cordials are high in sugar and should be avoided
- Limit the number of sugary or acidic snacks
- Choose fruit (apples and bananas) and vegetable (carrots and tomatoes) snacks
- Encourage annual dental visits
- In communities where there is no access to a fluoridated drinking water supply, dental practitioners can provide advice about access to alternate sources of fluoride such as
mout

3.2 Children aged > 6 years

• A parent is responsible for cleaning a child’s teeth until 8 years of age as children lack the motivation and the manual dexterity to maintain their oral health thoroughly.

• Using a soft toothbrush the teeth should be cleaned twice a day or more frequently with standard fluoride toothpaste.

• Brush all surfaces of the teeth i.e. the inside, outside and chewing/biting surfaces.

• Brush to the gum margins to prevent gum disease.

• When finished spit out the toothpaste, but do not swallow it or rinse the mouth.

• Brush before going to bed at night as saliva flow is reduced when you sleep and decay causing bacteria attack dry tooth surfaces.

• Replace the toothbrush after 3 - 4 months or sooner if bristles become frayed with use.

• It is important for everyone in the family to look after their teeth as the germs that cause tooth decay can spread from person to person.

• Use dental floss or interdental cleaning products to clean between the teeth.

• Make healthy food choices.

• Water is the best choice for a drink.

• Juice, sports drinks and cordials are high in sugar and should be avoided.

• Limit the number of sugary or acidic food snacks.

• Choose fruit, cheese and vegetables for snacks.

• Encourage annual dental visits.

• In communities where there is no access to a fluoridated drinking water supply, dental practitioners can provide advice about access to alternate sources of fluoride such as mouth rinses, high fluoride toothpastes and fluoride supplements.

4. Referral

• For any concerns outlined in Table 2. refer to
  – the current edition of the Primary Clinical Care Manual (PCCM)
  – the free government funded dental service if the child is aged from 2 - 17 years and is eligible for the Child Dental Benefits Schedule (see Resource 3. for eligibility criteria)
  – the free government funded dental service if the child is aged from 4 to the completion of Year 10 (see Resource 3. for eligibility criteria)
  – a private dentist (parents can use the Child Dental Benefits Schedule entitlement)
  – see Dental caries and periodontal disease, page 162.
Table 2. Oral health related referral issues

<table>
<thead>
<tr>
<th>Site</th>
<th>Problem</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teeth</td>
<td>• Malalignment</td>
</tr>
<tr>
<td></td>
<td>• Decay (white spots, brown or black holes)</td>
</tr>
<tr>
<td></td>
<td>• Loose or missing</td>
</tr>
<tr>
<td></td>
<td>• Plaque buildup</td>
</tr>
<tr>
<td></td>
<td>• Trauma</td>
</tr>
<tr>
<td></td>
<td>• Toothache</td>
</tr>
<tr>
<td>Gums</td>
<td>• Swelling</td>
</tr>
<tr>
<td></td>
<td>• Bleeding (spontaneously or when brushing)</td>
</tr>
<tr>
<td></td>
<td>• Tenderness or pain</td>
</tr>
<tr>
<td></td>
<td>• Abscess or ulcers</td>
</tr>
<tr>
<td></td>
<td>• Thrush</td>
</tr>
</tbody>
</table>

5. Follow up

• Place the child on a recall register to monitor dental issues and to ensure any referrals are actioned

• Provide the child or parent with details for the next scheduled follow up appointment

6. References


7. Resources


Physical activity - child

- Knowing a child’s level of activity allows the clinician to determine a child’s relative risk for future health problems and provides an opportunity to intervene early
- For children, being physically active\textsuperscript{1,2,3}
  - creates opportunities for fun with friends
  - reduces anti-social behaviour, including aggressive and disruptive behaviour
  - develops skills such as co-operation and teamwork
  - improves self-esteem and confidence
  - improves concentration
  - improves ability to manage anxiety and stress
  - reduces the risk of developing type 2 diabetes and cardiovascular disease
  - improves physical fitness, including co-ordination and movement skills
  - reduces unhealthy weight gain
  - builds strong muscles and bones and promotes healthy growth and development
- Online training for health checks and preventative care is available via PARROT at www.health.qld.gov.au/parrot

Health check recommendations

All children from birth to \(<15\) years

1. Procedure
- Ask the age appropriate questions as per Table 1.
- Provide brief intervention if the parent answers other than the ideal
- Be prepared to explore the issues further and/or refer for further support
- Determine if the child requires a referral according to the answers and place on a follow up and recall register if required

2. Results

2.1 Physical activity\textsuperscript{1,2,3}
- Physical activity is any activity that gets children moving, makes their breathing become quicker, and their heart beat faster
- Moderate intensity activity requires some effort, but children can still speak easily while doing it e.g. fast walking, riding a bike or scooter and active play
- Vigorous intensity activity requires effort and makes children breathe hard and fast (‘huff and puff’) e.g. running, chasing and organised sports like football or netball
Table 1. Physical activity questions

<table>
<thead>
<tr>
<th>Question</th>
<th>Explore</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birth to 1 years of age</td>
<td></td>
</tr>
<tr>
<td>Does the infant do floor based play daily?</td>
<td>• Yes or no</td>
</tr>
<tr>
<td></td>
<td>• Tummy time, rolling, crawling, cruising, etc.</td>
</tr>
<tr>
<td>1 to &lt; 5 years of age</td>
<td></td>
</tr>
<tr>
<td>Is the child physically active for at least 3 hours daily?</td>
<td>• Yes or no</td>
</tr>
<tr>
<td></td>
<td>• What exercise does the child normally do?</td>
</tr>
<tr>
<td></td>
<td>• What about screen time?</td>
</tr>
<tr>
<td>For all children and young people aged &gt; 5 years of age</td>
<td></td>
</tr>
<tr>
<td>Was the child or young person active for more than 60 minutes a day in</td>
<td>• Add up the times a child is active</td>
</tr>
<tr>
<td>the last week?</td>
<td>• 10 minutes before school?</td>
</tr>
<tr>
<td></td>
<td>• 30 minutes recess play?</td>
</tr>
<tr>
<td></td>
<td>• 30 minutes lunch play?</td>
</tr>
<tr>
<td></td>
<td>• 30 minutes after school?</td>
</tr>
</tbody>
</table>

2.2 Sedentary behaviour

- Sedentary behaviour is characterised by sitting or lying down (except for when sleeping)
- The use of electronic media or screen time is a major contributor to sedentary behaviour

3. Brief intervention

- Always work closely with the parent when providing brief intervention about diet and physical activity
- Children from birth to 5 years should not be sedentary, restrained, or kept inactive, for more than 1 hour at a time, with the exception of sleeping
- Infants aged 0 - 1 year should be encouraged to do floor based play in a safe and supervised environment
- Toddlers and pre-schoolers aged 1 - 5 years should be physically active every day for at least 3 hours, spread throughout the day
- Children and young people aged 5 - 15 years should accumulate at least 60 minutes of moderate to vigorous intensity physical activity every day including
  - a variety of aerobic activities
  - activities that strengthen muscle and bone at least 3 days per week
- Daily physical activity can be accumulated throughout the day
- Provide physical activity resources (see Resource 1)
- For recommendations on age related physical activity requirements refer to Physical activity, page 26
4. Referral

- Refer to Physical activity, page 26 for detailed information.
- For any child who is identified as leading a sedentary lifestyle or is overweight or obese, refer to Overweight and obesity in children, page 270.
- Refer any child to the MO/NP where there are concerns about ongoing sedentary lifestyle and/or overweight or obesity issues despite previous brief interventions.

5. Follow up

- Place the family on a recall register and continue to monitor if behaviours do not change and to ensure any referrals are actioned.
- Provide the parent or child with details for the next scheduled follow up appointment.

6. References


7. Resources

Social emotional wellbeing - child

- Infancy is recognised as a foundational developmental period, physically, psychologically and socially.¹,²
- Relationships and the quality of experiences are the ways babies and young children come to know the world and their place in it.¹,²
- For children to develop into healthy adults they need to feel wanted, loved and secure.
- Through relationships, young children develop social and emotional wellness, which includes: the ability to form satisfying relationships with others, play, communicate, learn, face challenges and experience emotions².³
- Psychosocial factors affect infant development including temperament and the quality of the parent attachment relationship.¹,²,³
- Adverse developmental experiences during childhood and as a young person can become risk factors for later social emotional development.¹,²,³
- The social emotional wellbeing questions aim to identify infants, children and young people who may be:
  - experiencing feelings that impact on their social and emotional wellbeing
  - experiencing thoughts/feelings of suicide or self-harm
  - at risk of neglect or abuse and future mental health difficulties
- Online training for health checks and preventative care is available via PARROT at www.health.qld.gov.au/parrot

Child safety notification

- If there is a suspicion of harm or neglect consider a referral to child safety. See Appendix 2: Child safety reporting, page 498

Health check recommendations

<table>
<thead>
<tr>
<th>All parents of children aged 0 to &lt; 8 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>All children aged 8 to &lt; 15 years</td>
</tr>
</tbody>
</table>

1. Procedure

- Ask the age appropriate questions in private (see Table 1. and Table 2)
- Be prepared for the child and/or parent to debrief with you
- Introduce the questions by asking about any concerns the client may have
- Determine if the child requires a referral according to the answers and place on a follow up and recall register if required
1.1 Parent questions

- Asked of parents of children aged 0 to < 8 years as per Table 1.
- Observe how the child reacts or responds to the parent’s cues
  - do they seek the comfort of the parent if they are hurt or scared?
  - does the child respond positively to their parent?
  - observe the child’s facial expressions, eye contact, vocalisations, activity and recognition of others around them
- Observe the interaction and reactions of the parent towards the child including
  - impatience toward the child
  - unrealistic expectations e.g. a child should sleep all night and never cry
  - anger towards, yelling at or rough handling of the child
  - limited or no eye contact or communication between the parent and child
  - the parent speaking negatively, e.g. “she does this just to annoy me”, “he hates me” or “I don’t like her”
  - parent fails to respond to the child’s cues
  - the parent is anxious about the child’s behaviour

<table>
<thead>
<tr>
<th>Table 1. The social emotional wellbeing questions for parents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Questions Explode</td>
</tr>
<tr>
<td>For parents of children aged up to 8 years ask if they have any concerns about any of the following</td>
</tr>
<tr>
<td>Coping</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Relationships (with family or friends)</td>
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<tr>
<td></td>
</tr>
<tr>
<td>Support</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Violence</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Your child's behaviour</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

While observing, the clinician considers the question “Is the relationship between the parent and child positive or negative?”
1.2 Child questions

- Asked of children aged 8 to < 15 years as per Table 2.
- The questions can be asked with or without a parent
- Some Aboriginal and/or Torres Strait Islander children may find the questions difficult to understand. Be prepared to use age appropriate words or rephrase the questions e.g. “is your spirit weak or strong at the moment?”
- Observe for visual cues (facial expressions, body language) being mindful of cultural aspects of communication (eye contact, bowed head)

Table 2. The social emotional wellbeing questions for children

<table>
<thead>
<tr>
<th>For children aged 8 to &lt; 15 years*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. How often do you feel down in the dumps, sad or slack?</td>
</tr>
<tr>
<td>1. Never/hardly ever</td>
</tr>
<tr>
<td>2. Sometimes</td>
</tr>
<tr>
<td>3. Most days/every day</td>
</tr>
<tr>
<td>2. How often have you felt that life is hopeless?</td>
</tr>
<tr>
<td>1. Never/hardly ever</td>
</tr>
<tr>
<td>2. Sometimes</td>
</tr>
<tr>
<td>3. Most days/every day</td>
</tr>
<tr>
<td>3. How often do you feel nervous or scared?</td>
</tr>
<tr>
<td>1. Never/hardly ever</td>
</tr>
<tr>
<td>2. Sometimes</td>
</tr>
<tr>
<td>3. Most days/every day</td>
</tr>
<tr>
<td>4. Do you worry much?</td>
</tr>
<tr>
<td>1. Never/hardly ever</td>
</tr>
<tr>
<td>2. Sometimes</td>
</tr>
<tr>
<td>3. Most days/every day</td>
</tr>
<tr>
<td>5. How often do you feel restless and that you can’t sit still?</td>
</tr>
<tr>
<td>1. Never/hardly ever</td>
</tr>
<tr>
<td>2. Sometimes</td>
</tr>
<tr>
<td>3. Most days/every day</td>
</tr>
<tr>
<td>6. Do events in your family affect you? e.g. domestic violence or drinking alcohol</td>
</tr>
<tr>
<td>1. Never/hardly ever</td>
</tr>
<tr>
<td>2. Sometimes</td>
</tr>
<tr>
<td>3. Most days/every day</td>
</tr>
</tbody>
</table>

Tally the responses to determine a score out of 18 - see 2.2 Child questions

2. Results

2.1 Parent questions

- If a parent answers ‘yes’ to any of the areas of concern, offer brief intervention and make an appropriate referral
- If the parent answers “no” to any of the areas of concern and the clinician has no concerns, offer information and praise successes “it sounds like everything is going well for you, that’s great” and “if you ever have any concerns or negative feelings, please feel free to come and have a confidential chat about it”

2.2 Child questions

- Add the scores
- If the score tallies 10 or less offer brief intervention
• If the score tallies 11 or higher
  – make the appropriate referral
  – offer brief intervention
  – refer to a senior clinician who may perform a 25 item Strengths and Difficulties Questionnaire (SDQ) with the child, young person, parent or teacher to determine the urgency for when the child needs to be seen (see Resource 1)

Immediate referral
If the parent or child talks about harming themselves or some other person they should be referred immediately to the MO/NP or mental health services and not left alone or sent away until their care has been handed over

3. Brief intervention
• Ask the child, young person or parent if they are talking to, or have someone to talk to about the way they feel
• Encourage them to talk to someone they feel safe with when they are worried or scared
• Discuss how certain feelings or thoughts are part of everyone’s life but bad feelings and thoughts should be monitored as they can cause problems if they become so intrusive they impact on the ability to function appropriately
• Discuss how the body reacts in times of stress, fear, confusion and sadness including
  – heart beating fast
  – sweating
  – crying
  – shaking
• Encourage the child, young person or parent to seek help if their feelings become more regular or intrusive and impact on normal functioning

4. Referral
4.1 Parent questions
• Refer to the MO/NP or mental health worker if
  – concerns are raised by the family about the child
  – you are concerned about the parent’s ability to cope
  – you observe relationship or attachment issues between the child and parent
  – you identify emotional or wellbeing issues for the child or young person
• Consider referring to a postnatal home visiting program
• Refer to Appendix 2: Child safety reporting, page 498 if you have any child safety concerns
• For further referral options see Table 3.
4.2 Child questions

- Refer to the MO/NP or mental health services if
  - after answering the questions the child scores 11 or higher
  - concerns are raised by the family
  - you identify emotional or wellbeing concerns for the child or young person
  - a clinician chooses to perform the 25 item Strengths and Difficulties Questionnaire (SDQ) with the child or young person who meets the cutoff threshold

<table>
<thead>
<tr>
<th>Table 3. Referral options</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Queensland Health</strong></td>
</tr>
<tr>
<td>• Health worker or registered child health nurse</td>
</tr>
<tr>
<td>• Your local Child Protection Liaison Officer or Safe Kids or Child Safety Services Regional Intake Services (see Appendix 2: Child safety reporting, page 498)</td>
</tr>
<tr>
<td>• Psychologist or social worker</td>
</tr>
<tr>
<td><strong>Cultural services</strong></td>
</tr>
<tr>
<td>• Aboriginal and Torres Strait Islander Legal Service (Qld) Ltd at <a href="http://www.atsils.com.au/">http://www.atsils.com.au/</a></td>
</tr>
<tr>
<td>• Minister/Pastor</td>
</tr>
<tr>
<td><strong>Other services</strong></td>
</tr>
<tr>
<td>• Royal Flying Doctor Service nurse or doctor</td>
</tr>
<tr>
<td>• School Principal or student guidance officer</td>
</tr>
<tr>
<td>• Lifeline at <a href="https://www.lifeline.org.au/">https://www.lifeline.org.au/</a></td>
</tr>
</tbody>
</table>

5. Follow up

- If concerns are identified place the parent and child on a recall register and review within a week or as clinically indicated by the MO/NP or mental health services to ensure any referrals are actioned
- Provide the parent or child with details for the next scheduled follow up appointment
6. References


7. Resources

1. The Strengths and Difficulties Questionnaire and how to score is available at http://www.sdqinfo.org/
2. Working with young people available at www.beyondblue.org.au
3. Menzies resources for Aboriginal or Torres Strait Islander people http://www.menzies.edu.au/page/Resources/
Special considerations

- The incidence of type 2 diabetes among children and adolescents is increasing particularly among Aboriginal and Torres Strait Islander peoples where the burden is much greater than that experienced by non-Indigenous young people.1,2

Health check criteria1,2

A blood pressure is performed and venous blood taken for blood glucose and lipid profile if the child is over 10 years of age and has a BMI > 85th percentile for age and gender (See Overweight and obesity in children, page 387) plus any 2 of the following

- a family history of type 2 diabetes
- of Aboriginal or Torres Strait Islander, Pacific Islander or Maori decent
- maternal history of diabetes or gestational diabetes mellitus or
- signs of
  - insulin resistance
  - acanthosis nigricans
  - hypertension
  - dyslipidaemia
  - polycystic ovary syndrome

- Online training for health checks and preventative care is available via PARROT at www.health.qld.gov.au/parrot

1. Procedure

- Measure the blood pressure and take venous blood for blood glucose and a lipid profile if the child meets the above criteria
- Provide brief intervention and resources if required
- Determine if the child requires a referral according to the results and place on a follow up and recall register if required

2. Blood pressure (BP)

- Blood pressure is a measurement of the pressure of the blood against the walls of the blood vessels
- BP indicates how hard the heart is working and the health of the blood vessels
- Hypertension in children is attributed to many conditions including acute post streptococcal glomerular nephritis (APSGN)
- Measure the blood pressure to the nearest 2 mmHg
- During initial assessment BP is measured on both arms3
- If BP varies by more than 5 mmHg use the arm with the higher reading for all subsequent BP measurements3,4
- Where postural hypotension (low BP due to standing, sitting or lying) is suspected,
measure BP both sitting and standing\textsuperscript{3,4}.

- Repeat the measurement after the child has been standing for 2 minutes

### 2.1 Blood pressure results

- See Table 4. for blood pressure limits for children
- A raised BP in response to the assessment itself (‘white coat’ hypertension) should be considered and ruled out

| Table 1. Blood pressure limits in children and adolescents requiring further evaluation\textsuperscript{5,6} |
|---|---|---|---|---|
| Age | Boys | Girls | Boys | Girls |
| | Systolic | Diastolic | Systolic | Diastolic |
| 10 | 111 | 73 | 112 | 73 |
| 11 | 113 | 74 | 114 | 74 |
| 12 | 115 | 74 | 116 | 75 |
| 13 | 117 | 75 | 117 | 76 |
| 14 | 120 | 75 | 119 | 77 |

- These values represent the lower limits for abnormal blood pressure ranges
- Any blood pressure readings equal to or greater than these values represent blood pressures in the prehypertensive, stage 1 hypertensive, or stage 2 hypertensive range and should be assessed by a MO or NP

### 3. Venous blood

- A venous blood sample is required for a blood glucose result and a lipid profile for children who meet the criteria (see health check criteria)
- Phlebotomy (taking venous blood) should be undertaken by a suitably qualified clinician according to local policies and guidelines (see Resource 2)

#### 3.1 Blood glucose results

- Measured to identify diabetes, a chronic metabolic condition characterised by high blood glucose levels (BGL) and disturbance of carbohydrate, fat and protein metabolism\textsuperscript{6,7}
- Diabetes destroys small blood vessels, reducing the ability of nerves to function (diabetic neuropathy) leading to many problems including blindness and amputations\textsuperscript{7,8}
- A normal blood glucose (fasting or random) should be $< 5.0 \text{ mmol/L}$

#### 3.2 Lipid profile result\textsuperscript{9,10,11}

- Performed to measure circulating blood cholesterol
- Fatty deposits in the walls of blood vessels causes narrowing and blockages leading to heart disease and stroke
• See Table 2. for lipid targets for children aged 10 to < 15 years of age

<table>
<thead>
<tr>
<th>Lipids</th>
<th>Percentile</th>
<th>Boys</th>
<th>Girls</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total cholesterol (mmol/L)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50th percentile</td>
<td>4.2</td>
<td>4.1</td>
<td></td>
</tr>
<tr>
<td>75th percentile</td>
<td>4.5</td>
<td>4.4</td>
<td></td>
</tr>
<tr>
<td>90th percentile</td>
<td>4.9</td>
<td>4.9</td>
<td></td>
</tr>
<tr>
<td>95th percentile</td>
<td>5.2</td>
<td>5.3</td>
<td></td>
</tr>
<tr>
<td>Triglyceride (mmol/L)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50th percentile</td>
<td>0.7</td>
<td>0.8</td>
<td></td>
</tr>
<tr>
<td>75th percentile</td>
<td>0.8</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td>90th percentile</td>
<td>1.1</td>
<td>1.2</td>
<td></td>
</tr>
<tr>
<td>95th percentile</td>
<td>1.3</td>
<td>1.4</td>
<td></td>
</tr>
<tr>
<td>LDL (mmol/L)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50th percentile</td>
<td>2.4</td>
<td>2.4</td>
<td></td>
</tr>
<tr>
<td>75th percentile</td>
<td>2.8</td>
<td>2.8</td>
<td></td>
</tr>
<tr>
<td>90th percentile</td>
<td>3.2</td>
<td>3.3</td>
<td></td>
</tr>
<tr>
<td>95th percentile</td>
<td>3.4</td>
<td>3.5</td>
<td></td>
</tr>
<tr>
<td>HDL (mmol/L)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50th percentile</td>
<td>1.0</td>
<td>1.0</td>
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<tr>
<td>75th percentile</td>
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<tr>
<td>90th percentile</td>
<td>1.2</td>
<td>1.2</td>
<td></td>
</tr>
<tr>
<td>95th percentile</td>
<td>1.4</td>
<td>1.3</td>
<td></td>
</tr>
</tbody>
</table>

4. **Brief intervention**

• Any brief intervention for abnormal blood pressure, glucose level or lipid profile aims to improve lifestyle behaviours to
  – increase intake of nutritious food and reduce intake of junk foods (see Diet and nutrition, page 14)
  – reduce body weight (see Overweight and obesity in children, page 270)
  – increase the amount of time being active and reduce sedentary behaviours (see Physical activity - child, page 400)

• For specific diagnosed conditions see Hypertension, page 228, Diabetes type 2, page 196 or Dyslipidaemia, page 210

5. **Referral**

• Any abnormal results outside of target levels require further investigation and should be referred to the MO/NP
• For any concerns about any child refer to a senior clinician

6. Follow up

• Place the child on a recall register to monitor any abnormal clinical measurements and to ensure referrals are actioned
• Provide the child or parent with details for the next scheduled follow up appointment

7. References

8. Resources
Section 4

Adult Health Checks
## Section 4: Adult health checks

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<th>Topic</th>
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<td>424</td>
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<tr>
<td>Clinical measurements</td>
<td>428</td>
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<tr>
<td>Cognition and recall</td>
<td>432</td>
</tr>
<tr>
<td>Continence and elimination</td>
<td>434</td>
</tr>
<tr>
<td>Ears and hearing</td>
<td>438</td>
</tr>
<tr>
<td>Eyes and vision</td>
<td>446</td>
</tr>
<tr>
<td>Functional capacity and safety</td>
<td>452</td>
</tr>
<tr>
<td>Nutrition</td>
<td>458</td>
</tr>
<tr>
<td>Oral health</td>
<td>462</td>
</tr>
<tr>
<td>Pathology</td>
<td>466</td>
</tr>
<tr>
<td>Physical activity</td>
<td>474</td>
</tr>
<tr>
<td>Reproductive health</td>
<td>478</td>
</tr>
<tr>
<td>Skin</td>
<td>482</td>
</tr>
<tr>
<td>Social emotional wellbeing</td>
<td>486</td>
</tr>
</tbody>
</table>
Alcohol, tobacco and other drugs (ATODs) - adult

- Diseases that are caused by the use of alcohol, tobacco and other drugs (ATODs) are responsible for high morbidity and mortality rates globally
- Preventing risky behaviour and promoting healthy choices can produce positive health outcomes and halt or reverse co-morbidities
- Tobacco related diseases leads to premature deaths and can cause years of disease and disability
- Up to ⅔ of current smokers will die 10 years earlier than non-smokers from smoking related diseases²,³
- As the amount and frequency of alcohol consumed increases, so do the health risks
- Refer to Smoking cessation, page 44 and Alcohol reduction, page 4
- Online training for health checks and preventative care is available via PARROT at www.health.qld.gov.au/parrot

Child safety notification

- If there is a suspicion of harm or neglect consider a referral to child safety (see Appendix 2: Child safety reporting, page 498)

Health check recommendations

| All Aboriginal and/or Torres Strait Islander people > 15 years of age annually |
| All adults > 15 years of age opportunistically |

1. Procedure

- Ask the client the ATODs questions (see Table 1)
- Provide brief intervention
- Determine if the client requires a referral according to the answers and place on a follow up and recall register if required
2. Results

• Provide brief intervention if the client answers yes to using alcohol, tobacco or other drugs

2.1 Tobacco questions

• The tobacco questions can indicate dependence if a client answers they
  – smoke within 30 minutes of waking and/or
  – smoke more than 10 cigarettes per day and/or
  – have a history of withdrawal symptoms in previous quit attempts

2.2 Alcohol and drug use questions

• Answering yes to any question identifies a client who may have a substance abuse disorder
• Answering yes to 2 or more questions is considered clinically significant and requires referral

3. Brief intervention

• See Alcohol reduction, page 4 and Smoking cessation, page 44
• Provide self help material for the drug taking behaviour (see Resource 1)
• Offer intensive, proactive cessation support programs (see Resource 2)
• Avoid minimising their harmful behaviour and the negative health effects on the body
• Use a matrix of questions to motivate clients to critically think about their ATODs taking behaviours (see Table 2)
- Encourage the client to talk to someone they feel comfortable with in regards to their ATODs taking behaviour
- Encourage the client to seek help from the health service if they wish to quit their habit or change their ATODs taking behaviour

### Table 2. Motivational questions

<table>
<thead>
<tr>
<th>What are the good things about smoking, drinking alcohol or taking drugs?</th>
<th>What are the bad things about smoking, drinking alcohol or taking drugs?</th>
</tr>
</thead>
<tbody>
<tr>
<td>• All my friends do it</td>
<td>• Costs a lot of money</td>
</tr>
<tr>
<td>• Makes me look cool</td>
<td>• Makes my chest feel tight, makes me short of breath</td>
</tr>
<tr>
<td>• Helps me unwind / relax</td>
<td>• Can’t run around, go diving or play sport because of breathlessness</td>
</tr>
<tr>
<td>• Gets me started</td>
<td>• Becoming overweight</td>
</tr>
<tr>
<td>• Tastes good</td>
<td>• Hangovers</td>
</tr>
<tr>
<td>• Keeps me awake</td>
<td>• Makes me lazy</td>
</tr>
<tr>
<td>• Gives me a boost</td>
<td>• Makes me cough</td>
</tr>
<tr>
<td>• All my friends do it</td>
<td>• Gives me bad breath</td>
</tr>
<tr>
<td>• Makes me look cool</td>
<td>• Everyone bludges a smoke off me</td>
</tr>
<tr>
<td>• Helps me unwind / relax</td>
<td>• Hate craving for a smoke</td>
</tr>
<tr>
<td>• Gets me started</td>
<td>• Causes cancer and damages the body</td>
</tr>
<tr>
<td>• Tastes good</td>
<td>• Trouble with police</td>
</tr>
<tr>
<td>• Keeps me awake</td>
<td></td>
</tr>
<tr>
<td>• Gives me a boost</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>What are the good things about STOPPING smoking, drinking alcohol or taking drugs?</th>
<th>What are the bad things about STOPPING smoking, drinking alcohol or taking drugs?</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Won’t be breathless any more</td>
<td>• Friends may not want to spend time with me</td>
</tr>
<tr>
<td>• Will have more money</td>
<td>• Not looking cool</td>
</tr>
<tr>
<td>• Can save up for something special</td>
<td>• Weight gain</td>
</tr>
<tr>
<td>• Will feel stronger</td>
<td></td>
</tr>
<tr>
<td>• Will be healthier and live longer</td>
<td></td>
</tr>
</tbody>
</table>

4. Referral

- If harmful drug taking behaviours are identified, with the client’s consent refer to an appropriate source (see Table 3)
- Offer immediate support by referring the client to the MO/NP or mental health worker if you have urgent concerns about the client’s level of ATODs use
Table 3. Referral options

<table>
<thead>
<tr>
<th>Queensland Health</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Health worker or registered nurse</td>
</tr>
<tr>
<td>• Your local Child Protection Liaison Officer or Safe Kids or Child Safety Services Regional Intake Services (see Appendix 2: Child safety reporting, page 498)</td>
</tr>
<tr>
<td>• Psychologist or social worker</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cultural services</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Aboriginal and Torres Strait Islander Legal Service (Qld) Ltd at <a href="http://www.atsils.com.au/">http://www.atsils.com.au/</a></td>
</tr>
<tr>
<td>• Minister/Pastor</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Other services</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Quitline 13 78 48</td>
</tr>
<tr>
<td>• Royal Flying Doctor Service nurse or doctor</td>
</tr>
<tr>
<td>• Alcohol and Drug Information Service is a 24 hour telephone service available on 1800 177 833 or Turning Point an online counselling service available at <a href="http://www.turningpoint.org.au">http://www.turningpoint.org.au</a></td>
</tr>
</tbody>
</table>

5. Follow up

- Place the client on a recall register and continue to monitor ATODs taking behaviours and ensure any referrals have been actioned
- Provide the client with details for the next scheduled follow up appointment
6. References

7. Resources
5. Quit phone apps - My Quitbuddy: Provides a countdown for quitting and stats to track quitting progress, such as number of days smoke-free, cigarettes avoided and money saved; Quit for you - Quit for Two: Provides support and encouragement to help patients give up smoking. Both available for download from Apple iTunes and Google Play stores
Section 4: Adult health checks

alcohol, tobacco and other drugs - adult

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Alcohol, Tobacco and Other Drugs - Adult
Body measurements - adult

- Measuring a person’s weight, height and waist circumference is a useful way to assess body mass index (BMI) and assess body fat distribution.
- Knowing a BMI provides clients with information to determine if they need to make lifestyle changes to lead healthier lifestyles.
- Online training for health checks and preventative care is available via PARROT at www.health.qld.gov.au/parrot.

Health check recommendations

**All people > 15 years should have their weight, height, waist circumference and BMI checked annually.**

### 1. Procedure

- Perform the measurement or ask the client the questions (see Table 1).
- Using the measurements ascertain the client’s BMI.
- Provide brief intervention if required.
- Determine if the client requires a referral according to the measurements and place on a follow up and recall register if required.

#### Table 1. Age related body measurements

<table>
<thead>
<tr>
<th>Measurement</th>
<th>Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All those &gt; 15 years of age</td>
</tr>
<tr>
<td>Weight</td>
<td>• Weigh using stand-on scales</td>
</tr>
<tr>
<td>Height</td>
<td>• Measure height using stadiometer</td>
</tr>
<tr>
<td>BMI</td>
<td>• Calculate using formula (see 1.3 Calculating BMI)</td>
</tr>
<tr>
<td>Waist circumference</td>
<td>• Measure using flexible tape measure</td>
</tr>
<tr>
<td></td>
<td><strong>plus for all those over 55 years</strong></td>
</tr>
</tbody>
</table>
| Has the person had any weight loss without trying? | • Explore
  - over what timeframe?
  - how much weight loss?
  - is there a change to diet?
  - are there any stress related issues e.g. a death, loss of job, relationship breakdown, an illness, etc.
  - compare previous recorded weights |

#### 1.1 Measuring weight

- Ensure the stand-on scales are accurate and regularly calibrated.
- Ensure the client removes all heavy clothing, jewellery, shoes, belts, wallets and jumpers.
• Zero scales if required
• Position the client in the centre of the scales so that their body weight is evenly distributed
• Record the weight to the nearest 0.1 kg

1.2 Measuring height
• Ensure the stadiometer is accurate
• Ensure the client removes their shoes
• Ask the client to place their head, back, buttocks and heels against the wall
• Ask them to stand straight with weight distributed evenly, heels together, looking forward with arms hanging freely by their sides
• Pull the stadiometer measuring plate down to the top of their scalp through any hair
• Record the measurement to the nearest millimetre (mm)

1.3 Calculating BMI
• BMI is calculated as weight (in kilograms) divided by height (in metres) squared (kg/m²)¹
• BMI can also be calculated by plotting weight and height on a BMI chart or by using an online calculator (see Resource 1)

\[
\text{BMI} = \frac{\text{Weight in kilograms (kgs)}}{\text{Height in metres squared (m}^2)}
\]

1.4 Measuring waist circumference
• Use a flexible, non-stretchable tape measure
• Ask the person to stand straight with their feet together and their arms by their sides
• Identify the waist i.e. the mid-point between the base of the person’s ribs and the top of the hipbone
• Ask the person to hold one end of the tape at the waist, and then walk around them holding the other end of the tape
• Measure directly against the skin or over light clothing
• Take both ends of the tape making sure the tape is horizontal across the waist and is snug without pulling or compressing the skin
• Record waist circumference to the nearest millimetre (mm) as the person breathes out normally

2. Results
2.1 BMI
• BMI categories for adults are as follows²
  – < 18.5 kg/m² – underweight
2.2 Waist circumference

- Waist circumference and risk of chronic conditions in men is
  - low < 94 cm
  - high 94 - 102 cm
  - very high > 102 cm
- Waist circumference and risk of chronic conditions in women is
  - low < 80 cm
  - high 80 - 88 cm
  - very high > 88 cm

2.3 Weight loss

- Unintentional weight loss can be an indicator of an acute or chronic illness
- If the client answers yes to recent unintended weight loss refer immediately for further investigations

3. Brief intervention

- Discuss the association between a person’s weight and how the risk of mortality or morbidity increases above a BMI in the normal range (18.5 - 24.9 kg/m²) due to
  - cardiovascular disease
  - type 2 diabetes
  - some cancers
- Provide diet and nutrition related resources (see Resource 2. and Resource 3)
- Refer to Overweight and obesity in adults, page 260
- Refer to Diet and nutrition, page 14
- Refer to Physical activity, page 26

4. Referral

- Refer to the MO/NP or dietitian for further investigations if
  - records indicate the client has lost 5 - 10% of their body weight in the past 3 - 6 months without explanation
  - BMI result indicates underweight, overweight or obese classification
  - the client’s waist circumference falls in the high or very high risk category for chronic conditions
  - the client answered yes to having lost weight unintentionally

5. Follow up

- Place the client on a recall register and continue to monitor and to ensure any referrals have been actioned
• Provide the client with details for the next scheduled follow up appointment

6. References

7. Resources
Clinical measurements - adult

**Breathing**
- Undertaken to identify any underlying respiratory and cardiac issues attributed to exposure to environmental irritants (e.g. cigarette smoke), chest infections or congenital abnormalities

**Heart rate and rhythm**
- The heart rhythm is a measure of the timing of the heart beats
- Auscultating (listening to) the heart provides information not only of heart rate and rhythm but also on the condition of the valves and presence of anatomical defects caused by RHD, previous MI, untreated hypertension and substance abuse

**Blood pressure (BP)**
- Blood pressure is a measurement of the pressure of the blood against the walls of the blood vessels
- Hypertension develops gradually over many years and may cause or worsen underlying chronic conditions
- Early recognition and treatment is important
- Online training for health checks and preventative care is available via PARROT at www.health.qld.gov.au/parrot

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**Health check recommendations**

**All Aboriginal and/or Torres Strait Islanders annually from 15 years of age**

**All adults > 15 years of age opportunistically**

1. **Procedure**
- Ask the client the clinical measurement questions or perform the appropriate measurement as per Table 1.
- The questions may provide answers requiring further clarity. Be prepared to explore answers further
- Provide brief intervention and resources if required
- Determine if the client has measurements outside of normal limits and make a referral and place on a follow up and recall register if required
Table 1. Clinical measurement questions for adults

<table>
<thead>
<tr>
<th>Assess</th>
<th>Explore</th>
</tr>
</thead>
</table>
| Any shortness of breath/wind? | • Does the client get breathless laying flat, at rest, gentle walking or vigorous walking?  
• Does the client wake at night breathless?  
• Is the client’s breathing laboured? wheezy? gurgly? |
| Heart rate  
Heart rhythm | • Measure the heart rate and rhythm |
| Blood pressure | • Measure the blood pressure |

2. Results

2.1 Breathing

• The typical respiratory rate for a healthy adult at rest is 12 - 20 breaths per minute  
• Breathing should be regular with no rasping, crackling, wheezing or gurgling noises  
• The client should not get breathless at rest, walking short distances or wake at night breathless

2.2 Heart rate and rhythm

• A normal resting adult heart rate is between 60 and 100 bpm  
• The heart rhythm should be regular and consistent  
• Abnormal results include  
  – bradycardia (slow heart rate) is a heart rate below 60 bpm  
  – tachycardia (rapid heart rate) is a heart rate above 100 bpm at rest  
  – any arrhythmias  
• Any clients with tachycardia, bradycardia or arrhythmias must be referred to the MO or NP

2.3 Blood pressure (BP)

• Avoid consuming caffeine or cigarettes 2 hours prior to measuring BP as this increases the reading particularly when used in combination  
• Measure the blood pressure to the nearest 2 mmHg  
• During initial assessment BP is measured on both arms  
• If BP varies by more than 5 mmHg use the arm with the higher reading for all subsequent BP measurements  
• Where postural hypotension (low BP due to standing, sitting or lying) is suspected (e.g. elderly clients or those with diabetes), measure BP both sitting and standing  
• Repeat the measurement after the client has been standing for 2 minutes  
• Normal BP is a systolic reading ≤ 120 and a diastolic reading of ≤ 80  
• An abnormal result is any hypertensive result (an elevated BP) defined as a BP ≥ 140/90
A raised BP in response to the assessment itself (‘white coat’ hypertension) should be considered and ruled out.

3. **Brief intervention**

- Brief intervention should focus on the recommendations provided in the Lifestyle modification section.

4. **Referral**

- Refer to the current edition of the PCCM, MO/NP for further assessments and investigations if:
  - any issues are identified from the breathing questions
  - there is an abnormal heart rate, heart rhythm or blood pressure measurement
  - there are any concerns about a client

- Consider reviewing:
  - Hypertension, page 228
  - Chronic obstructive pulmonary disease, page 128
  - Asthma (adult and child over 12), page 72
  - Chronic heart failure, page 100
  - Coronary heart disease, page 142
  - Rheumatic heart disease, page 290

5. **Follow up**

- Place the client on a recall register to monitor their blood pressure or to ensure any referrals are actioned

- Provide the client or carer with details for the next scheduled follow up appointment

6. **References**


7. **Resources**

Cognition and recall

- Questions relating to cognition and recall are an initial step to recognising neurological deficits and conditions such as dementia.
- Dementia is a term describing a syndrome associated with many different diseases that are characterised by the impairment of brain functions, including language, memory, perception, personality and cognitive skills.
- For information and management of dementia see Dementia, page 150.
- Online training for health checks and preventative care is available via PARROT at www.health.qld.gov.au/parrot.

Health check recommendations

All adults from 55 years of age

1. Procedure

- Ask the client the questions in your own words or terminology understood by the client (see Table 1).
- Apart from the first question which addresses memory, all questions may only be asked once without further prompting.
- Determine if the client has a memory or recall deficit and make a referral and place on a follow up and recall register if required.

Table 1. Cognition and recall questions and procedures for adults

<table>
<thead>
<tr>
<th>Questions</th>
<th>Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ask client to remember this address and they will be asked to recall it shortly 42 West Street</td>
<td>• Repeat up to 3 times to make sure the person understands it correctly</td>
</tr>
<tr>
<td>Recognition of two persons (Dr, nurse)</td>
<td>• Any nearby 2 persons</td>
</tr>
<tr>
<td>Date of birth</td>
<td>• Day, month, year</td>
</tr>
<tr>
<td></td>
<td>• Be mindful that some elderly people genuinely do not know their date of birth. Ask the date of birth of their child</td>
</tr>
<tr>
<td>Name of suburb or community where the person lives</td>
<td></td>
</tr>
<tr>
<td>Name of current Prime Minister</td>
<td>• Full name not “the Greens” or “those bloody Libs”</td>
</tr>
<tr>
<td>Count backwards from 20 by ones</td>
<td></td>
</tr>
<tr>
<td>Ask the client to recall the address mentioned earlier</td>
<td>• 42 West Street</td>
</tr>
</tbody>
</table>
2. Results

- For all questions record as either answered correctly or incorrectly
- If any questions are answered incorrectly
  - make the appropriate referral
  - refer to a senior clinician who may perform a further screen using a General Practitioner assessment of cognition (GPCOG) or a Kimberley Indigenous Cognitive Assessment (KICA) to determine cognitive impairment (see Resource 1)

3. Referral

- Refer to MO/NP or gerontology services for further assessment if
  - the client responds incorrectly to any of the questions
  - the client shows confusion and a cause cannot be determined
  - the client’s behaviour has notably changed
  - a clinician chooses to perform GPCOG or KICA screening tool with the client who meets the cutoff threshold

4. Follow up

- Place the client on a recall register to monitor behaviour and to ensure any referrals are actioned
- Provide the client or carer with details for the next scheduled follow up appointment

5. References


6. Resources

Continence and elimination - adult

- Incontinence is the involuntary loss of urine or faeces due to a failure or breakdown of functional control over urination or faecal elimination¹
- Factors associated with incontinence include: age, gender, pregnancy and childbirth, prostate problems, hysterectomy, urinary tract infections, impaired physical functioning, physical activity, diabetes, neurological disorders, cognitive impairment, diarrhoea and constipation and menopause³
- Incontinence affects emotional wellbeing and quality of life¹
- Urinary incontinence occurs in
  - 2% males aged 15 - 19 and 30% for those aged over 80 and
  - 11% females aged 15 - 19 and 55% in those aged 50 - 59, decreasing to 48% aged 60 - 69 and 40% for those aged over 70¹
- The 2 common types of urinary incontinence are
  - stress incontinence (when a client coughs, sneezes, bends down, lifts something, walks quickly, jogs or exercises) and
  - urge incontinence (when a person gets a sudden, strong need to urinate)¹
- Faecal incontinence rates are
  - 0.8% in younger males to 9.6% in males over 80 years of age and
  - 1.6% in younger females to 9.5% in females aged over 80¹
- Online training for health checks and preventative care is available via PARROT at www.health.qld.gov.au/parrot

<table>
<thead>
<tr>
<th>Health check recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aboriginal and/or Torres Strait Islander women annually &gt; 25 years of age as part of annual health check</td>
</tr>
<tr>
<td>Aboriginal and/or Torres Strait Islander men annually &gt; 55 years of age as part of annual health check</td>
</tr>
<tr>
<td>Non-Aboriginal and Torres Strait Islander women opportunistically &gt; 25 years of age</td>
</tr>
<tr>
<td>Non-Aboriginal and Torres Strait Islander men opportunistically &gt; 55 years of age</td>
</tr>
</tbody>
</table>

1. Procedure

- Ask the client the questions and explore factors related to incontinence (see Table 1)
- Determine if the client requires a referral according to the answers and place on a follow up and recall register if required
Table 1. Continence questions for adults

<table>
<thead>
<tr>
<th>Questions</th>
<th>Explore</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does the person have any urine or bowel leakage?</td>
<td>• When sneezing, coughing or lifting?</td>
</tr>
<tr>
<td></td>
<td>• When jogging, exercising or bending down</td>
</tr>
<tr>
<td></td>
<td>• Any sense of urgency or won’t make it?</td>
</tr>
<tr>
<td>Does the person pass urine frequently?</td>
<td>• More than twice at night?</td>
</tr>
<tr>
<td></td>
<td>• More than 6 times during the day?</td>
</tr>
<tr>
<td>Does the person have any difficulty passing urine?</td>
<td>• Getting urine out?</td>
</tr>
<tr>
<td></td>
<td>• Difficulty starting to urinate?</td>
</tr>
<tr>
<td></td>
<td>• Stream that starts or stops</td>
</tr>
<tr>
<td></td>
<td>• Sensation of incomplete emptying</td>
</tr>
<tr>
<td>Does the person have any problems with constipation or faecal loss?</td>
<td>• Loose bowels or diarrhoea</td>
</tr>
<tr>
<td></td>
<td>• Hard faeces or constipation</td>
</tr>
<tr>
<td>If a suspicion of incontinence exists consider exploring factors related to urinary incontinence</td>
<td></td>
</tr>
<tr>
<td>Pain in lower pelvic region</td>
<td>• Sore/hurts</td>
</tr>
<tr>
<td></td>
<td>• Discomfort</td>
</tr>
<tr>
<td></td>
<td>• Straining/grunting when passing faeces</td>
</tr>
<tr>
<td>Recent unexplained weight loss</td>
<td>• Losing weight without trying and without reason</td>
</tr>
<tr>
<td>Recent sudden change in bowel habit</td>
<td>• Hard, runny, soft or watery</td>
</tr>
<tr>
<td></td>
<td>• Size, time, colour and amount</td>
</tr>
<tr>
<td></td>
<td>• Going to the toilet more or less</td>
</tr>
<tr>
<td>Pelvic mass</td>
<td>• Lump in the stomach, pelvic or groin area</td>
</tr>
<tr>
<td></td>
<td>• Presence of scrotal swelling in men</td>
</tr>
<tr>
<td>Rectal bleeding</td>
<td>• Blood in the stool</td>
</tr>
<tr>
<td></td>
<td>• Blood from the rectum</td>
</tr>
<tr>
<td></td>
<td>• Blood in the toilet bowl</td>
</tr>
<tr>
<td>Persistent diarrhoea</td>
<td>• Runny, soft, watery stool that does not go away</td>
</tr>
<tr>
<td></td>
<td>• Smelly stool</td>
</tr>
<tr>
<td>Haematuria (blood in the urine)</td>
<td>• Pink or red coloured urine</td>
</tr>
<tr>
<td>Urinary tract or other urogenital infections</td>
<td>• Stinging or burning when urinating</td>
</tr>
<tr>
<td></td>
<td>• Urinating often</td>
</tr>
<tr>
<td></td>
<td>• Smelly or unclear urine</td>
</tr>
<tr>
<td></td>
<td>• Pain in lower back or stomach area</td>
</tr>
<tr>
<td></td>
<td>• Feeling unwell with or without a fever</td>
</tr>
<tr>
<td></td>
<td>• Any vaginal discharge in women or urethral discharge in men</td>
</tr>
<tr>
<td>History of pelvic surgery or irradiation</td>
<td>• Past operation to genitalia</td>
</tr>
<tr>
<td>Major pelvic organ prolapse</td>
<td>• Lumps in pelvic or pubic area</td>
</tr>
<tr>
<td></td>
<td>• Vagina or bowel protruding</td>
</tr>
</tbody>
</table>
2. Results

- If the client answers yes to any question provide brief intervention and make a referral
- It is beneficial to explore any client concerns to support the continence advisor using
  - the Rome III Diagnostic Criteria for Functional Gastrointestinal Disorders (see Resource 1)
  - the Bristol Stool Chart (see Resource 1)
  - exploration of factors related to urinary incontinence (see Table 1)

3. Brief intervention

- Continenice issues are complex and require thorough assessment by a suitably qualified clinician, assisted by relevant resources
- Reassure the client that 70% of individuals with incontinence improve with conservative treatment
- Begin a bowel or bladder diary to provide the continence advisor with clarity of bowel or bladder habits
- Provide resources to assist with the prevention and management of bladder and bowel problems (see Resources 2, 3, 4 and 5)
- Provide the client with details of the National Continence Helpline to access experienced continence nurses who can discuss continence problems with clients and locate the closest service to the client to provide further assessment (Freecall 1800 33 00 66)

4. Referral

- For all continence issues a referral is required in order to
  - exclude urinary tract or other urogenital infections (see the current edition of the Primary Clinical Care Manual (PCCM))
  - identify source of constipation
  - manage a prolapse or
  - perform a prostate or vaginal examination
- Refer to
  - the MO/NP who will assess further or
  - your local continence advisor who will assess continence issues in detail and advise on the use of aids and appliances and support services available or
  - the women’s health nurse to further assess continence issues or
  - the National Continence Helpline to access experienced continence nurses who can discuss continence problems with clients and locate the closest service to the client to provide further assessment (Freecall 1800 33 00 66)
5. Follow up

- Place the client on a recall register to monitor continence and ensure that any referrals are actioned
- Provide the client with details for the next scheduled follow up appointment

6. References


7. Resources

2. The Continence Foundation of Australia website with many resources available at www.continence.org.au
3. Information to assist with the prevention and management of bladder and bowel problems available at www.bladderbowel.gov.au
4. Prostate Cancer Foundation of Australia available at www.prostate.org.au or freecall 1800 22 00 99 or email enquiries@prostate.org.au
5. The International Urogynecological Association available at www.iuga.org
Ears and hearing - adult

- The burden of ear disease and hearing loss is high in Aboriginal and Torres Strait Islander populations.
- Hearing loss is a major contributor to poor education and unemployment, which are in themselves risk factors for contact with the justice system.
- A high proportion of Aboriginal and Torres Strait Islander peoples have some form of hearing loss related to childhood ear problems\textsuperscript{1,2}.
- Online training for health checks and preventative care is available via PARROT at www.health.qld.gov.au/parrot.

Health check recommendations

<table>
<thead>
<tr>
<th>All adults $\geq$ 15 years of age if clinically indicated</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Aboriginal and/or Torres Strait Islander adults annually</td>
</tr>
</tbody>
</table>

1. Procedure

- Introduce the questions by asking the client if they have any concerns about their hearing.
- Ask the relevant questions (see Table 1) and perform the corresponding procedure.

Table 1. Questions and procedures for adult ears and hearing

<table>
<thead>
<tr>
<th>Questions</th>
<th>Explore</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do you have any difficulty hearing?</td>
<td>• Otoscopy, tympanometry and audiometry</td>
</tr>
<tr>
<td>Any pain or discharge from ears?</td>
<td></td>
</tr>
</tbody>
</table>

2. Otoscopy

- Otoscopy is the visual examination of the ear canal and eardrum.
- If the client has ear pain or notable discharge refer to the MO/NP or to the current edition of the \textit{Primary Clinical Care Manual} (PCCM).

2.1 Steps for performing otoscopy

- Explain the procedure to the client.
- Sit the client and position yourself at the level of the ear.
- Select the correct sized speculum.
- Ask the client to hold their head still.
- Observe the mastoid (the bone behind the ear) and the area under the ear for infection, swelling or tenderness.
• Check the pinna for size, shape, colour or lesions
• Check the brightness of the otoscope light against your hand and change batteries if required
• Tilt the client’s head slightly towards their opposite shoulder
• Straighten the client’s ear canal by pulling the pinna back
• Hold the base of the otoscope in a pencil grip position
• Use left hand for left ear, right hand for right ear
• Angle the otoscope almost parallel to the floor (but not quite) so that when you insert the speculum you also move the tragus (the small pointed eminence of the external ear) forward
• Use your fingers against the client’s head to anchor the otoscope incase the client suddenly moves
• Insert the tip of the speculum slowly into the ear canal
• Looking through the eyepiece observe the ear canal for
  – discharge
  – redness/swelling
  – fungal infections
  – lumps or bony growths
  – foreign bodies
  – wax
  – fluid
• If there is discharge, stop and refer to Figure 2.
• Inspect the tympanic membrane (ear drum) for
  – colour
    – normal is transparent and shiny
    – dull or opaque may represent fluid behind tympanic membrane
  – cone of light (reflection)
    – right ear at 5 o’clock and left ear at 7 o’clock
    – reflections elsewhere indicates bulging
  – the handle of the malleus
  – perforations
• Repeat the procedure for the other ear
• See Figure 1.
2.2 Otoscopy results

- Refer to Figure 2.

![Diagram](image_url)

**Figure 1. Visual presentation of the eardrums**

Does the client have ear pain or discharge?

- **NO** Proceed to otoscopy
  - **Otoscopy result normal**
    - Ear drum intact and not bulging
    - Ear canal clean and free of debris
    - **PASS**
    - Proceed with tympanometry and audiometry
  - **Otoscopy result abnormal**
    - Structural defect of ear
    - Wax occlusion of ear canal
    - Foreign body
    - Blood or discharge
    - Inflammation or perforation
    - Fluid or pus behind eardrum
    - Bulging eardrum

- **YES**
  - Refer to MO/NP or the current edition of the PCCM
  - Review in 3 months

**Figure 2. Referral and review process for otoscopy**

3. Tympanometry

- Tympanometry is a test of middle ear function and measures
  - ear canal volume (ECV) (normal between 0.2 and 2.0 cm³)
– middle ear pressure (normal between -150 and +100 daPa) and
– middle ear compliance or movement (normal between 0.2 and 1.4 cm³)

• If client has had recent surgery, pain or if a perforation or discharge is present, do not proceed. Refer to MO/NP or the current edition of the PCCM

3.1 Steps for performing tympanometry

• Ensure tympanometer is calibrated (see device instructions for details)
• Use a clean probe tip for each client
• Remove any probe tips from the tympanometer before using
• To ensure a clean seal, choose the correct sized probe tip according to ear canal shape and size
• Sit the client and position yourself at the level of the ear
• Instruct the client to relax and to not speak or move
• Starting with the right ear first, straighten the client’s ear canal by pulling the pinna up and back
• Push the probe tip gently into the right ear canal and form a seal
• Hold the probe tip still in the ear canal while the test runs
• Press the red (R) symbol button on the tympanometer to store the result
• Repeat the steps for the left ear
• Remove the probe tip and clean as per local cleaning guidelines
• Save and print the tympanograph

3.2 A ‘LEAK’ or ‘BLOCK’ message

• A leak or blockage can occur for many reasons
  – clogged probe tip
  – probe tip too large or small
  – head movements or swallowing
  – probe tip against the ear canal wall
  – debris, foreign body or wax in ear canal
  – discharging ear
• To rectify try
  – a different sized probe tip
  – cleaning probe tip
  – reposition the probe tip in the ear canal
3.3 Tympanometry results

- Review tympanometry trace types below then refer to Figure 3.

**Type A normal peak**
- Ear canal volume (ECV) = 1 cm$^3$ (0.2 - 2.0 cm$^3$ is normal)
- Middle ear movement (compliance) = 0.9 cm$^3$ (0.2 - 1.4 cm$^3$ is normal)
- Middle ear pressure = 0 daPa (-150 to +100 daPa is normal)

**Type B**
- No middle ear movement
- No middle ear pressure

**Possible causes**
- Usually Otitis Media
- Otosclerosis (stiff middle ear bones due to bony growths)
- Badly scarred eardrum
- Eardrum perforation (hole)
- Grommet
- Ear canal blockage
- Wax

**Type C peak to left**
- Normal ear canal volume
- Normal middle ear movement
- Negative middle ear pressure

**Possible causes**
- Eustachian tube not working properly
- URTI
- Fluid moving into middle ear
4. Audiometry

- Audiometry measures the ability of the ear to
  - detect the pitch of a sound as hertz (Hz)
  - detect the loudness of a sound as decibels (dB)
- Audiometry is a simple and quick test to identify those clients at risk of hearing problems requiring further assessment

4.1 Steps for performing audiometry

- Ensure testing is performed in a quiet room. If a quiet room is not available, do not continue with audiometry assessment
- Ensure audiometer is calibrated (see device instructions for details)
- Explain the procedure to the client
- Instruct the client to raise their hand when they hear a sound
- Sit the client facing away from you and the audiometer to avoid any visual prompts e.g. the tester pushing buttons or looking up at them
- Place the correctly identified ear muff over the appropriate side ear
- Check the headphone position ensuring they are free of hair or clips to provide a snug seal
- Set hertz (Hz) dial to 4000 Hz
- Set decibel (dB) to 50 dB
- Do a test sound with the client and repeat until they respond comfortably
- If the client can hear the sound and understands the procedure then begin testing
- Ensure the sounds are presented at irregular intervals so the client does not anticipate them
- Test the ear with the best tympanometry result first
- If the client indicates they can hear the sound then reduce sound to 35 dB and repeat
- If the client indicates they can hear the sound then reduce to 25 dB and repeat
- Repeat these steps until the client no longer responds
- If the client does not respond then increase by 5 dB stages until the client responds
- Do not go above 80 dB
- Record the lowest dB result the client responds to (hears) twice
- Do the same for the other ear
- Repeat the procedure for both ears at 2000 Hz and 1000 Hz
- To pass, the client needs to respond twice at 25 dB at 1000 Hz, 2000 Hz and 4000 Hz
4.2 Audiometry results

- Ascertain whether the client passes or fails audiometry then refer to Figure 3.

![Audiometry and tympanometry test flowchart](image)

**Figure 3.** Referral and review process for tympanometry and audiometry results

5. Brief intervention

- Provide preventative information regarding
  - nose blowing
  - hand washing
  - avoiding loud noises (especially electronic devices with earbud speakers)
  - avoiding cigarette smoke
  - swimming only in running water or swimming pools
  - eating healthy foods (see Diet and nutrition, page 14)
  - avoiding putting anything in the ears (including cotton buds)
6. Referral
• Make a referral as per Figures 1. and 2.
• If you have any concerns about a client’s ability to hear refer to the MO/NP
• If the client has ear pain or discharge, manage according to the current edition of the PCCM

7. Follow up
• Place the client on a recall register to monitor and ensure any referrals have been actioned
• Provide the client with details for the next scheduled follow up appointment

8. References
3. Queensland Government (2013) 7 steps to healthy ears. Deadly ears brochure

9. Resources
Eyes and vision - adult

- Visual impairment is common among older people and is associated with falls and reduced quality of life¹
- Visual problems in older people are often not reported to medical services
- Aboriginal and Torres Strait Islander adults have visual impairment rates 3 times higher, and blindness 6 times higher than non-Aboriginal and Torres Strait Islander Australians²
- The Snellen eye chart and Tumbling E eye chart are the most suitable tools for Aboriginal and Torres Strait Islander people
- Test all clients with their prescribed glasses or contact lenses

### Health check recommendations

| All adults > 15 years of age if clinically indicated |
| All Aboriginal and/or Torres Strait Islander adults annually |

### 1. Procedure

- Ask the client the questions (see Table 1)
- Determine if the client requires further assessments
- Undertake assessment if required
- Determine if the client requires a referral according to the results and place onto a follow up and recall register if required

<table>
<thead>
<tr>
<th>Questions</th>
<th>Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does the person wear prescription glasses or contact lenses?</td>
<td>From 15 years of age</td>
</tr>
<tr>
<td>Has the person had any eye surgery?</td>
<td></td>
</tr>
<tr>
<td>Does the person have any problems/difficulties with their vision or eyes?</td>
<td></td>
</tr>
<tr>
<td>Does the person have any problems with their glasses or contact lenses?</td>
<td></td>
</tr>
<tr>
<td>Are things held in their hands or far away blurry or out of focus?</td>
<td></td>
</tr>
<tr>
<td>Does the person have diabetes and/or hypertension?</td>
<td>If yes to any question then proceed to review eye appearance, near vision, eye movement and visual acuity</td>
</tr>
</tbody>
</table>
2. Eye appearance
• Performed on all adults who answered yes to the eyes and vision questions
• Sit client on chair
• Position yourself at eye level
• Check external and anterior eye for
  – sore or watery eye (trichiasis, epiphora)
  – pupils for asymmetry
  – abnormal movements (nystagmus)

2.1 Lids
• Check for swelling, styes, droopy eyelids (ptosis) or other abnormalities
• With your thumb lift each eyelid (right first)
• Use a pen torch to check for inturned eyelashes (trichiasis) and any scarring of the upper lid (trachoma). See Resource 6. for further assessment
• Consider sore or watery eye as a possible symptom of trichiasis

2.2 Conjunctiva (the pink under the eyelids)
• Look for redness, swelling and discharge (conjunctivitis)

2.3 Sclera (the white part)
• Look for jaundice (hepatitis), bloodshot or haemorrhage (trauma)

2.4 Cornea (the coloured part)
• Check for scarring or membranes (pterygium) and other discolourations
• Check for inflammation, swelling or discharge (conjunctivitis)

2.5 Lens and retina
• Ophthalmoscopy to be done by trained staff
• Get the client to look at a distant point e.g. your ear, the wall
• Direct the ophthalmoscope light at the pupil from 30 cm away
• Look for opacification (cloudiness) which may indicate lens damage
• Slowly move ophthalmoscope back and forth, up and down until you see a red eye reflex (red flash)
• No red eye reflex may indicate a tumour, cataract or haemorrhage
• Document findings as healthy or abnormal

3. Near vision test
• Performed on all adults who answered yes to the eyes and vision questions
• Measure near vision with habitually worn glasses
4. Eye movement
- Performed on all adults who answered yes to the eyes and vision questions
- Use a pen at a distance of 30 cm from the client’s face
- Ask the client to follow the pen with their eyes whilst keeping their head stationary
- Move the pen up and down, left to right in a ‘H’ shape and observe whether the eyes track the pen equally bilaterally

5. Visual acuity test (VA)
- Performed on all adults who answered yes to the eyes and vision questions
- Place a Snellen eye chart or a Tumbling E eye chart 6 metres away (or 3 metres if using a scaled down chart) in a well lit area at eye level
- The clinician can also hold the chart while pointing to the letters and checking that the client’s other eye is covered
- The Tumbling E eye chart can be used for those with limited literacy (indicate how 3 fingers makes an E and to hold their fingers up, down, left or right to indicate what they see)
- To test the right eye, cover the left eye using a patch or a piece of card, or plastic glasses with one side covered
- Explain to the client that you want them to state the letter you point at or show the direction of the E with their three fingers
- Point clearly to the letter being tested. Start at the top of the chart and go across the whole line
- Allow the client adequate time to respond
- Progress along each line until the client can no longer identify letters
- If they get 3 or more incorrect letters on a line stop, go up a line and repeat
- Allow 2 attempts
- It is not necessary for the client to read the whole chart but most of the lowest line reached must be tested
- The line used to record visual acuity is the last line the person can read without making any mistakes
- Cover the right eye and check the left eye
During all vision testing, observe the client’s behaviour, e.g. holding head forward, frowning or blinking.

A client who squints, for example, may indicate they have difficulty seeing clearly.

If the client has difficulty reading letters use the Tumbling E eye chart.

### 5.1 Recording visual acuity

- Normal visual acuity is written as 6/6.
- The first number 6 refers to the distance that the person is standing away from the chart in metres.
- The second number is the lowest line that the person can read on the chart without error e.g. 6, 9, 12, 18, 24, 36 or 60. These numbers are found underneath the corresponding line on the chart.

All Aboriginal and/or Torres Strait Islander people with diabetes should have an annual visual acuity and retinal assessment by a trained assessor.

Retinal photography by trained primary care staff combined with external review by an ophthalmologist is a useful strategy for comprehensive screening.

Refer to the guideline z for further information.

### 6. Referral

Refer to the MO, optometrist or ophthalmologist for any
- abnormal eye appearance
- reported bluriness
- squinting to read
- holding text away at arm’s length to read
- uneven eye movement or
- the client’s visual acuity in either eye is outside normal range (6/9, 6/12, 6/18, etc.)

### 7. Follow up

Place the client on a recall register to monitor vision and ensure any referrals have been actioned.

Provide the client with details for the next scheduled follow up appointment.
8. References
2. National Indigenous Eye Health Survey Minum Barreng (Tracking Eyes), University of Melbourne, Centre for Eye Research Australia and the Vision CRC 2009
3. NACCHO/RACGP. National guide to a preventive health assessment for Aboriginal and Torres Strait Islander people. 2nd edn. South Melbourne: The RACGP, 2012

9. Resources
Section 4: Adult health checks

Eyes and vision - adult
Functional capacity and safety

- Screening people for functional capacity and safety allows for early intervention to ensure a safe and healthy quality of life by preventing harmful risks such as falls in the elderly and exposure to domestic violence (DV)
- As people age they become less able to perform daily tasks including: managing finances or medicines, moving safely, dressing, toileting and eating
- Most people want to live independently, however some find this difficult without support
- General assessment of safety in and around the home, especially for issues such as domestic violence, should always be considered
- Online training for health checks and preventative care is available via PARROT at www.health.qld.gov.au/parrot

Health check recommendations

All people from 15 years of age annually

1. Procedure
- The questions are separated into
  - the capacity of a client to function with or without help and/or
  - the safety of the client, specifically their exposure to violence
- Ask the questions as per Table 1.
- Identify if the client is at risk of harm due to deteriorating capacity or risky episodes
- Provide brief intervention and resources as required
- Determine if the client requires a referral according to the answers and place onto a follow up and recall register

2. Results

2.1 Domestic violence (DV) \(^1,2\)
- Physical abuse is the infliction of pain or injury such as
  - slapping, hitting, kicking, force feeding, restraint, striking with an object
- Psychological emotional abuse is the infliction of mental anguish such as
  - verbal aggression, threats, threat of institutionalisation, social isolation, humiliating statements
- Financial material abuse is the illegal or improper exploitation and/or use of funds or resources such as
  - theft of money or cheques, coercion to deprive an older person of their assets
- Sexual abuse is non-consensual contact of any kind with a person such as
  - suggestive talk, forced sexual activity, touching or fondling with a non-consenting competent or non-competent person
• Neglect is the intentional or unintentional refusal or failure of a person or designated caregiver to meet the required needs of a person’s wellbeing, including—failure to provide adequate food, clothing, shelter, medical care, hygiene or social stimulation

### 2.2 Self care

• Being unable to provide self care is associated with
  – falls
  – frailty
  – undernourishment and
  – poor health decisions

<table>
<thead>
<tr>
<th>Questions</th>
<th>Explore</th>
</tr>
</thead>
</table>
| **Is the person exposed to violence?** | • Is the client exposed to domestic or other violence?  
• Violence can include verbal abuse, financial restrictions, physical harm, social isolation and withholding basic necessities  
• Who is the perpetrator?  
• Who else knows about it? |
| **Is the person able to care for themselves?** | • This question looks at activities of daily living  
• Which tasks does the client find difficult and why? |
| **Has the person had any falls in the past 3 months?** | • Where?  
• Why?  
• What were they doing at the time?  
• How did they recover?  
• Were they hospitalised? |
| **Can the person manage their own medicines?** | • Are they taking medications correctly?  
• Do they know what the medications are for?  
• Are there any side effects?  
• What are the doses?  
• Are there too many prescriptions?  
• Are there too many medications? |
| **Does the person have anyone to help them?** | • Do they need or want a carer?  
• Is there someone available to support them?  
• Who? |
| **Is the person’s carer paid?** | • If they have a carer do they receive carer’s support assistance or other allowances? |
| **Is the person a carer of another person?** | • Does the client care for someone else?  
• Do they receive carer’s support assistance?  
• If so, is the person difficult to care for? |
2.3 Falls
- Knowing an individual's risk of falling provides opportunities to prevent them occurring by identifying
  - a client's physical ability
  - their home environment

2.4 Medication safety
- Medication safety ensures a client avoids overdosing, falls, polypharmacy and medication complacency

2.5 Client and carer support
- Caring for someone is a source of stress and burden
- Carers can experience isolation and abuse if the person has become violent or agitated

3. Brief intervention
3.1 Domestic violence (DV)
- The client may or may not disclose DV during early presentations
- Speak with the client alone and in a private area
- Ask direct questions
- Listen to and acknowledge what the client is saying
- Validate their experience through reassurance that the violence is not their fault, they have a right to feel safe, and that help is available
- Develop a safety plan with the client (see Resource 1)
- Ask the client at each presentation about abuse
- Repeated presentations over time may indicate a pattern of violence or escalation
- Provide resources (see Resources 3. to 6)

3.2 Self care
- Discuss care options, involving family in the process if appropriate
- Regular assessment of client and carer activities of daily living (ADLs) and instrumental activities of daily living (IADLs) by an occupational therapist can identify and support any health and safety requirements
- Refer for Home and Community Care (HACC) and Medical Aids Subsidy Scheme (MASS) if required (see Resource 7. and 10)

3.3 Falls
- Screen for individual falls risk (see Resource 2)
- Review medications and minimise sedatives especially benzodiazepines
- A balance and strength group provided by a physiotherapist will assist with gross motor stability and co-ordination
• An assessment of the home environment by an occupational therapist will identify if modifications are required to minimise slip and fall hazards

3.4 Medication safety
• Minimise or eliminate medications that contribute to cognitive impairment
• Simplify medication regime by using blister/webster packs, electronic dispensers or provide medication prompting (by clinician or third party service)
• Ensure an accredited pharmacist provides a regular review of medications and the person’s response to them

3.5 Client and carer support
• Provide the client or carer with resources to assist with their own needs (see Resource 7. and 8)
• Ensure the client or carer is provided opportunities for support and is referred to all available service co-ordination and interventions
• Encourage active participation in educational interventions for caregivers
• Referral to respite allows the client or carer to have a break and for the person requiring care to stay in their home longer
• Refer client or carer in remote areas to visiting services, telephone or online support

4. Referral
• If any issues are identified from answering any of the above questions make a referral to the appropriate support service in Table 2.
• If you have any concerns about a client refer to a more senior clinician
• Where immediate protection for client and/or children is required, consult with a MO/NP or social worker and, with the client’s consent, consider referrals to
  – local police service
  – Department for Child Protection and Family Support (after hours contact Crisis Care) if children are at risk. Children may require a medical examination
  – refer to Appendix 2: Child safety reporting, page 498 if you have any child safety concerns
  – refuge/emergency accommodation
  – local sexual assault service if a sexual assault has occurred (see Resource 3)
  – mental health services if client is at high risk of suicide or serious self-harm
Table 2. Referral options

| Domestic violence         | • Police                        |
|                          | • DV hotline                    |
|                          | • Aged DV hotline               |
|                          | • Social worker                 |
|                          | • Elder abuse supports (see Resource 4) |
|                          | • The Public Guardian (see Resource 5) |
|                          | • DV crisis service (see Resource 6) |
| Self care or carer       | • Occupational therapist or physiotherapist |
|                          | • HACC (see Resource 7)         |
|                          | • Carers Queensland and Carers Australia (see Resource 8) |
|                          | • Commonwealth Respite and Carelink Centres (see Resource 9) |
|                          | • Medical Aids Subsidy Scheme (MASS) (see Resource 10) |
| Falls risk               | • Perform a falls risk assessment (see Resource 2) |
|                          | • Refer to the occupational therapist or physiotherapist |
| Safe medication use      | • Brief intervention by suitably qualified clinician |
|                          | • A review of medications by pharmacist or MO/NP |

5. Follow up
• Place the client on a recall register to monitor and ensure any referrals are actioned
• Provide the client or carer with details for the next scheduled follow up appointment
6. References
1. Department of Health Western Australia. Guideline for responding to family and domestic violence. Perth: Women’s Health Clinical Care Unit, Women and Newborn Health Service, Department of Health Western Australia; 2014

7. Resources
Nutrition - adult

- Many chronic conditions can be attributed to poor nutrition, including
  - type 2 diabetes
  - cardiovascular disease
  - renal disease
  - poor oral health
  - iron deficiency
  - anaemia
  - some forms of cancer

Health check recommendations

| All people > 15 years of age opportunistically (at least every 2 years) or when clinically indicated |
| All Aboriginal and/or Torres Strait Islander people > 15 years of age annually |

1. Procedure

- Ask the client the nutrition questions according to their age (see Table 1)
- Ask the client what they ate the previous day to determine a dietary pattern
- Identify if the client does or does not meet adequate dietary intake (see Diet and nutrition, page 14)
- Provide brief intervention and resources (see Resource 1)
- Determine if the client requires a referral according to the answers and make a referral and place on a follow up and recall register if required

Table 1. Age related nutrition questions for adults

<table>
<thead>
<tr>
<th>Questions</th>
<th>Explore</th>
</tr>
</thead>
<tbody>
<tr>
<td>All adults over 15 years of age</td>
<td></td>
</tr>
<tr>
<td>What did the person eat yesterday?</td>
<td>• Asking what they ate the previous day helps determine a dietary pattern</td>
</tr>
<tr>
<td>What did the person drink yesterday?</td>
<td>• For details of serve sizes and examples see Diet and nutrition, page 14</td>
</tr>
<tr>
<td>Is the person always able to access food?</td>
<td></td>
</tr>
<tr>
<td>Are there times the person doesn’t eat because there isn’t any food?</td>
<td></td>
</tr>
<tr>
<td>plus for all those over 55 years of age</td>
<td></td>
</tr>
<tr>
<td>How many meals did the person eat yesterday? (55+)</td>
<td></td>
</tr>
</tbody>
</table>
2. Results

• If at any age a client’s nutritional intake is inadequate then provide support with nutritional brief intervention

• For details see Diet and nutrition, page 14

3. Brief intervention

3.1 Encourage

• All adults should eat nutritious foods and keep physically active to help maintain muscle strength and a healthy weight

• Encourage a diet that consists of
  – plenty of vegetables, including different types and colours, and legumes and beans
  – fruit
  – wholegrain and/or high cereal fibre foods, such as breads, cereals, rice, pasta, noodles, polenta, couscous, oats, quinoa and barley
  – lean meats and poultry, fish, eggs, tofu, nuts, seeds, legumes and beans
  – reduced fat milk, yoghurt, cheese and/or their alternatives

• Drink plenty of water

3.2 Limit

• Limit foods high in saturated fat such as biscuits, cakes, pastries, pies, processed meats, commercial burgers, pizza, fried foods, potato chips, crisps and other savoury snacks

• Replace saturated fat foods (butter, cream, cooking margarine, coconut and palm oil) with foods containing polyunsaturated and monounsaturated fats (olive oils, spreads, nut butters/pastes and avocado)

• Limit foods and drinks containing added salt
  – read labels and choose foods low in sodium
  – avoid adding salt during cooking or during mealtimes

• Limit foods and drinks with added sugars such as lollies, cakes, soft drinks and cordials, fruit drinks, vitamin waters, energy and sports drinks

• Limit alcohol intake. For women who are pregnant, planning a pregnancy or breastfeeding, not drinking alcohol is the safest option

4. Referral

• Consider barriers to healthy eating including finances, location and availability of nutritious foods and refer accordingly

• Consider referrals to
  – community nutrition team
  – dietitian
  – registered nurse or health worker
  – paediatrician or MO or NP
5. **Follow up**

- Place the client on a recall register to monitor and ensure any referrals are actioned
- Provide the client or carer with details for the next scheduled follow up appointment

6. **References**


7. **Resources**


Oral health - adult

- Dental caries currently affects more than half the population
- There is an association between periodontal disease and the risk of heart disease, coronary artery disease, inadequate nutrition and otitis media
- There is an association between periodontal disease and diabetes, obesity and diets high in sugar and fat
- Compared to the overall Australian population of similar age, Aboriginal and/or Torres Strait Islander adults have more missing teeth
- Smoking worsens periodontal disease and may camouflage the problem by reducing blood supply to the gums
- Women with poor oral health have greater risk of low birth weight and pre-term babies
- People with a reduced capacity for self care (e.g. the aged and those with intellectual and physical impairment) are at higher risk of developing oral diseases
- Online training for health checks and preventative care is available via PARROT at www.health.qld.gov.au/parrot

Health check recommendations

All people > 15 years of age annually

1. Procedure

- Ask the client the questions (see Table 1)
- Determine if the client requires brief intervention
- Determine if the client requires a referral according to the results and place onto a follow up and recall register if required

Table 1. Adult oral health questions and interventions

<table>
<thead>
<tr>
<th>Question</th>
<th>Explore</th>
</tr>
</thead>
<tbody>
<tr>
<td>How often does the person brush their teeth?</td>
<td>• Are the client’s teeth loose or painful?</td>
</tr>
<tr>
<td></td>
<td>• Do their teeth affect what they eat?</td>
</tr>
<tr>
<td>Has the person had any toothache or bleeding gums in</td>
<td>• Do they wear dentures?</td>
</tr>
<tr>
<td>the last 4 weeks?</td>
<td>• Do their dentures fit?</td>
</tr>
<tr>
<td>Has the person had a dental check in the last</td>
<td>• Perform a visual oral check</td>
</tr>
<tr>
<td>12 months?</td>
<td></td>
</tr>
</tbody>
</table>

1.1 Visual oral check

- An oral check involves visualising all aspects of the oral cavity: teeth, gums and cheeks
- Don gloves
• Position the client comfortably
• Ensure the room is well lit or have a light available
• Lift the upper lip and lower the bottom lip to view the teeth
• Inspect the outer surfaces of the teeth
• Observe for tooth alignment, frosting (early decay), brown decay (active) and black decay (inactive)
• Using a tongue depressor inspect the oral cavity, gums and rear teeth

2. Results
• The gums surrounding the teeth should be pink with clearly defined and tight margins around each tooth
• The gums should be free of inflammation, swelling and bleeding
• The gums should not be tender or painful
• Loose teeth, or gums which bleed spontaneously, or during brushing are indicative of periodontal disease (see Dental caries and periodontal disease, page 162)
• The mucous membranes inside of the cheeks should be pink, red, smooth and moist
• If a client’s oral health is inadequate then provide support with brief intervention
• See Dental caries and periodontal disease, page 162

3. Brief intervention
• Using a soft toothbrush with standard fluoride toothpaste the teeth should be cleaned twice a day or more frequently
• Brush all surfaces of the teeth i.e. the inside, outside, and chewing/biting surfaces
• Brush to the gum margins to prevent gum disease
• When finished spit out the toothpaste, but do not swallow it or rinse the mouth
• Brush before going to bed at night as saliva flow is reduced when you sleep and decay causing bacteria attack dry tooth surfaces
• Replace the toothbrush every 3 - 4 months, or sooner if bristles become frayed with use
• It is important for everyone in the family to look after their teeth as the germs that cause tooth decay can spread from person to person
• Use dental floss or interdental cleaning products to clean between the teeth
• Make healthy food choices
• Tap water is the best choice for a drink
• Juice, sports drinks and cordials are high in sugar and should be avoided
• Limit the number of sugary or acidic snacks
• Choose fruit, cheese and vegetables for snacks
• In communities where there is no access to a fluoridated drinking water supply, dental
practitioners can provide advice about access to alternate sources of fluoride such as mouth rinses, high fluoride toothpastes and fluoride supplements

4. Referral

- For any concerns outlined in Table 2, refer to
  - the current edition of the *Primary Clinical Care Manual* (PCCM)
  - the free government dental service if a person is eligible for Medicare and holds a
    - Pensioner Concession Card issued by Department of Veterans’ Affairs
    - Pensioner Concession Card issued by Centrelink
    - Health Care Card
    - Commonwealth Seniors Health card
    - Queensland Seniors Health Card
    - (see Resource 3. for eligibility criteria)
  - a private dentist
  - *Dental caries and periodontal disease, page 162*

<table>
<thead>
<tr>
<th>Table 2. Oral health related referral issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>Site</td>
</tr>
<tr>
<td>Teeth</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
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<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Gums</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

5. Follow up

- Place the client on a recall register to monitor and to ensure any referrals have been actioned
- Provide the client or carer with details for the next scheduled follow up appointment
6. References


7. Resources


Pathology

- Performing pathology testing allows clinicians to
  - identify clients who are at high risk of developing chronic conditions
  - identify those who have treatable infections and
  - monitor those who have a chronic condition
- Online training for health checks and preventative care is available via PARROT at www.health.qld.gov.au/parrot

**Abbreviations**

AUSDRISK  The Australian Type 2 Diabetes Risk Assessment Tool

### Health check recommendations

<table>
<thead>
<tr>
<th></th>
<th>Aboriginal and/or Torres Strait Islander</th>
<th>Non-indigenous</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Blood glucose</strong></td>
<td>• From 15 years if risk factors</td>
<td>• From 40 years if risk factors</td>
</tr>
<tr>
<td></td>
<td>• From 18 years</td>
<td>• Repeated according to AUSDRISK scores</td>
</tr>
<tr>
<td></td>
<td>• Repeated according to AUSDRISK scores</td>
<td></td>
</tr>
<tr>
<td><strong>Lipid profile</strong></td>
<td>• From 18 years if risk factors</td>
<td>• From 45 years</td>
</tr>
<tr>
<td></td>
<td>• From 35 years</td>
<td>• Earlier if clinically indicated</td>
</tr>
<tr>
<td></td>
<td>• Repeated according to the Absolute CVD Risk calculator</td>
<td>• Repeated according to absolute CVD risk calculator</td>
</tr>
<tr>
<td><strong>Hep B serology</strong></td>
<td>• Once from 15 years</td>
<td>• Once from 18 years if risk factors</td>
</tr>
<tr>
<td><strong>HIV serology</strong></td>
<td>• Offered as part of STI screen from 15 years</td>
<td>• Offered as part of STI screen from 15 years if priority group</td>
</tr>
<tr>
<td><strong>Trichomonas, chlamydia, gonorrhoea</strong></td>
<td>• Annually from 15 years</td>
<td>• Annually from 15 years if priority group</td>
</tr>
<tr>
<td><strong>Renal function</strong></td>
<td>• Annually from 18 years as part of health assessment</td>
<td>• Annually from 18 years if risk factors</td>
</tr>
<tr>
<td><strong>Faecal occult blood</strong></td>
<td>• Every 2 years from 50 years</td>
<td>• Every 2 years from 50 years</td>
</tr>
</tbody>
</table>

For the AUSDRISK tool see Appendix 3: *The Australian Type 2 Diabetes Risk Assessment Tool*, page 506
For the Australian cardiovascular risk charts, page 494 see Appendix 1 or Resource 1. for the online calculator

### 1. Procedure

- Identify if the client requires testing
- Undertake the test(s)
- Follow local universal precautions policies when handling body fluids
Section 4: Adult health checks

Pathology - adult

- Indicate which tests were undertaken as per Table 1.
- A suitably trained clinician should have a pre test discussion with the client (see Sexual and reproductive health, page 32)
- Be prepared to explore any issues further and/or refer for further support
- Provide brief intervention education if a specific need is identified
- If required place client on a recall and follow up register to ensure referrals are actioned
- Once results are obtained a suitably trained clinician should have a post testing discussion with the client (see Sexual and reproductive health, page 32)

Table 1. Pathology for adults

<table>
<thead>
<tr>
<th>Specimen</th>
<th>Test</th>
<th>Testing for</th>
</tr>
</thead>
<tbody>
<tr>
<td>Venous blood</td>
<td>•Blood glucose level (BGL)</td>
<td>•Diabetes</td>
</tr>
<tr>
<td></td>
<td>•Lipid profile</td>
<td>•Dyslipidaemia</td>
</tr>
<tr>
<td></td>
<td>•HBsAg, anti-HBs and anti-HBc (triple test)</td>
<td>•Hepatitis B</td>
</tr>
<tr>
<td></td>
<td>•RPR-TPGE</td>
<td>•Syphilis</td>
</tr>
<tr>
<td></td>
<td>•HIV serology</td>
<td>•Human immunodeficiency virus</td>
</tr>
<tr>
<td>Urine</td>
<td>•Proteinuria and nitrates</td>
<td>•Kidney function</td>
</tr>
<tr>
<td></td>
<td>•Albumin creatinine ratio (ACR)</td>
<td>•More accurate kidney function test</td>
</tr>
<tr>
<td></td>
<td>•Polymerase chain reaction (PCR)</td>
<td>•Trichomonas</td>
</tr>
<tr>
<td></td>
<td></td>
<td>•Chlamydia</td>
</tr>
<tr>
<td></td>
<td></td>
<td>•Gonorrhoea</td>
</tr>
<tr>
<td>Faeces</td>
<td>•Faecal occult blood test (FOBT)</td>
<td>•Bowel cancer</td>
</tr>
</tbody>
</table>

2. Venous blood

- For those competent to do so, draw blood using local venepuncture and universal precaution policies

2.1 Blood glucose level (BGL)

- Recommended annually for
  - Aboriginal and Torres Strait Islander people
  - all others over 40 years with high blood pressure, are overweight or have a family history of diabetes
  - adults at any age with previous impaired glucose tolerance (IGT) or impaired fasting glucose (IFG)
  - all adults with a history of heart disease
  - young people who are overweight or obese
  - women with a history of gestational diabetes (GDM)
  - women with polycystic ovarian syndrome (PCOS) who are obese
— any skin issues the client is concerned about

- Risk factors for annual BGL screening from 15 years
  - BMI > 85th percentile
  - family history of diabetes or gestational diabetes
  - acanthosis nigricans (brown to black hyperpigmentation of the skin found in skin folds such as the neck, armpits and groin)

- Blood glucose levels can be performed using a capillary blood sample and a blood glucose meter to test for undiagnosed diabetes as long as it is confirmed by pathology laboratory analysis of a venous plasma sample

- Identify if the blood taken is fasting or random

- Label blood tube appropriately and write “BGL” on the pathology request form

- Once results return refer to Diabetes type 2, page 196

2.2 Lipid profile

- Lipids should be screened for and interpreted in the context of Appendix 1: Australian cardiovascular risk charts, page 494

- For Aboriginal and Torres Strait Islander peoples this should begin from 18 years when 1 or more of the following risk factors are present
  - family history of premature CVD or CKD
  - overweight or obesity
  - diabetes
  - hypertension
  - smoking

- For all other adults from the age of 45 or earlier if clinically indicated or there are cardiovascular risk factors present

- Frequency of testing will depend on the absolute cardiovascular risk
  - low risk repeat fasting lipids every 5 years
  - moderate risk repeat fasting lipids every 2 years
  - high risk repeat annually and
  - any changes to the client’s clinical condition

- In the absence of risk factors, all Aboriginal and Torres Strait Islander people should have fasting lipids 5 yearly from age 35

- A diagnosis of dyslipidaemia is confirmed with a venous blood sample taken 12 hours after any food or drink

- Label blood tube appropriately and write “Lipid profile” on the pathology request form

- Once results return refer to Dyslipidaemia, page 210

2.3 Hepatitis B serology

- Check for documented evidence of hepatitis B serology results

- If serology exists refer to Hepatitis B, page 220
4.5 Recommended for
- all Aboriginal and Torres Strait Islander people to be tested once during adulthood
- all people with a history of exposure to infected blood or body fluids
- all people at high risk of acquiring hepatitis B (see Table 2)
- all pregnant women should be screened for hepatitis B as part of routine antenatal care (see the current edition of Primary Clinical Care Manual or the Clinical Practice Guidelines, Antenatal care - Module 1, 2013 for further information)

Label blood tube appropriately and write “HBsAg, anti-HBs and anti-HBc and chronic hepatitis B” on the pathology request form

Provide any relevant clinical information regarding previous vaccination and/or risk factors on the pathology request form

Once results return refer to Hepatitis B, page 220

Table 2. Risk factors that increase chance of acquiring hepatitis B$^{6,7}$

<table>
<thead>
<tr>
<th>Risk factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Household member or sexual partner with hepatitis B infection</td>
</tr>
<tr>
<td>People with tattoos or piercings not performed cleanly</td>
</tr>
<tr>
<td>Certain cultural practices e.g. initiation ceremonies</td>
</tr>
<tr>
<td>Infants of infected mothers</td>
</tr>
<tr>
<td>Injecting drug use</td>
</tr>
<tr>
<td>Correctional facilities</td>
</tr>
<tr>
<td>Haemodialysis</td>
</tr>
<tr>
<td>HIV or other diseases affecting immunity</td>
</tr>
<tr>
<td>Occupational exposure e.g. health workers etc.</td>
</tr>
<tr>
<td>Sexually active men who have sex with men</td>
</tr>
<tr>
<td>Disabled people attending residential or daycare facilities</td>
</tr>
<tr>
<td>Recipients of certain transplants and blood products</td>
</tr>
</tbody>
</table>

2.4 Syphilis serology

Recommended annually for the following priority groups$^{5,8}$
- Aboriginal and/or Torres Strait Islanders people from 15 years
- all sexually active people between the ages of 15 and 30 years
- where there is high risk sexual behaviour (multiple partners, inconsistent or no condom use)
- men who have sex with other men
- people injecting drugs

For sex workers$^{9,10}$
- regular testing for STIs and blood-borne viruses is recommended (usually every 3 months)
- frequency of testing is guided by risk assessment and may be determined by
• All pregnant women should be screened for syphilis as part of routine antenatal care (see the current edition of the PCCM or Clinical Practice Guidelines, Antenatal care - Module 1, 2013 for further information)

• Label blood tube appropriately and write “RPR-TPGE” on the pathology request form

• Once results return refer to the current edition of the PCCM for management

2.5 HIV serology

• Recommended as part of a STI screen for
  – all pregnant women at first antenatal visit
  – Aboriginal and/or Torres Strait Islander people from 15 years
  – all sexually active people between 15 and 30 years
  – people who inject drugs
  – men who have sex with men

• For sex workers
  – regular testing for STIs and blood-borne viruses is recommended (usually every 3 months)
  – frequency of testing is guided by risk assessment and may be determined by state-based legislation and guidelines

• Label blood tube appropriately and write “HIV antibodies - serology” on the pathology request form

• Once results return refer to the current edition of the PCCM for management

3. Urine

• A first urine of the day (first catch) is the most sensitive for laboratory testing

• Select appropriate yellow top specimen container (see Resource 1)

• Organise equipment and supplies

• Perform hand hygiene

• Explain procedure to client. This procedure is performed by the client in the toilet cubicle
  – clean genitals with a normal saline soaked swab
  – commence urinating into toilet
  – without ceasing urination collect 20 - 30 ml of urine into container then continue urinating into toilet until bladder is empty
  – place lid carefully on the container avoiding contamination with fingers
  – wash hands and return specimen to the clinician

• Correctly label container (immediately after collection) add laboratory numbers (if appropriate) and complete request form with number of tubes, name/signature, date/time collected and client identifiers and other information required by the laboratory

• Perform hand hygiene
3.1 Kidney function

- Recommended annually for5,12
  - Aboriginal and/or Torres Strait Islander people from 18 years
  - people 60 years or older
  - those with diabetes
  - those with a family history of kidney disease
  - those with established cardiovascular disease
  - those with hypertension
  - obese clients (body mass index ≥ 30)
  - smokers

- Perform a urinalysis with urinary strip
- Leave for the recommended time according to the product information
- If results are positive for protein and/or nitrates then send remaining urine for albumin creatinine ratio (ACR)
- Label the urine specimen jar appropriately and write “ACR” on the pathology request form
- When results return refer to Chronic kidney disease, page 112

3.2 Trichomona, chlamydia and gonorrhoea

- Recommended annually for3,5,11
  - all Aboriginal and/or Torres Strait Islanders over 15 years
  - all sexually active people under 30 years
  - any priority group as for syphilis (see 2.4 Syphilis serology)
  - people of any age who have recently (in the last 6 months) had a new partner or whose partner has other partners
  - people of any age with a recent (in the last 12 months) history of a sexually transmitted infection (STI)

- For sex workers9,10
  - regular testing for STIs and blood-borne viruses is recommended (usually every 3 months)
  - frequency of testing is guided by risk assessment and may be determined by state-based legislation and guidelines

- Label the urine specimen jar appropriately and on the pathology request form write “Urine PCR for chlamydia, gonorrhoea and trichomoniasis”
- When results return refer to the current edition of the PCCM for management

4. Faeces

4.1 Faecal occult blood test (FOBT)

- For all people at increased risk of bowel cancer refer to the MO/NP to determine if further testing is required. These risks include5
— a first degree relative < 50 years diagnosed with bowel cancer
— 2 first degree or a first and a second degree relative/s on the same side of the family diagnosed with bowel cancer at any age
— 3 or more first or second degree relatives on the same side of the family diagnosed with bowel cancer
— a first or second degree relative with familial adenomatous polyposis

• For all people over the age of 50 years
  — Client is to perform 3 samples over 3 consecutive days
  — Select appropriate brown screw capped faeces container (see Resource 1)
  — Perform hand hygiene

• Explain procedure to client. This procedure is performed by the client at home
  — prior to a bowel motion, place extra toilet paper into the toilet
  — after the bowel motion, remove the lid of the specimen jar to reveal a scoop
  — scoop some faeces and replace lid carefully on container
  — wash hands
  — correctly label container with name, date and time collected
  — keep sample refrigerated (2-8°C) and return to clinician within 24 hours
  — freeze and transport frozen samples that are anticipated to be returned to the clinician longer than after 24 hours

5. Referral

• Refer to the MO/NP for any abnormal results for
  — BGL (see Diabetes type 2, page 196)
  — lipid profile (see Dyslipidaemia, page 210)
  — hep B serology (see Hepatitis B, page 220)
  — ACR (see Chronic kidney disease, page 112)
  — syphilis (see the current edition of the PCCM)
  — trichomonas, chlamydia or gonorrhoea (see the current edition of the PCCM)
  — FOBT

6. Follow up

• Place the client on a recall register and continue to monitor results and to ensure any referrals are actioned

• Provide the client with details for the next scheduled follow up appointment
7. References


8. Resources

Physical activity - adult

- Knowing a person’s level of activity allows the clinician to determine the relative risk for future health problems and provides an opportunity to intervene early

- Physical activity
  - reduces the risk of cardiovascular disease (CVD), type 2 diabetes
  - maintains and/or improves blood pressure, cholesterol and blood glucose levels
  - reduces the risk of, and assists with, rehabilitation from some cancers
  - helps prevent unhealthy weight gain and assists with weight loss
  - builds strong muscles and bones
  - creates opportunities for socialising
  - helps develop and maintain overall physical and mental wellbeing


Health check recommendations

All Aboriginal and/or Torres Strait Islander people > 15 years of age annually

All people > 15 years of age opportunistically

1. Procedure

- Ask the appropriate questions as per Table 1.
- Provide brief intervention if the client answers other than the ideal
- Be prepared to explore the issues further and/or refer for further support
- Determine if the client requires a referral according to the answers and place onto a follow up and recall register if required

Table 1. Physical activity questions

<table>
<thead>
<tr>
<th>Question</th>
<th>Explore</th>
</tr>
</thead>
<tbody>
<tr>
<td>Was the person physically active for 150 - 300 minutes in the last week?</td>
<td>• 150 - 300 minutes of moderate physical activity per week</td>
</tr>
<tr>
<td></td>
<td>• 75 - 150 minutes of vigorous physical activity per week</td>
</tr>
<tr>
<td></td>
<td>• Tally the occasions of exercise</td>
</tr>
<tr>
<td></td>
<td>• See Physical activity, page 26 for further details</td>
</tr>
</tbody>
</table>

2. Results

- For adults identified as not undertaking enough daily physical activity, provide brief intervention
- Provide physical activity resources (see Resource 1)
• See Physical activity, page 26

2.1 Physical activity

• Physical activity is any activity that gets people moving, makes them breathe quicker, and makes their heart beat faster

• Moderate intensity activity requires some effort, but people can still speak easily while doing it. Examples include
  – fast walking
  – riding a bike
  – dancing
  – golf
  – brisk walking
  – gentle swimming
  – lawn mowing
  – social tennis

• Vigorous intensity activity requires effort and makes people breathe hard and fast (‘huff and puff’). Examples include
  – running
  – cycling
  – aerobics
  – organised sports
  – jogging

2.2 Sedentary behaviour

• Sedentary behaviour is characterised by sitting or lying down (except for sleeping)

• Common contributing factors include office work, driving or travelling and leisure time

3. Brief intervention

• To help improve blood pressure, cholesterol, cardiac health, and muscle and bone strength, every week adults should do
  – 150 minutes of moderate intensity physical activity or
  – 75 minutes of vigorous intensity physical activity

• To help prevent cancer and unhealthy weight gain, adults should increase their weekly activity to
  – 300 minutes of moderate intensity physical activity or
  – 150 minutes of vigorous intensity physical activity

• Older people should accumulate at least 30 minutes of moderate intensity physical activity on most, preferably all, days to keep their heart, lungs and bones in good working order

• Muscle strengthening activity (e.g. weight resistance, lifting, digging, squats, pushups) should be done on at least 2 days each week to improve posture, mobility, balance and to prevent falls
• Adults should minimise the amount of time spent in prolonged sitting positions and break up long periods of sitting as often as possible
• Provide physical activity resources (see Resource 1)
• Refer to Physical activity, page 26

4. Referral
• Where appropriate those identified as leading sedentary lifestyles should be actively encouraged to participate in local exercise groups or other activities that get people moving
• Consider referring anyone who is identified as leading a sedentary lifestyle and is overweight or obese to a dietitian for dietary intervention and a weight loss program if appropriate
• See Overweight and obesity in adults, page 260
• See Physical activity, page 26

5. Follow up
• Place the person on a recall register and continue to monitor physical activity behaviours and to ensure any referrals are actioned
• Provide the client with details for the next scheduled follow up appointment

6. References

7. Resources
Reproductive health

- Checking reproductive health allows the clinician to identify diseases and disorders of reproductive organs
- Clients may not routinely have a reproductive health check due to embarrassment, reluctance to seek advice, or no obvious symptoms
- Likewise, some clinicians fail to undertake a reproductive health check due to beliefs (especially in older male clients) that a sexual history is unimportant, that asking intimate questions may offend or embarrass, or because the clinician themselves are embarrassed or lack confidence
- Online training for health checks and preventative care is available via PARROT at www.health.qld.gov.au/parrot

Note
- If the clinician is not confident, embarrassed or is restricted by cultural beliefs, refer to a senior clinician

Health check recommendations

All Aboriginal and/or Torres Strait Islander adults annually
All adults > 15 years of age opportunistically

1. Procedure
- Ask the gender appropriate questions as per Table 1.
- Provide brief intervention if the clinician identifies any sexual or reproductive health concerns
- Be prepared to explore the issues further and/or refer for further support
- Determine if the client requires a referral according to the answers and place onto a follow up and recall register if required

2. Results and brief intervention for women

2.1 Breast cancer
- The risk of developing breast cancer increases with age
- Women aged from 50 - 74 years are actively encouraged to undergo screening mammography every 2 years
- While women aged 40 - 49 years and 75 years and older are not targeted for active screening, they are also eligible to attend if they wish to do so
- Any woman presenting with any recent changes to the breast or nipples, lumps, masses, hard areas, any swelling, pain or nipple discharge should be referred immediately for further investigation. Provide breast screening resources (see Resource 1)
Table 1. Reproductive health questions

<table>
<thead>
<tr>
<th>Question</th>
<th>Explore</th>
</tr>
</thead>
<tbody>
<tr>
<td>Has the woman noticed any recent breast changes?</td>
<td>• Any lumps, masses, hard areas, any recent changes, swelling, pain, nipple discharge</td>
</tr>
</tbody>
</table>
| Has the woman had a breast screen in the last 2 years?                  | • Where?  
• Result?  
• Any treatment?                                                          |
| Has the woman had a pap smear in the last 2 years?                      | • Where?  
• Result?  
• Any treatment?                                                          |
| Has the woman had any abnormal vaginal bleeding or discharge?           | • How much?  
• When?                                                                |
| Has the woman had any lower abdominal (underbelt) pain?                 | • Where specifically?  
• What eases it? makes it worse?                                          |
| Men                                                                      | • Testicular swelling or lumps?  
• Loss of sexual drive?  
• Premature ejaculation?  
• Problems getting an erection?  
• Discharge?                                                              |

Does the man have 1 or more 1st degree relatives diagnosed with prostate cancer under 65 years?

• Results of previous tests?  
• Any treatment?

2.2 Cervical cancer

- The National Cervical Screening Program promotes routine screening with Pap smears every two years for women between the ages of 18 years (or 2 years after first sexual intercourse, whichever is later) and 69 years

- With the commencement of Human Papillomavirus (HPV) vaccinations in 2006 there was recognition that the screening program in its current form would change. The Renewal Implementation Plan around current screening will be implemented in 2016 or thereafter

- Provide Pap smear resources (see Resource 2)

3. Results and brief intervention for men

3.1 Sexual dysfunction

- Sexual dysfunction in men can include
  - erectile dysfunction; an inability to attain and/or maintain an erection for sexual
activity, affecting 1 in 5 men. It is associated with chronic diseases including cardiovascular disease and diabetes
– premature ejaculation or ejaculation that occurs sooner than desired\(^6\)
– testicular lumps, swelling or pain which may be a precursor to testicular cancer or signs of infection

• Provide men’s health related resources (see Resource 3)

### 3.2 Prostate disease\(^8,9\)

• Prostate disease can include
  – a non-cancerous enlargement of the prostate gland, called benign prostate hyperplasia, while not life threatening, can impact on quality of life
  – prostatitis; an inflammation of the prostate gland due to infection which can be life threatening if left untreated
  – prostate cancer

• Provide men’s health related resources (see Resource 3)

### 4. Referral

#### 4.1 Women

• Refer any client to the MO/NP when
  – they are of appropriate age and respond that they are overdue or have not had a breast examination or mammogram or papsmear examination or where there is a suspicion of a more serious disease or disorder

• Refer any client to the MO/NP where there is
  – concern about any changes to the breasts or nipples
  – positive findings on breast examination
  – unusual or persistent vaginal bleeding or discharge despite appropriate treatments

#### 4.2 Men

• Refer any client to the MO/NP when
  – they answer that they have any sexually related dysfunction and/or
  – they have a strong family history of prostate or breast cancer, or would benefit from further discussion on the risks and benefits of prostate cancer screening
  – there is a suspicion of a more serious disease or disorder

### 5. Follow up

• Place the client on a recall register and continue to monitor to ensure any referrals have been actioned

• Provide the client with details for the next scheduled follow up appointment
6. References


7. Resources


3. A range of mens sexual health resources are available at Andrology Australia https://www.andrologyaustralia.org and Engaging Aboriginal and Torres Strait Islander Men In Primary Care Settings https://www.andrologyaustralia.org/health-professionals/clinical-summary-guidelines/?utm_campaign=web-banners&utm_medium=banner+1&utm_source=website
Skin

- The skin, the body's largest organ, protects us from microbes and the elements, helps regulate body temperature and permits the sensations of touch, heat and cold.
- Skin infections are many and varied, some of which can lead to chronic conditions.
- *Staphylococcus aureus* is the most common cause of skin infections (e.g. boils, cellulitis and impetigo) which are:
  - often superficial
  - sometimes infectious
  - mostly not life threatening
  - usually managed with topical therapy.
- Streptococcal bacterial infections can lead to acute rheumatic fever (ARF), acute post-streptococcal glomerular nephritis (APSGN) and chronic heart failure (CHF).
- Parasites that invade the skin (e.g. head and pubic lice and scabies) can cause infections which lead to renal complications such as chronic kidney disease (CKD).
- Mosquitoes, ticks, fleas and other insects can transmit infections (e.g. dengue and Ross River fever and Japanese Encephalitis (JE)) through unprotected skin.
- Fungal infections are common and are also known as ringworm, tinea, jock rash, double skin, thrush and athlete’s foot.
- Viral skin infections are usually very infectious and include herpes, warts, molluscum contagiosum as well as many vaccine preventable infections such as chicken pox.
- The incidence of treated basal cell carcinoma (BCC) and squamous cell carcinoma (SCC) is 5 times more than all other cancers, although preventable through sun safety techniques.
- Melanoma is the fourth most common cancer in Australia.
- Skin cancers are avoidable and costs can be reduced through primary prevention.
- Online training for health checks and preventative care is available via PARROT at www.health.qld.gov.au/parrot.

### Health check recommendations

<table>
<thead>
<tr>
<th>Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>All people &gt; 15 years of age opportunistically</td>
</tr>
<tr>
<td>All Aboriginal and/or Torres Strait Islander peoples &gt; 15 years of age annually</td>
</tr>
</tbody>
</table>

### 1. Procedure

- Ask the questions as per Table 1.
- Be prepared to explore the issues further and/or refer for further support.
- Provide brief intervention if the clinician identifies any inadequate skin care behaviours.
- Determine if the client requires a referral according to the answers and place onto a follow up and recall register if required.
Table 1. Skin questions

<table>
<thead>
<tr>
<th>Question</th>
<th>Explore</th>
</tr>
</thead>
</table>
| Is the client concerned about any aspects of, or changes to, their skin? | • Any changes to birthmarks, moles or other skin marks?  
• Describe  
  – size  
  – position  
  – colour  
  – how it has changed  
  – associated pain or bleeding  
• Any changes to  
  – daily activities  
  – sun exposure  
  – accommodation  
  – acquired pets  
  – changes in cosmetics, deodorants or soap |
| Describe skin | • If the client identifies a skin complaint, describe what is seen, including  
  – lesion  
  – wounds or sores  
  – mosquito or sandfly bites  
  – scars or bruises  
  – moles with uneven edges  
  – red raised and growing lesions  
  – multiple coloured moles  
  – itchy dry areas  
  – red raised areas |

2. Results

• Healthy skin should be clean and free of  
  – any weeping, bleeding or exuding open wounds, sores or lesions  
  – bruises  
  – moles with uneven edges  
  – red raised and growing lesions  
  – multiple coloured moles  
  – itchy dry areas  
  – red raised areas  
  – any rashes

3. Brief intervention

• Effective hand hygiene is the single most important strategy to prevent contact related infections (see Resource 1)

• Be SunSmart (see Resource 2)  
  – minimise direct sun exposure particularly between 10am and 2pm when ultra violet
radiation is highest in Australia\(^6\)
- when outdoors, use wide brim hats, sunglasses and long sleeved tightly woven clothing covering the arms and legs\(^6\)
- apply liberal amounts of a broad spectrum SPF30+ sunscreen to exposed dry skin 20 minutes prior to going outdoors and reapply every 2 hours

4. Referral

- Refer to a MO/NP or the current edition of the PCCM for
  - newly identified skin conditions
  - any client concerns
  - any skin conditions previously treated but not improving

5. Follow up

- Place the client on a recall register and continue to monitor health behaviours and to ensure any referrals are actioned
- Provide the client with details for the next scheduled follow up appointment

6. References


7. Resources

Social emotional wellbeing - adult

• Throughout their lives many people experience social and emotional changes
• Unresolved social and emotional issues can have long term impacts on a person’s ability to focus at work, maintain positive relationships and/or develop a healthy identity1,2,3
• Ongoing social emotional issues are often associated with physical health problems, intellectual disability, learning disorders, anxiety, substance abuse, self-harm, psychosis and trauma1,2,3
• The social emotional wellbeing questions aim to identify adults who may be
  – experiencing feelings that impact negatively on their lives
  – experiencing thoughts/feelings of suicide or self-harm
  – finding it difficult to make positive decisions about any chronic conditions or health issues they may have
  – at risk of future mental health problems
• Online training for health checks and preventative care is available via PARROT at www.health.qld.gov.au/parrot

Health check recommendations

<table>
<thead>
<tr>
<th>All people &gt; 15 years of age opportunistically</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Aboriginal and/or Torres Strait Islander peoples over 15 years of age annually</td>
</tr>
</tbody>
</table>

1. Procedure

• Ask the questions in private (see Table 1)
• Be prepared for the client to debrief with you
• Introduce the questions by asking about any concerns the client may have
• Observe the interaction between the client and others around them
• Observe the client’s facial expressions, eye contact and vocalisations, being mindful of cultural nuances e.g. averting eye contact, head bowed
• Observe client reactions to the questions
  – impatience
  – anger
  – speaking negatively
  – silence
  – fidgety or anxious
• The clinician is not required to make a diagnosis or provide counselling unless they have the skills to do so
• Determine if the client requires a referral according to the answers and place on a follow up and recall register if required
### Table 1. The social emotional wellbeing questions for adults

<table>
<thead>
<tr>
<th>Question</th>
<th>Options</th>
</tr>
</thead>
</table>
| 1. How often do you feel down in the dumps, sad or slack?                | 1. Never/hardly ever  
2. Sometimes  
3. Most days/every day                                                   |
| 2. How often have you felt that life is hopeless?                         | 1. Never/hardly ever  
2. Sometimes  
3. Most days/every day                                                   |
| 3. How often do you feel nervous or scared?                              | 1. Never/hardly ever  
2. Sometimes  
3. Most days/every day                                                   |
| 4. Do you worry much?                                                    | 1. Never/hardly ever  
2. Sometimes  
3. Most days/every day                                                   |
| 5. How often do you feel restless and that you can’t sit still?           | 1. Never/hardly ever  
2. Sometimes  
3. Most days/every day                                                   |
| 6. Do past events in your family still affect your wellbeing today        | 1. Never/hardly ever  
2. Sometimes  
3. Most days/every day                                                   |
| (e.g. domestic violence, adoption)?                                      |                                                                         |

#### 2. Results

- Add the scores
- If the score tallies 10 or less provide brief intervention
- If the score tallies 11 or higher
  - make the appropriate referral
  - provide brief intervention
  - refer to a senior clinician who may perform a 25 item Strengths and Difficulties Questionnaire (SDQ) with the client (see Resource 1) to determine the urgency for when the client needs to be seen

#### Immediate referral

If the client talks about harming themselves or some other person they should be referred immediately to the MO/NP or mental health services and not left alone or sent away until their care has been handed over

#### 3. Brief intervention

- Ask the person if they are talking to, or have someone to talk to, about the way they feel
- Encourage them to talk to someone they feel safe with
- Discuss how certain feelings or thoughts are part of everyone’s life but bad feelings and thoughts should be monitored as they can cause problems if they become so intrusive they impact on the ability to function appropriately
• Discuss how the body reacts in times of stress, fear, confusion and sadness including
  – heart beating fast
  – sweating
  – crying
  – shaking
• Encourage the person or parent to seek help if their feelings become more regular or
  intrusive and impact on normal functioning

4. Referral

• Refer to the MO/NP or mental health services if
  – after answering the questions the client scores 11 or higher in Table 1.
  – concerns are raised by the family or friends
  – you identify emotional or wellbeing concerns for the client
  – a clinician chooses to perform the 25 item Strengths and Difficulties Questionnaire
    (SDQ) with the client who meets the cutoff threshold
• Refer to Appendix 2: Child safety reporting, page 498 if you have any child safety
  concerns
• For further referral options see Table 2.

5. Follow up

• If concerns are identified place the client on a recall register and review within a week or
  as clinically indicated by the MO/NP or mental health services to ensure any referrals are
  actioned
• Provide the client with details for the next scheduled follow up appointment
Table 2. Referral options

<table>
<thead>
<tr>
<th>Queensland Health</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Psychologist</td>
</tr>
<tr>
<td>• Social worker</td>
</tr>
<tr>
<td>• Health worker or registered nurse</td>
</tr>
<tr>
<td>• Your local Child Protection Liaison Officer or Safe Kids or Child Safety Services Regional Intake Services (see Appendix 2: Child safety reporting, page 498)</td>
</tr>
<tr>
<td>• Psychologist or social worker</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cultural services</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Aboriginal and Torres Strait Islander Legal Service (Qld) Ltd at <a href="http://www.atsils.com.au">http://www.atsils.com.au</a></td>
</tr>
<tr>
<td>• Wuchopperen Health Services, Cairns at <a href="http://www.wuchopperen.org.au">http://www.wuchopperen.org.au</a></td>
</tr>
<tr>
<td>• Minister/Pastor</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Other services</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Lifeline at <a href="https://www.lifeline.org.au">https://www.lifeline.org.au</a> or phone 13 11 14</td>
</tr>
<tr>
<td>• Centacare at <a href="http://www.centacarebrisbane.net.au/content.php/services">http://www.centacarebrisbane.net.au/content.php/services</a></td>
</tr>
<tr>
<td>• Royal Flying Doctor Service nurse or doctor</td>
</tr>
<tr>
<td>• Alcohol and Drug Information Service is a 24 hour telephone service available on 1800 177 833 or Turning Point an online counselling service available at <a href="http://www.turningpoint.org.au">http://www.turningpoint.org.au</a></td>
</tr>
</tbody>
</table>

6. References


7. Resources

1. The Strengths and Difficulties Questionnaire at [http://sdqinfo.org/Adult](http://sdqinfo.org/Adult) and how to score available at [http://www.sdqinfo.org](http://www.sdqinfo.org)
Appendices
Section 5: Appendices

- Australian cardiovascular risk charts 494
- Child safety reporting 498
- The Australian Type 2 Diabetes Risk Assessment Tool 506
- Claiming Medicare items 508
Chronic Conditions Manual 1st edition

Australian cardiovascular risk charts

These charts are taken from Absolute cardiovascular disease risk management. Quick reference guide for health professionals. 2012. © 2012 National Stroke Foundation

How to use the risk charts

1. Identify the table relating to the person’s diabetes status, sex, smoking history and age
   • ‘Smoker’ is defined as either current daily cigarette smoker or former smoker who has quit within the previous 12 months
   • The charts should be used for all adults aged 45 years or over (and all Aboriginal and/or Torres Strait Islander adults aged 35 - 74 years) without a known history of cardiovascular disease (CVD) and not already known to be at clinically determined high risk

2. Within the chart, choose the cell nearest to the person’s age, systolic blood pressure (SBP) and total cholesterol (TC):high density lipid (HDL) ratio. For example, the lower left cell contains all non-smokers without diabetes who are 35 - 44 years and have a TC:HDL ratio of less than 4.5 and a SBP of less than 130 mm Hg
   • SBP (mean of 2 readings on 2 occasions)
   • Total cholesterol/high-density lipoprotein cholesterol (HDL-C) ratio (ensure correct ratio is used)

3. The colour of the cell that the person falls into provides their 5 year absolute cardiovascular risk level (see legend for risk category). For people who fall exactly on a threshold between cells, use the cell corresponding to higher risk

Notes: The risk charts include values for systolic blood pressure (SBP) alone as this is the most informative of conventionally measured blood pressure parameters for cardiovascular risk

The risk charts have not been validated for all population groups. Additional guidance includes

• The risk charts may underestimate CVD risk in Aboriginal and/or Torres Strait Islander peoples; adults with diabetes aged between 45 and 60 years; adults aged over 74 years. However, available evidence suggests that this approach will provide an estimate of minimum cardiovascular risk
• The risk charts are likely to underestimate CVD risk in adults with depression or socioeconomic deprivation (an independent risk factor for cardiovascular disease)
• The predictive value of the risk charts has not been specifically assessed in adults who are overweight or obese
• The increased risk of cardiovascular events and all-cause mortality, in addition to thromboembolic disease including stroke, should be taken into account for adults with atrial fibrillation (particularly those aged over 65 years)
People without diabetes

<table>
<thead>
<tr>
<th>Non-smoker</th>
<th>Smoker</th>
<th>Non-smoker</th>
<th>Smoker</th>
</tr>
</thead>
<tbody>
<tr>
<td>Systolic blood pressure (mmHg)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>179*</td>
<td>179*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>160</td>
<td>160</td>
<td></td>
<td></td>
</tr>
<tr>
<td>140</td>
<td>140</td>
<td></td>
<td></td>
</tr>
<tr>
<td>120</td>
<td>120</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Age

45-54

44-44

43-43

42-42

41-41

40-40

39-39

38-38

37-37

36-36

35-35

34-34

33-33

32-32

31-31

30-30

29-29

28-28

27-27

26-26

25-25

24-24

23-23

22-22

21-21

20-20

19-19

18-18

17-17

16-16

15-15

14-14

13-13

12-12

11-11

10-10

9-9

8-8

7-7

6-6

5-5

4-4

Total cholesterol: HDL ratio*

♥ Charts in this age bracket are for use in Aboriginal and/or Torres Strait Islander populations only

*In accordance with Australian guidelines, clients with systolic blood pressure ≥ 180 mmHg, or a total cholesterol of > 7.5 mmol/L, should be considered at increased absolute risk of CVD

<table>
<thead>
<tr>
<th>Risk level for 5 year cardiovascular (CVD) risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>High risk</td>
</tr>
<tr>
<td>≥ 30%</td>
</tr>
<tr>
<td>25 - 29%</td>
</tr>
<tr>
<td>16 - 19%</td>
</tr>
</tbody>
</table>
People with diabetes

<table>
<thead>
<tr>
<th></th>
<th>Women</th>
<th></th>
<th>Men</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Non-smoker</td>
<td>Smoker</td>
<td>Non-smoker</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>45-54</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>35-44</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25-34</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16-24</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5-15</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-5</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Systolic blood pressure (mmHg)

- 179*
- 160
- 140
- 120

Total cholesterol: HDL ratio

- ♥
- ♥♥
- ♥

Charts in this age bracket are for use in Aboriginal and/or Torres Strait Islander populations only

♥♥ Adults over the age of 60 with diabetes are equivalent to high risk (> 15%), regardless of their calculated risk level. Nevertheless, reductions in risk factors in this age group can still lower overall absolute risk

*In accordance with Australian guidelines, clients with systolic blood pressure ≥ 180mmHg, or a total cholesterol of > 7.5 mmol/L, should be considered at increased absolute risk of CVD

Risk level for 5 year cardiovascular (CVD) risk

<table>
<thead>
<tr>
<th></th>
<th>High risk</th>
<th>Moderate risk</th>
<th>Low risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-15</td>
<td></td>
<td></td>
<td>5 - 9%</td>
</tr>
<tr>
<td>10 - 15%</td>
<td></td>
<td></td>
<td>&lt; 5%</td>
</tr>
<tr>
<td>20 - 24%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25 - 29%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>≥ 30%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix 2: Child Safety Reporting

**Child safety reporting**

**Safety concerns can be summarised as follows**

- **Physical abuse**
  - facial head and neck bruising
  - fractures of bones, especially in children < 3 years
  - injury does not fit with mechanism
  - multiple presentations with injury, ingestion, minor complaints

- **Sexual abuse**
  - direct or indirect disclosures
  - trauma to genital area and/or anus
  - sexualised play
  - adolescent pregnancy
  - STIs
  - self destructive behaviours

- **Psychological/emotional abuse**
  - child belittled, constantly criticised, put down
  - child exposed to domestic violence
  - child isolated or ignored
  - child issued threats causing anguish

- **Neglect**
  - non organic failure to thrive
  - delay in milestones
  - untreated physical problems
  - anxiety about being abandoned
  - poor hygiene
  - leaving a child without appropriate supervision


**Steps to reporting and referring child protection concerns**

**Step 1. Concerns**

- A health professional has concerns for the safety and wellbeing of a child or young person, including an unborn child, due to physical, sexual, psychological/emotional abuse and/or neglect
Step 2. Considerations

- Assessment is made using health professional expertise, knowledge and consideration of
  - the presence of signs, disclosures, injuries and behaviours (of parent and/or the child) that heighten your concerns about the safety and wellbeing of the child
  - whether there are detrimental effects on the child’s body or the child’s psychological or emotional state that are evident at the time of presentation or likely to become evident in the future
  - the nature and severity of the detrimental effects and the likelihood they will continue
  - the child’s age, particularly the vulnerability of young children
  - if there is a parent able and willing to protect the child from harm

Step 3. Consultation

- It is recommended that health professionals consult with
  - a line manager or colleague
  - a Child Protection Liaison Officer or Child Protection Advisor

Note: Individuals may still report concerns if consensus with colleagues is not reached

Step 4. Decision making

- Go to Step 5. if you have formed a reasonable suspicion that a child has suffered, is suffering or likely to suffer significant harm and may not have a parent able and willing to protect them

- Go to Step 6. if your concerns do not reach the threshold for a report to Child Safety, but the family would benefit from a support service

Step 5. Reporting to Child Safety Services

- Immediately report your concerns by phoning Child Safety Services Regional Intake Service (CSS-RIS) or Child Safety After Hours Service (CSAHS) (see Table 1)

- It is recommended that you document in the client’s medical record, the date, time and name of the person you spoke to at CSS-RIS or CSAHS

- Complete the ‘Report of a suspected child in need of protection’ form
  - paper copy (fax or email to CSS-RIS or CSAHS)
  - if you are unable to access the 'Report of suspected child in need of protection form' you must provide a written report to CSS-RIS or CSAHS including details of the child, the nature of the harm and contact details of the person making the report
  - print, sign and file in the client medical record
  - forward a copy to your local Child Protection Liaison Officer (see Table 2)

- COMPLETED
Step 6. Supporting the family

- With consent refer to a family support service
  - Family and Child Connect (service rollout during 2015 - 16)
  - if the family has multiple and/or complex needs
  - if the family requires further assessment and identification of needs
  - print and file a copy in the client medical record
  - if this service is not available in your area contact 13FAMILY (13 32 64) for referral options

- Intensive Family Support Service (service rollout during 2015 - 16)
  - if the family has multiple and/or complex needs
  - an appropriate intensive family support service is known and available
  - if this service is not available in your area contact 13FAMILY (13 32 64) for referral options
  - another support service
    - refer to a specific support service
    - complete relevant referral processes for the specific service

- REPORTING/REFERRAL COMPLETED
Table 1. Child Safety Services Regional Intake Services (CSS-RIS)

<table>
<thead>
<tr>
<th>Location (QLD)</th>
<th>Professional contact details (not public)</th>
</tr>
</thead>
</table>
| Brisbane           | • Phone: 1300 705 339  
                      | • Fax: 07 3259 8771  
                      | • Email: BrisbaneRISIntake@communities.qld.gov.au |
| Central Queensland | • Phone: 1300 683 042  
                      | • Fax: 07 4938 4697  
                      | • Email: CQRISIntake@communities.qld.gov.au     |
| Far North Queensland| • Phone: 1300 683 596  
                         | • Fax: 07 4039 8320  
                         | • Email: FNQRISIntake@communities.qld.gov.au   |
| North Coast        | • Phone: 1300 705 201  
                      | • Fax: 07 5420 9049  
                      | • Email: NCRISIntake@communities.qld.gov.au    |
| North Queensland   | • Phone: 1300 704 514  
                      | • Fax: 07 4799 7273  
                      | • Email: NRQISIntake@communities.qld.gov.au    |
| South East         | • Phone: 1300 678 801  
                      | • Fax: 07 3884 8802  
                      | • Email: SERISIntake@communities.qld.gov.au    |
| South West         | • Phone: 1300 683 259  
                      | • Fax: 07 4616 1796  
                      | • Email: SWRISIntake@communities.qld.gov.au    |

Child Safety After Hours Service (CSAHS) phone (07) 3235 9999 or FREECALL 1800 177 135 (Queensland only)
# Appendix 2: Child Safety Reporting

## Table 2. Child Protection Liaison Officer (CPLO) contact list

<table>
<thead>
<tr>
<th>Location (QLD)</th>
<th>Contact details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Torres and Cape Hospital and Health Service (HHS)</strong></td>
<td></td>
</tr>
<tr>
<td>Thursday Island</td>
<td>Ph: 4069 0479</td>
</tr>
<tr>
<td></td>
<td>Mob: 0431 777 491</td>
</tr>
<tr>
<td>Weipa</td>
<td>Ph: 4226 5942</td>
</tr>
<tr>
<td></td>
<td>Mob: 0428 647 400</td>
</tr>
<tr>
<td>Cooktown</td>
<td>Ph: 4043 0170</td>
</tr>
<tr>
<td></td>
<td>Mob: 0428 739 471</td>
</tr>
<tr>
<td><strong>Cairns and Hinterland HHS</strong></td>
<td></td>
</tr>
<tr>
<td>Cairns</td>
<td>Ph: 4226 6773</td>
</tr>
<tr>
<td></td>
<td>Fax: 4226 6755</td>
</tr>
<tr>
<td>Innisfail</td>
<td>Ph: 4061 5497</td>
</tr>
<tr>
<td></td>
<td>Fax: 4061 5345</td>
</tr>
<tr>
<td>Tablelands</td>
<td>Ph: 4092 9100</td>
</tr>
<tr>
<td></td>
<td>Fax: 4092 9120</td>
</tr>
<tr>
<td><strong>Townsville HHS</strong></td>
<td></td>
</tr>
<tr>
<td>The Townsville Hospital</td>
<td>Ph: 4433 1818</td>
</tr>
<tr>
<td></td>
<td>Fax: 4433 1451</td>
</tr>
<tr>
<td>Charters Towers</td>
<td>Ph: 4787 0361</td>
</tr>
<tr>
<td></td>
<td>Fax: 4787 0360</td>
</tr>
<tr>
<td>Ayr</td>
<td>Ph: 4783 0829</td>
</tr>
<tr>
<td></td>
<td>Fax: 4783 0895</td>
</tr>
<tr>
<td><strong>North West HHS</strong></td>
<td></td>
</tr>
<tr>
<td>Mount Isa</td>
<td>Ph: 4744 4887</td>
</tr>
<tr>
<td></td>
<td>Fax: 4744 4056</td>
</tr>
<tr>
<td><strong>Mackay HHS</strong></td>
<td></td>
</tr>
<tr>
<td>Mackay</td>
<td>Ph: 4885 7270</td>
</tr>
<tr>
<td></td>
<td>Fax: 4885 7288</td>
</tr>
<tr>
<td>Moranbah</td>
<td>Ph: 4985 7779</td>
</tr>
<tr>
<td><strong>Central Queensland HHS</strong></td>
<td></td>
</tr>
<tr>
<td>Rockhampton</td>
<td>Ph: 4920 6970</td>
</tr>
<tr>
<td></td>
<td>Fax: 4932 5057</td>
</tr>
<tr>
<td>Gladstone</td>
<td>Ph: 4976 3366</td>
</tr>
<tr>
<td></td>
<td>Mob: 0409 054 141</td>
</tr>
<tr>
<td>Emerald</td>
<td>Ph: 4983 9700</td>
</tr>
<tr>
<td></td>
<td>Fax: 4983 9719</td>
</tr>
<tr>
<td></td>
<td>Mob: 0428 794 912</td>
</tr>
<tr>
<td>Biloela</td>
<td>Ph: 4995 6900</td>
</tr>
<tr>
<td></td>
<td>Fax: 4995 6977</td>
</tr>
<tr>
<td><strong>Central West HHS</strong></td>
<td></td>
</tr>
<tr>
<td>Longreach</td>
<td>Ph: 4652 5500</td>
</tr>
<tr>
<td></td>
<td>Fax: 4652 5599</td>
</tr>
<tr>
<td><strong>Wide Bay HHS</strong></td>
<td></td>
</tr>
<tr>
<td>Bundaberg</td>
<td>Ph: 4150 2736</td>
</tr>
<tr>
<td></td>
<td>Fax: 4150 2729</td>
</tr>
<tr>
<td>Fraser Coast</td>
<td>Ph: 4325 6210</td>
</tr>
<tr>
<td></td>
<td>Ph: 4122 8730</td>
</tr>
<tr>
<td></td>
<td>Mob: 0418 716 939</td>
</tr>
<tr>
<td><strong>Sunshine Coast HHS</strong></td>
<td></td>
</tr>
<tr>
<td>Nambour</td>
<td>Ph: 5470 5082</td>
</tr>
<tr>
<td></td>
<td>Fax: 5470 5485</td>
</tr>
<tr>
<td></td>
<td>Mob: 0438 163 053</td>
</tr>
<tr>
<td>Gympie</td>
<td>Ph: 5489 8627</td>
</tr>
<tr>
<td></td>
<td>Fax: 5489 8699</td>
</tr>
<tr>
<td>Location (QLD)</td>
<td>Contact details</td>
</tr>
<tr>
<td>----------------------------------------</td>
<td>--------------------------------------</td>
</tr>
<tr>
<td>Metro North HHS</td>
<td></td>
</tr>
<tr>
<td>Redcliffe</td>
<td>• Ph: 3883 7228</td>
</tr>
<tr>
<td></td>
<td>• Ph: 5433 8204</td>
</tr>
<tr>
<td></td>
<td>• Fax: 3883 7344</td>
</tr>
<tr>
<td>Caboolture</td>
<td>• Ph: 5433 8574</td>
</tr>
<tr>
<td></td>
<td>• Ph: 5433 8496</td>
</tr>
<tr>
<td>The Prince Charles Hospital</td>
<td>• Ph: 3139 4377</td>
</tr>
<tr>
<td></td>
<td>• Ph: 3139 5259</td>
</tr>
<tr>
<td></td>
<td>• Mob: 0409 873 827</td>
</tr>
<tr>
<td>Royal Brisbane and Women’s Hospital</td>
<td>• Ph: 3646 8916</td>
</tr>
<tr>
<td></td>
<td>• Fax: 3646 5256</td>
</tr>
<tr>
<td>Metro South HHS</td>
<td></td>
</tr>
<tr>
<td>Logan</td>
<td>• Ph: 3299 8496</td>
</tr>
<tr>
<td></td>
<td>• Ph: 3299 9102</td>
</tr>
<tr>
<td></td>
<td>• Fax: 3299 8035</td>
</tr>
<tr>
<td>Princess Alexandra Hospital</td>
<td>• Ph: 3176 2610</td>
</tr>
<tr>
<td></td>
<td>• Fax: 3176 5759</td>
</tr>
<tr>
<td>QE11</td>
<td>• Ph: 3275 5353</td>
</tr>
<tr>
<td></td>
<td>• Fax: 3275 5494</td>
</tr>
<tr>
<td>Bayside</td>
<td>• Ph: 3488 4256</td>
</tr>
<tr>
<td></td>
<td>• Fax: 3488 4251</td>
</tr>
<tr>
<td>West Moreton HHS</td>
<td></td>
</tr>
<tr>
<td>Ipswich</td>
<td>• Ph: 3810 1132</td>
</tr>
<tr>
<td></td>
<td>• Ph: 3810 1111</td>
</tr>
<tr>
<td></td>
<td>• Fax: 3810 1757</td>
</tr>
<tr>
<td>Gold Coast HHS</td>
<td></td>
</tr>
<tr>
<td>Southport</td>
<td>• Ph: 5687 1374</td>
</tr>
<tr>
<td></td>
<td>• Fax: 5687 1397</td>
</tr>
<tr>
<td></td>
<td>• Mob: 0411 897 593</td>
</tr>
<tr>
<td>Toowoomba</td>
<td>• Mob: 0418 762 027</td>
</tr>
<tr>
<td></td>
<td>• Mob: 0417 480 156</td>
</tr>
<tr>
<td></td>
<td>• Ph: 4616 5185</td>
</tr>
<tr>
<td></td>
<td>• Fax: 4616 5188</td>
</tr>
<tr>
<td>Darling Downs HHS</td>
<td></td>
</tr>
<tr>
<td>Dalby</td>
<td>• Ph: 4672 4000</td>
</tr>
<tr>
<td></td>
<td>• Fax: 46625183</td>
</tr>
<tr>
<td></td>
<td>• Mob: 0437 929 020</td>
</tr>
<tr>
<td>Warwick</td>
<td>• Ph: 4660 3875</td>
</tr>
<tr>
<td></td>
<td>• Fax: 4660 3825</td>
</tr>
<tr>
<td></td>
<td>• Mob: 0427 029 972</td>
</tr>
<tr>
<td>Kingaroy</td>
<td>• Ph: 4162 9220</td>
</tr>
<tr>
<td>South West HHS</td>
<td></td>
</tr>
<tr>
<td>Roma</td>
<td>• Ph: 4624 2977</td>
</tr>
<tr>
<td>Charleville</td>
<td>• Ph: 4650 5028</td>
</tr>
<tr>
<td></td>
<td>• Fax: 4650 5276</td>
</tr>
<tr>
<td>Mater Hospital HHS</td>
<td>Mater Women’s, Children’s and Adult’s Health Services</td>
</tr>
<tr>
<td></td>
<td>• Fax: 3163 8035</td>
</tr>
</tbody>
</table>
Table 2. Child Protection Liaison Officer (CPLO) contact list continued

<table>
<thead>
<tr>
<th>Location (QLD)</th>
<th>Contact details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Children’s Health Queensland HHS</td>
<td></td>
</tr>
</tbody>
</table>
| Lady Cilento Children’s Hospital (LCCH) Child Protection and Forensic Medical Service (CPFMS) | Ph: 3068 2660  
|                                                                                | Fax: 3068 2659        |
| LCCH CPFMS Inala/Brisbane South                                                | Ph: 3275 5353          
|                                                                                | Fax: 3275 5494        |
| LCCH CPFMS Bayside/Redlands                                                   | Ph: 3488 4256          
|                                                                                | Fax: 3488 4251        |
| LCCH CPFMS Redcliffe                                                         | Ph: 3883 7228          
|                                                                                | Ph: 5433 8204          
|                                                                                | Fax: 3883 7344        |
| LCCH CPFMS Caboolture                                                        | Ph: 5433 8574          
|                                                                                | Fax: 5433 8496        |

Legislative requirements

- All Queensland Health staff have a duty of care to report to CSS-RIS
  - a reasonable suspicion that a child has suffered, is suffering, or is at unacceptable risk of suffering significant harm and may not have a parent able and willing to protect the child from harm


- The threshold for mandatory reporters to make a report to Child Safety Services - Regional Intake Service (CSS-RIS) is
  - a reasonable suspicion that a child has suffered, is suffering, or is at unacceptable risk of suffering significant harm caused by physical and sexual abuse and may not have a parent able and willing to protect them from harm (health staff do not have to investigate or prove that a parent may not be able and willing)
  - this does not preclude mandatory reporters from reporting significant harm caused by emotional/psychological abuse or neglect

Who to contact

If you are uncertain about anything contact

- Your local Child Safety Services Regional Intake Service (CSS-RIS) or Child Safety After Hours Service (CSAHS) (see Table 1) or

- Your local Child Protection Liaison Officer (see Table 2) or

- Child Safety After Hours Service Ph: 3235 9999 (professional line) Fax: 3235 9898 or

- Or call 000
### The Australian Type 2 Diabetes Risk Assessment Tool

The Australian Type 2 Diabetes Risk Assessment Tool was developed by the Baker IDI Heart and Diabetes Institute on behalf of the Australian, State and Territory Governments as part of the COAG initiative to reduce the risk of type 2 diabetes.

1. Your age group

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 35 years</td>
<td>0</td>
</tr>
<tr>
<td>35 - 44 years</td>
<td>2</td>
</tr>
<tr>
<td>45 - 54 years</td>
<td>4</td>
</tr>
<tr>
<td>55 - 64 years</td>
<td>6</td>
</tr>
<tr>
<td>65 years or over</td>
<td>8</td>
</tr>
</tbody>
</table>

2. Your gender

<table>
<thead>
<tr>
<th>Gender</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>0</td>
</tr>
<tr>
<td>Male</td>
<td>3</td>
</tr>
</tbody>
</table>

3. Your ethnicity/country of birth

3a. Are you of Aboriginal, Torres Strait Islander, Pacific Islander or Maori descent?

<table>
<thead>
<tr>
<th>Response</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>0</td>
</tr>
<tr>
<td>Yes</td>
<td>2</td>
</tr>
</tbody>
</table>

3b. Where were you born?

<table>
<thead>
<tr>
<th>Country</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>0</td>
</tr>
<tr>
<td>Asia (including the Indian sub-continent), Middle East, North Africa, Southern Europe</td>
<td>2</td>
</tr>
<tr>
<td>Other</td>
<td>0</td>
</tr>
</tbody>
</table>

4. Have either of your parents, or any of your brothers or sisters been diagnosed with diabetes (type 1 or type 2)?

<table>
<thead>
<tr>
<th>Response</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>0</td>
</tr>
<tr>
<td>Yes</td>
<td>3</td>
</tr>
</tbody>
</table>

5. Have you ever been found to have high blood glucose (sugar) for example, in a health examination, during an illness, during pregnancy?

<table>
<thead>
<tr>
<th>Response</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>0</td>
</tr>
<tr>
<td>Yes</td>
<td>6</td>
</tr>
</tbody>
</table>

6. Are you currently taking medication for high blood pressure?

<table>
<thead>
<tr>
<th>Response</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>0</td>
</tr>
<tr>
<td>Yes</td>
<td>2</td>
</tr>
</tbody>
</table>

7. Do you currently smoke cigarettes or any other tobacco product on a daily basis?

<table>
<thead>
<tr>
<th>Response</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>0</td>
</tr>
<tr>
<td>Yes</td>
<td>2</td>
</tr>
</tbody>
</table>
### Appendix 3: The Australian Type 2 Diabetes Risk Assessment Tool

#### 8. How often do you eat vegetables or fruit?

<table>
<thead>
<tr>
<th></th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Every day</td>
<td>0</td>
</tr>
<tr>
<td>Not every day</td>
<td>1</td>
</tr>
</tbody>
</table>

#### 9. On average, would you say you do at least 2.5 hours of physical activity per week (for example, 30 minutes a day on 5 or more days a week)?

<table>
<thead>
<tr>
<th></th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>0</td>
</tr>
<tr>
<td>No</td>
<td>2</td>
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</table>

#### 10. Your waist measurements taken below the ribs, usually at the level of the navel and while standing?

<table>
<thead>
<tr>
<th>Waist measurement (cm)</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>For those of Asian or Aboriginal or Torres Strait Islander descent</td>
<td></td>
</tr>
<tr>
<td>Men</td>
<td>Women</td>
</tr>
<tr>
<td>&lt; 90 cm</td>
<td>&lt; 80 cm</td>
</tr>
<tr>
<td>90 - 100 cm</td>
<td>80 - 90 cm</td>
</tr>
<tr>
<td>&gt; 100 cm</td>
<td>&gt; 90 cm</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>For all others</th>
</tr>
</thead>
<tbody>
<tr>
<td>Men</td>
</tr>
<tr>
<td>&lt; 102 cm</td>
</tr>
<tr>
<td>102 - 110 cm</td>
</tr>
<tr>
<td>&gt; 110 cm</td>
</tr>
</tbody>
</table>

Add up your points

---

Your risk of developing type 2 diabetes within 5 years*

- **5 or less: Low risk**
  - Approximately one person in every 100 will develop diabetes.

- **6 - 11: Intermediate risk**
  - For scores 6 - 8, approximately one person in every 50 will develop diabetes.
  - For scores of 9 - 11, approximately one person in every 30 will develop diabetes.

- **12 or more: High risk**
  - For scores of 12 - 15, approximately one person in every 14 will develop diabetes.
  - For scores of 16 - 19 approximately one person in every 7 will develop diabetes. For scores of 20 and above, approximately one person in every 3 will develop diabetes.

*The overall score may over estimate the risk of diabetes in those aged less than 25 years.

**If you scored 6 - 11 points in the AUSDRISK you may be at increased risk of type 2 diabetes.**

Discuss your score and your individual risk with your doctor. Improving your lifestyle may help reduce your risk of developing type 2 diabetes.

**If you scored 12 points or more in the AUSDRISK you may have undiagnosed type 2 diabetes or be at high risk of developing the disease.**

See your doctor about having a fasting blood glucose test. Act now to prevent type 2 diabetes.
Medicare items

- All information is current at the time of printing this manual. Users are advised to check for any updated information

### Medicare Benefits Schedule

**MBS item 715 - Health Assessment for Aboriginal and Torres Strait Islander People**

- Attendance by a medical practitioner (including a general practitioner, but not including a specialist or consultant physician) at consulting rooms or in another place other than a hospital or Residential Aged Care Facility, for a health assessment of a patient who is of Aboriginal or Torres Strait Islander descent - not more than once in a 9 month period.

**MBS item 701 - Brief Health Assessment**

- A brief health assessment is used to undertake simple health assessments. The health assessment should take no more than 30 minutes to complete

**MBS item 703 - Standard Health Assessment**

- A standard health assessment is used for straightforward assessments where the patient does not present with complex health issues but may require more attention than can be provided in a brief assessment. The assessment lasts more than 30 minutes but takes less than 45 minutes.

**MBS item 705 - Long Health Assessment**

- A long health assessment is used for an extensive assessment, where the patient has a range of health issues that require more in-depth consideration, and longer-term strategies for managing the patient’s health may be necessary. The assessment lasts at least 45 minutes but less than 60 minutes.

**MBS item 707 - Prolonged Health Assessment**

- A prolonged health assessment is used for a complex assessment of a patient with significant, long-term health needs that need to be managed through a comprehensive preventive health care plan. The assessment takes 60 minutes or more to complete.

**MBS item 10986 - Healthy Kids check provided by a Practice Nurse or an Aboriginal and Torres Strait Islander health practitioner**

- Service provided by a practice nurse or Aboriginal and Torres Strait Islander health practitioner being the provision of a health assessment for a patient who is receiving or has received their four year old immunisation, if:
  - the service is provided on behalf of, and under the supervision of, a medical practitioner (including a general practitioner, but not including a specialist or consultant physician), and
  - the person is not an admitted patient of a hospital.

- Not being an attendance on a patient in respect of whom a payment has already been made under this item or item MBS item 701, MBS item 703, MBS item 705, MBS item 707. Benefits are payable on one occasion only for each eligible patient.
### Health assessments summaries able to be claimed by MBS item number

<table>
<thead>
<tr>
<th><strong>MBS item 715</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>*<em>1. <em>Aboriginal and Torres Strait Islander child health assessment</em></em></td>
<td></td>
</tr>
<tr>
<td>Under 15 years old</td>
<td></td>
</tr>
<tr>
<td>Every 9 months</td>
<td></td>
</tr>
<tr>
<td>**2. <strong>Aboriginal and Torres Strait Islander adult health assessment</strong></td>
<td></td>
</tr>
<tr>
<td>15 years and under 55 years</td>
<td></td>
</tr>
<tr>
<td>Every 9 months</td>
<td></td>
</tr>
<tr>
<td>**3. <strong>Aboriginal and Torres Strait Islander older person’s health assessment</strong></td>
<td></td>
</tr>
<tr>
<td>At least 55 years old</td>
<td></td>
</tr>
<tr>
<td>Every 9 months</td>
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</table>

<table>
<thead>
<tr>
<th><strong>MBS items 701, 703, 705, 707 or 10986</strong></th>
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</thead>
<tbody>
<tr>
<td>*<em>4. <em>Healthy Kids Check</em></em></td>
<td></td>
</tr>
<tr>
<td>At least 3 years and under 5 years of age</td>
<td></td>
</tr>
<tr>
<td>Receiving or has received the immunisation recommended for a 4 year old child</td>
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<tr>
<td>Once only</td>
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</table>

<table>
<thead>
<tr>
<th><strong>MBS items 701, 703, 705 or 707</strong></th>
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<tbody>
<tr>
<td>*<em>5. <em>Type 2 Diabetes Risk Evaluation</em></em></td>
<td></td>
</tr>
<tr>
<td>40 years and under 50 years old</td>
<td></td>
</tr>
<tr>
<td>At high risk of developing type 2 diabetes as per the Australian Type 2 Diabetes Risk Assessment Tool (completed 3 months prior to assessment)</td>
<td></td>
</tr>
<tr>
<td>Every 3 years</td>
<td></td>
</tr>
<tr>
<td>**6. <strong>45 year old Health Assessment</strong></td>
<td></td>
</tr>
<tr>
<td>45 years and under 50 years of age</td>
<td></td>
</tr>
<tr>
<td>At risk of developing a chronic disease</td>
<td></td>
</tr>
<tr>
<td>Once only</td>
<td></td>
</tr>
</tbody>
</table>

| **7. Older person’s Health Assessment** |
| At least 75 years old  |
| Every 12 months  |

| **8. **A health assessment for people with an intellectual disability** |
| Every 12 months  |

| **9. **A health assessment for refugees and other humanitarian entrants** |
| Once only  |

| **10. Comprehensive Medical Assessment** |
| Permanent residents of residential aged care facilities  |
| On admission to a residential aged care facility, then annually  |

| **11. An Australian Defence Force Post-discharge GP Health Assessment** |
| A former member of the Permanent Forces or a former member of the Reserves  |
| Has not already received such an assessment.  |

* Not an in-patient of a hospital  
** Not an in-patient of a hospital or a care recipient in a residential aged care facility
1. **Aboriginal and Torres Strait Islander child health assessment (MBS item 715)**

1. An Aboriginal and Torres Strait Islander child health assessment is the assessment of:
   (a) a patient’s health and physical, psychological and social function; and
   (b) whether preventive health care, education and other assistance should be offered to the patient, or the patient’s parent or carer, to improve the patient’s health and physical, psychological or social function.

2. An Aboriginal and Torres Strait Islander child health assessment must include:
   (a) a personal attendance by a medical practitioner; and
   (b) taking the patient’s history, including the following:
      (i) mother’s pregnancy history;
      (ii) birth and neo-natal history;
      (iii) breastfeeding history;
      (iv) weaning, food access and dietary history;
      (v) physical activity engaged in;
      (vi) previous presentations, hospital admissions and medication use;
      (vii) relevant family medical history;
      (viii) immunisation status;
      (ix) vision and hearing (including neo-natal hearing screening);
      (x) development (including achievement of age-appropriate milestones);
      (xi) family relationships, social circumstances and whether the person is cared for by another person;
      (xii) exposure to environmental factors (including tobacco smoke);
      (xiii) environmental and living conditions;
      (xiv) educational progress;
      (xv) stressful life events experienced;
      (xvi) mood (including incidence of depression and risk of self-harm);
      (xvii) substance use;
      (xviii) sexual and reproductive health;
      (xix) dental hygiene (including access to dental services); and
   (c) examination of the patient, including the following:
      (i) measurement of the patient’s height and weight to calculate the patient’s body mass index and position on the growth curve;
      (ii) newborn baby check (if not previously completed);
      (iii) vision (including red reflex in a newborn);
      (iv) ear examination (including otoscopy);
      (v) oral examination (including gums and dentition);
      (vi) trachoma check, if indicated;
      (vii) skin examination, if indicated;
      (viii) respiratory examination, if indicated;
(ix) cardiac auscultation, if indicated;
(x) development assessment, to determine whether age-appropriate milestones have been achieved, if indicated;
(xi) assessment of parent and child interaction, if indicated;
(xii) other examinations in accordance with national or regional guidelines or specific regional needs, or as indicated by a previous child health assessment; and

(d) performing or arranging any required investigation, in particular considering the need for the following tests:

(i) haemoglobin testing for those at a high risk of anaemia;
(ii) audiometry, especially for school age children; and

(e) assessing the patient using the information gained in the child health assessment; and

(f) making or arranging any necessary interventions and referrals, and documenting a strategy for the good health of the patient; and

(g) both:

(i) keeping a record of the health assessment; and
(ii) offering the patient, or the patient’s parent or carer, a written report on the health assessment, with recommendations on matters covered by the health assessment (including a strategy for the good health of the patient).

2. Aboriginal and Torres Strait Islander adult health assessment (MBS item 715)

1. An Aboriginal and Torres Strait Islander adult health assessment is the assessment of:

   (a) a patient's health and physical, psychological and social function; and

   (b) whether preventive health care, education and other assistance should be offered to the patient to improve their health and physical, psychological or social function.

2. An Aboriginal and Torres Strait Islander adult health assessment must include:

   (a) personal attendance by a medical practitioner; and

   (b) taking the patient’s history, including the following:

      (i) current health problems and risk factors;

      (ii) relevant family medical history;

      (iii) medication use (including medication obtained without prescription or from other doctors);

      (iv) immunisation status, by reference to the appropriate current age and sex immunisation schedule;

      (v) sexual and reproductive health;

      (vi) physical activity, nutrition and alcohol, tobacco or other substance use;

      (vii) hearing loss;

      (viii) mood (including incidence of depression and risk of self-harm);

      (ix) family relationships and whether the patient is a carer, or is cared for by another person;
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(x) vision; and

c) examination of the patient, including the following:
    (i) measurement of the patient’s blood pressure, pulse rate and rhythm;
    (ii) measurement of height and weight to calculate the patient’s body mass index and, if indicated, measurement of waist circumference for central obesity;
    (iii) oral examination (including gums and dentition);
    (iv) ear and hearing examination (including otoscopy and, if indicated, a whisper test);
    (v) urinalysis (by dipstick) for proteinuria;
    (vi) eye examination; and

d) performing or arranging any required investigation, in particular considering the need for the following tests (in accordance with national or regional guidelines or specific regional needs):
    (i) fasting blood sugar and lipids (by laboratory-based test on venous sample) or, if necessary, random blood glucose levels;
    (ii) papanicolaou smear;
    (iii) examination for sexually transmitted infection (by urine or endocervical swab for chlamydia and gonorrhoea, especially for those 15 to 35 years old);
    (iv) mammography, if eligible (by scheduling appointments with visiting services or facilitating direct referral); and
(e) assessing the patient using the information gained in the health assessment; and
(f) making or arranging any necessary interventions and referrals, and documenting a simple strategy for the good health of the patient.

3. An Aboriginal and Torres Strait Islander adult health assessment must also include:
   (a) keeping a record of the health assessment; and
   (b) offering the patient a written report on the health assessment, with recommendations on matters covered by the health assessment (including a simple strategy for the good health of the patient).

3. Aboriginal and Torres Strait Islander Older Person’s Health Assessment (MBS item 715)

1. An Aboriginal and Torres Strait Islander Older Person’s Health Assessment is the assessment of:
   (a) a patient’s health and physical, psychological and social function; and
   (b) whether preventive health care and education should be offered to the patient, to improve the patient’s health and physical, psychological or social function.

2. An Aboriginal and Torres Strait Islander Older Person’s Health Assessment must include:
   (a) personal attendance by a medical practitioner; and
   (b) measurement of the patient’s blood pressure, pulse rate and rhythm; and
   (c) assessment of the patient’s medication; and
   (d) assessment of the patient’s continence; and
(e) assessment of the patient’s immunisation status for influenza, tetanus and pneumococcus; and

(f) assessment of the patient’s physical functions, including the patient’s activities of daily living and whether or not the patient has had a fall in the last 3 months; and

(g) assessment of the patient’s psychological function, including the patient’s cognition and mood; and

(h) assessment of the patient’s social function, including:

   (i) the availability and adequacy of paid, and unpaid, help; and
   (ii) whether the patient is responsible for caring for another person; and

(i) an examination of the patient’s eyes.

3. An Aboriginal and Torres Strait Islander Older Person’s Health Assessment must also include:

   (a) keeping a record of the health assessment; and
   (b) offering the patient a written report on the health assessment, with recommendations on matters covered by the health assessment; and
   (c) offering the patient’s carer (if any, and if the practitioner considers it appropriate and the patient agrees) a copy of the report or extracts of the report relevant to the carer.

4. Healthy Kids Check (MBS items 701, 703, 705, 707 or 10986)

   **N.B.** At the time of printing this manual advice is that (subject to tabling of regulation), from 1 November 2015, Medicare benefits will no longer be paid for Healthy Kids Checks. Aboriginal and/or Torres Strait Islander children will continue to be eligible for the Aboriginal and Torres Strait Islander health assessment every nine months under MBS item 715

1. A Healthy Kids Check is the assessment of:

   (a) a patient’s physical health, general wellbeing and development; and
   (b) whether any medical intervention is required for the patient.

2. The following may perform a Healthy Kids Check:

   (a) a medical practitioner (including a general practitioner);
   (b) a practice nurse or an Aboriginal and Torres Strait Islander health practitioner on behalf, and under the supervision, of a medical practitioner.

3. If a practice nurse or a registered Aboriginal and Torres Strait Islander health practitioner performs a Healthy Kids Check for a patient and identifies any problems, the patient must be reviewed by the patient’s usual medical practitioner, who must arrange referrals and follow-up services as required.

4. A Healthy Kids Check for a patient must include the following basic physical examinations and assessments:

   (a) measurement of the patient’s height and weight to calculate the patient’s body mass index and position on the growth curve;
   (b) eyesight;
(c) hearing;
(d) oral health (teeth and gums);
(e) toileting;
(f) allergies.

5. A Healthy Kids Check for a patient must also include:
   (a) information collection, including taking a patient history and performing examinations and investigations, as required; and
   (b) making an overall assessment of the patient; and
   (c) initiating interventions or referrals, as appropriate; and
   (d) giving health advice and information to the patient’s parent or carer, using the guide called Get Set 4 Life—habits for healthy kids.

Note: The Get Set 4 Life—habits for healthy kids guide is available at http://www.health.gov.au

6. The person performing a Healthy Kids Check must:
   (a) note if a copy of the guide mentioned in paragraph (5)(d) has been given to the patient’s parent or carer; and
   (b) record evidence that the immunisation recommended for a 4 year old child has been given to the patient.

7. The immunisation recommended for a 4 year old child may be given to a patient when he or she has a Healthy Kids Check, and may be claimed separately.

8. The Healthy Kids Check must not be provided more than once to an eligible person.

5. **Type 2 Diabetes Risk Evaluation (MBS items 701, 703, 705 or 707)**

1. A Type 2 Diabetes Risk Evaluation must include:
   (a) a review of the risk factors underlying a patient’s high risk score as identified by the Australian Type 2 Diabetes Risk Assessment Tool; and
   (b) initiating interventions, if appropriate, to address risk factors or to exclude diabetes.

Note: The Australian Type 2 Diabetes Risk Assessment Tool is available at Appendix 3. or available at http://www.health.gov.au

2. The Type 2 Diabetes Risk Evaluation for a patient must also include:
   (a) assessing the patient’s high risk score as determined by the Australian Type 2 Diabetes Risk Assessment Tool (to be completed by the patient within 3 months before performing the Type 2 Diabetes Risk Evaluation); and
   (b) updating the patient’s history and performing physical examinations and clinical investigations; and

Note: Guidelines for examination and assessment include the Royal Australian College of General Practitioners publications Putting Prevention into Practice and Guidelines for Preventive Activities in General Practice available at http://www.racgp.org.au
   (c) making an overall assessment of the patient’s risk factors and the results of examinations and investigations; and
   (d) initiating interventions, if appropriate, including referrals and follow-up services relating to the management of any risk factors identified; and
   (e) giving the patient advice and information, including strategies to achieve lifestyle
and behaviour changes if appropriate.

3. A Type 2 Diabetes Risk Evaluation must not be provided more than once every 3 years to an eligible person.

4. For this clause, risk factors includes:
   (a) lifestyle risk factors (for example smoking, physical inactivity or poor nutrition); and
   (b) biomedical risk factors (for example high blood pressure, impaired glucose metabolism or excess weight); and
   (c) a family history of a chronic disease.

6. **45 year old Health Assessment (MBS items 701, 703, 705 or 707)**

1. A 45 year old Health Assessment is an assessment for a patient if the patient, in the clinical judgment of the attending medical practitioner based on the identification of a specific risk factor, is at risk of developing a chronic disease.

2. The 45 year old Health Assessment must include:
   (a) information collection, including taking a patient’s history and performing examinations and investigations, as required; and
   (b) making an overall assessment of the patient; and
   (c) initiating interventions or referrals, as appropriate; and
   (d) giving health advice and information to the patient.

3. The medical practitioner providing the assessment is responsible for the overall health assessment of the patient.

4. A 45 year old Health Assessment must not be given more than once to an eligible person.

5. In this clause:
   - **chronic disease** means a disease that has been, or is likely to be, present for at least 6 months, including asthma, cancer, cardiovascular illness, diabetes mellitus, a mental health condition, arthritis or a musculoskeletal condition
   - **specific risk factors** includes:
     (a) lifestyle risk factors (for example smoking, physical inactivity, poor nutrition or alcohol misuse); and
     (b) biomedical risk factors (for example high cholesterol, high blood pressure, impaired glucose metabolism or excess weight); and
     (c) a family history of a chronic disease.

7. **Older person’s Health Assessment (MBS items 701, 703, 705 or 707)**

1. An Older Person’s Health Assessment is the assessment of:
   (a) a patient’s health and physical, psychological and social function; and
   (b) whether preventive health care and education should be offered to the patient, to improve the patient’s health and physical, psychological and social function.

2. An Older Person’s Health Assessment must include:
   (a) personal attendance by a medical practitioner; and
   (b) measurement of the patient’s blood pressure, pulse rate and rhythm; and
(c) assessment of the patient’s medication; and
(d) assessment of the patient’s continence; and
(e) assessment of the patient's immunisation status for influenza, tetanus and pneumococcus; and
(f) assessment of the patient’s physical functions, including the patient’s activities of daily living and whether or not the patient has had a fall in the last 3 months; and
(g) assessment of the patient's psychological function, including the patient’s cognition and mood; and
(h) assessment of the patient's social function, including:
   (i) the availability and adequacy of paid, and unpaid, help; and
   (ii) whether the patient is responsible for caring for another person.

3. An Older Person’s Health Assessment must also include:
   (a) keeping a record of the health assessment; and
   (b) offering the patient a written report on the health assessment, with recommendations about matters covered by the health assessment; and
   (c) offering the patient's carer (if any, and if the practitioner considers it appropriate and the patient agrees) a copy of the report or extracts of the report relevant to the carer.

4. An Older Person’s Health Assessment must not be provided more than once every 12 months to an eligible person.

8. Comprehensive Medical Assessment for permanent resident of residential aged care facility (MBS items 701, 703, 705 or 707)

1. A Comprehensive Medical Assessment of a permanent resident of a residential aged care facility includes an assessment of the resident’s health and physical and psychological function.

2. A Comprehensive Medical Assessment must include:
   (a) a personal attendance by a medical practitioner; and
   (b) taking a detailed patient history of the resident; and
   (c) conducting a comprehensive medical examination of the resident; and
   (d) developing a list of diagnoses and medical problems based on the medical history and examination; and
   (e) giving a written copy of a summary of the outcomes of the assessment to the residential aged care facility for the resident's medical records.

3. A Comprehensive Medical Assessment must also include:
   (a) making a written summary of the Comprehensive Medical Assessment; and
   (b) giving a copy of the summary to the residential aged care facility; and
   (c) offering the resident a copy of the summary.

4. A Comprehensive Medical Assessment may be provided:
   (a) on admission to a residential aged care facility, if a Comprehensive Medical
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Assessment has not already been provided in another residential aged care facility in the last 12 months; and
(b) at 12 month intervals after that assessment.

5. A Comprehensive Medical Assessment may be performed in conjunction with a consultation for another purpose, but must be claimed separately.

9. Health assessment for a person with an intellectual disability (MBS items 701, 703, 705 or 707)

1. A health assessment for a person with an intellectual disability is an assessment of:
   (a) the patient’s physical, psychological and social function; and
   (b) whether any medical intervention and preventive health care is required.

2. The health assessment for a person with an intellectual disability must include the following matters to the extent that they are relevant to the patient:
   (a) checking dental health (including dentition);
   (b) conducting an aural examination (including arranging a formal audiometry if an audiometry has not been conducted within the last 5 years);
   (c) assessing ocular health (arrange review by an ophthalmologist or optometrist if a comprehensive eye examination has not been conducted within the last 5 years);
   (d) assessing nutritional status (including weight and height measurements) and a review of growth and development;
   (e) assessing bowel and bladder function (particularly for incontinence or chronic constipation);
   (f) assessing medications including:
      (i) non-prescription medicines taken by the patient, prescriptions from other doctors, medications prescribed but not taken, interactions, side effects and review of indications; and
      (ii) advice to carers on the common side-effects and interactions; and
      (iii) consideration of the need for a formal medication review;
   (g) checking immunisation status (including influenza, tetanus, hepatitis A and B, measles, mumps, rubella and pneumococcal vaccinations) with reference to the Australian Immunisation Handbook, for appropriate vaccination schedules;
   Note: The Australian Immunisation Handbook is available at http://www.health.gov.au
   (h) checking exercise opportunities (with the aim of moderate exercise for at least 30 minutes each day);
   (i) checking whether the support provided for activities of daily living adequately and appropriately meets the patient’s needs, and considering formal review if required;
   (j) considering the need for breast examination, mammography, papanicolaou smears, testicular examination, lipid measurement and prostate assessment as for the general population;
   (k) checking for dysphagia and gastro-oesophageal disease (especially for patients with cerebral palsy) and arranging for investigation or treatment as required;
(l) assessing risk factors for osteoporosis (including diet, exercise, Vitamin D deficiency, hormonal status, family history, medication and fracture history) and arranging for investigation or treatment as required; 
(m) for a patient diagnosed with epilepsy—reviewing seizure control (including anticonvulsant drugs) and considering referral to a neurologist at appropriate intervals; 
(n) screening for thyroid disease at least every 2 years (or yearly for patients with Down Syndrome); 
(o) for a patient without a definitive aetiological diagnosis—considering referral to a genetic clinic every 5 years; 
(p) assessing or reviewing treatment for co-morbid mental health issues; 
(q) considering timing of puberty and management of sexual development, sexual activity and reproductive health; 
(r) considering whether there are any signs of physical, psychological or sexual abuse.

3. A health assessment for a person with an intellectual disability must also include: 
   (a) keeping a record of the health assessment; and 
   (b) offering the patient a written report on the health assessment; 

and 
(c) offering the patient’s carer (if any, and if the medical practitioner considers it appropriate and the patient agrees) a copy of the report or extracts of the report; and 
(d) offering relevant disability professionals (if the medical practitioner considers it appropriate and the patient or, if appropriate, the patient’s carer, agrees) a copy of the report or extracts of the report.

4. A health assessment for a person with an intellectual disability must not be provided more than once every 12 months to an eligible person.

10. Health assessment for a refugee or other humanitarian entrant (MBS items 701, 703, 705 or 707)

1. A health assessment for a refugee or other humanitarian entrant is the assessment of: 
   (a) the patient’s health and physical, psychological and social function; and 
   (b) whether preventive health care and education should be offered to the patient to improve their health and physical, psychological or social function.

2. A health assessment for a refugee or other humanitarian entrant must include: 
   (a) a personal attendance by a medical practitioner; and 
   (b) taking the patient’s history; and 
   (c) examining the patient; and 
   (d) performing or arranging any required investigations; and 
   (e) assessing the patient, using the information gained in paragraphs (b), (c) and (d); and 
   (f) developing a management plan addressing the patient’s health care needs, health problems and relevant conditions; and 
   (g) making or arranging any necessary interventions and referrals.

3. A health assessment for a refugee or other humanitarian entrant must also include:
(a) keeping a record of the health assessment; and
(b) offering to provide the patient with a written report of the health assessment.

4. A health assessment for a refugee or other humanitarian entrant must not be provided to a patient more than once.

11. Australian Defence Force Post-discharge GP Health Assessment (MBS items 701, 703, 705 or 707)

1. An Australian Defence Force Post-discharge GP Health Assessment is an assessment of:
   (a) a patient’s physical and psychological health and social function; and
   (b) whether health care, education or other assistance should be offered to the patient to improve the patient’s physical or psychological health or social function.

2. The assessment must be performed by the patient’s usual doctor.

3. The assessment must not be performed in conjunction with a separate consultation in relation to the patient unless the consultation is clinically necessary.

4. The assessment may be performed using the ADF Post-discharge GP Health Assessment Tool.

Note: The ADF Post-discharge GP Health Assessment Tool is available at http://at-ease.dva.gov.au

Other assessment tools mentioned in the Department of Veterans’ Affairs Mental Health Advice Book may be relevant. The Mental Health Advice Book is available at http://at-ease.dva.gov.au

5. The assessment must include taking a history of the patient that includes the following:
   (a) the patient’s service with the Australian Defence Force, including service type, years of service, field of work, number of deployments and reason for discharge;
   (b) the patient’s social history, including relationship status, number of children (if any) and current occupation;
   (c) the patient’s current medical conditions;
   (d) whether the patient suffers from hearing loss or tinnitus;
   (e) the patient’s use of medication, including medication prescribed by another doctor and medication obtained without a prescription;
   (f) the patient’s smoking, if applicable;
   (g) the patient’s alcohol use, if applicable;
   (h) the patient’s substance use, if applicable;
   (i) the patient’s level of physical activity;
   (j) whether the patient has bodily pain;
   (k) whether the patient has difficulty getting to sleep or staying asleep;
   (l) whether the patient has psychological distress;
   (m) whether the patient has post traumatic stress disorder;
   (n) whether the patient is at risk of harm to self or others;
   (o) whether the patient has anger problems;
   (p) the patient’s sexual health;
   (q) any other health concerns the patient has.

6. The assessment must also include the following:
(a) measuring the patient's height;
(b) weighing the patient and ascertaining, or asking the patient, whether the patient's weight has changed in the last 12 months;
(c) measuring the patient's waist circumference;
(d) taking the patient's blood pressure;
(e) using information gained in the course of taking the patient's history to assess whether any further assessment of the patient's health is necessary;
(f) either:
   (i) making the further assessment mentioned in paragraph (e); or
   (ii) referring the patient to another medical practitioner who can make the further assessment;
(g) documenting a strategy for improving the patient's health;
(h) offering to give the patient a written report of the assessment that makes recommendations for treating the patient including preventive health measures.

7. The doctor must keep a record of the assessment.

8. In this clause:

**usual doctor**, in relation to a patient, means a general practitioner employed by a medical practice:

(a) that has provided at least 50% of the primary health care required by the patient in the last 12 months; or
(b) that the patient anticipates will provide at least 50% of the patient's primary health care requirements in the next 12 months.
Appendices

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