

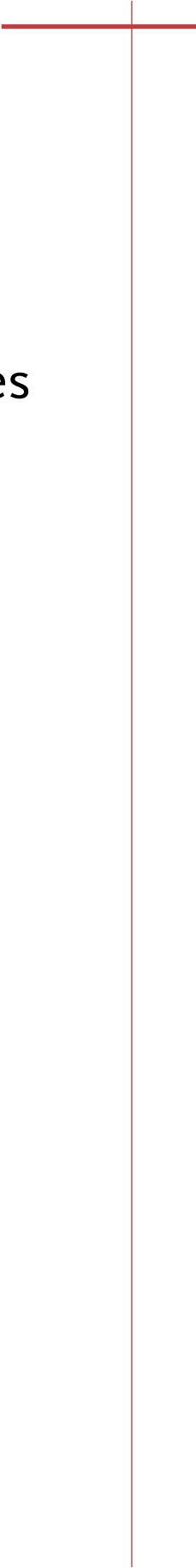


# National guide to a preventive health assessment in Aboriginal and Torres Strait Islander peoples

Prepared by the National Aboriginal Community Controlled Health Organisation as lead agency of the Chronic Disease Alliance of Non-Government Organisations, and endorsed by The Royal Australian College of General Practitioners



THE ROYAL AUSTRALIAN  
COLLEGE OF  
GENERAL PRACTITIONERS



National guide to a preventive  
health assessment in Aboriginal  
and Torres Strait Islander peoples

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Prepared by the National Aboriginal Community Controlled Health Organisation, lead agency of the Chronic Disease Alliance of Non-Government Organisations (Aboriginal and Torres Strait Islander Health).

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National Aboriginal Community Controlled Health Organisation  
National Heart Foundation of Australia  
National Stroke Foundation  
Kidney Health Australia  
The Cancer Council Australia  
Diabetes Australia  
National Rural Health Alliance  
Heart Support Australia  
The Fred Hollows Foundation  
Asthma Foundation  
Mental Health Foundation  
Australian Tuberculosis and Chest Association

Prepared for The Royal Australian College of General Practitioners

Funded by the Australian Government Department of Health and Ageing

## **Disclaimer**

The *National guide to a preventive health assessment in Aboriginal and Torres Strait Islander peoples* is for information purposes only, and is designed as a general reference and catalyst to seeking further information about some aspects of preventive care provision to Aboriginal and Torres Strait Islander peoples.

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# ACRONYMS

7vPCV	7-valent pneumococcal conjugate vaccine	CER	control event rate
23vPPV	23-valent pneumococcal polysaccharide vaccine	CERA	Centre for Eye Research in Australia
ABS	Australian Bureau of Statistics	CHD	coronary heart disease
ACCHS	Aboriginal Community Controlled Health Services	CI	confidence interval
ACEI	angiotensin converting enzyme inhibitors	COPD	chronic obstructive pulmonary disease
ACIP	Advisory Committee on Immunisation Practices	CSOM	chronic suppurative otitis media
ACIR	Australian Childhood Immunisation Register	CV	cardiovascular
ACR	albumin-creatinine ratio	CVD	cardiovascular disease
ACT	Australian Capital Territory	DASH	Dietary Approaches to Stop Hypertension
AHW	Aboriginal Health Worker	DBP	diastolic blood pressure
AIDS	acquired immunodeficiency syndrome	DCCT	Diabetes Control and Complications Trial
AIHW	Australian Institute of Health and Welfare	DTP	diphtheria, tetanus, pertussis
ALPA	Arnhem Land Progress Association	ECG	electrocardiography
AMI	anterior myocardial infarction	ESRD	end stage renal disease
AOM	acute otitis media	ESRF	end stage renal failure
APSGN	acute poststreptococcal glomerulonephritis	FBC	full blood count
ARA	angiotensin receptor antagonist	FBG	fasting blood glucose
ASPRN	Australian Sentinel Practice Research Network	FPG	fasting plasma glucose
AST	aspartate aminotransferase	FTT	failure to thrive
ATSIC	Aboriginal and Torres Strait Islander Commission	GDM	gestational diabetes mellitus
AUDIT	Alcohol Use Disorders Identification Test	GET	global elimination of blinding trachoma
BHPS	British Heart Protection Study	GFR	glomerular filtration rate
BMI	body mass index	GGT	gamma glutamyl transferase
BP	blood pressure	GP	general practitioner
BSE	breast self examination	GSAT	Guidelines, Standards and Audit Team
CAAAPU	Central Australian Aboriginal Alcohol Programs Unit	GTT	glucose tolerance test
CARPA	Central Australian Rural Practitioners Association	HBV	hepatitis B virus
CBE	Clinical breast examination	HDL	high density lipoprotein
CCCH	Centre for Community Child Health	HDL-C	high density lipoprotein cholesterol
CDC	Centers for Disease Control	HIV	human immunodeficiency virus
		HPV	human papilloma virus
		HSV	herpes simplex virus
		IARC	International Agency for Research on Cancer
		IFG	impaired fasting glucose
		IGT	impaired glucose tolerance

IM	intramuscular	SES	socioeconomic status
IPD	invasive pneumococcal disease	SIDS	sudden infant death syndrome
ISP	Indigenous Sport Program	STI	sexually transmitted infection
MCV	mean cell volume	STOP NIDDM	Prevent Non-Insulin Dependent Diabetes Mellitus
MI	myocardial infarction	TIA	transient ischaemic attack
MV	microvascular	TRIPOD	Troglitazone in Prevention of Diabetes
NAA	nucleic acid amplification	UK	United Kingdom
NACCHO	National Aboriginal Controlled Community Health Organisation	UKPDS	UK Prospective Diabetes Study
NAHS	National Aboriginal Health Strategy	UKWPCHS	UK Working Party on Child Health Surveillance
NATSIS	National Aboriginal and Torres Strait Islander Survey	UNICEF	United Nations Children's Fund
NHFA	National Heart Foundation of Australia	URTI	upper respiratory tract infection
NHMRC	National Health and Medical Research Council	USA	United States of America
NIDDM	non-insulin dependent diabetes mellitus	USPSTF	United States Preventive Services Task Force
NIPII	National Indigenous Pneumococcal and Influenza Immunisation Program	VACCHO	Victorian Aboriginal Community Controlled Health Organisation
NNT	number needed to treat	WA	Western Australia
NSW	New South Wales	WC	waist circumference
NT	Northern Territory	WHO	World Health Organisation
NZ	New Zealand	WHR	waist-hip ratio
NZMU	Northern Zone Management Unit	WIC	women, infants and children
OATSIH	Office of Aboriginal and Torres Strait Islander Health	WPHC	well person's health check
OM	otitis media		
OME	otitis media with effusion		
PCV	pneumococcal conjugate vaccine		
PEER	Patient expected event rate		
PID	pelvic inflammatory disease		
PPM	part per million		
PPV	pneumococcal polysaccharide vaccine		
RACGP	The Royal Australian College of General Practitioners		
RRR	relative risk reduction		
SA	South Australia		
SANDS	Servier Australia National Diabetes Study		
SBP	systolic blood pressure		

# PREAMBLE

The *National guide to a preventive health assessment in Aboriginal and Torres Strait Islander peoples (National guide)* is an initiative of the National Aboriginal Community Controlled Health Organisation (NACCHO), lead agency of the Chronic Disease Alliance of Non-Government Organisations. The Royal Australian College of General Practitioners (RACGP) supported the development of the guide.

The *National guide* is intended for all health professionals delivering primary health care to the Aboriginal and Torres Strait Islander population. This includes general practitioners (GPs), Aboriginal health workers, nurses and those specialists with a role in delivering primary health care.

## The *National guide* package

The *National guide* package consists of:

### **The *National guide***

- Recommendations compiled from the review of the *Evidence base*
- Child and adult preventive health life cycle summaries.

### **The review of the *Evidence base***

The Chronic Disease Alliance determined that recommendations in the *National guide* should be based on a review of the evidence, seeking where possible existing systematic reviews addressing questions related to preventive health care, expert opinion and consensus statements of relevance to the Aboriginal and Torres Strait Islander population.

The *Evidence base* documents the research literature used to form the *National guide* and can be accessed on the RACGP website at: [www.racgp.org.au](http://www.racgp.org.au) and on the NACCHO website at: [www.naccho.org.au](http://www.naccho.org.au). Users of this guide are encouraged to access this *Evidence base* for more information.

Health care providers (particularly in regional and remote areas) are also encouraged to refer to local guidelines (where they are appropriate and available) in order to optimise preventive health assessments. Many of the recommendations in the *National guide* describe health problems that may be of concern only in certain regional areas. For example, trichiasis screening is not appropriate in Victoria except when an elderly Aboriginal person from northern Australia is assessed. Consequently, many recommendations highlight the importance of clinical discretion in decision making.

The *National guide* makes specific recommendations regarding the elements of a preventive health assessment in the non-pregnant adult Aboriginal and Torres Strait Islander population as well as children. The aim is to provide a national evidence based resource that can inform health care providers and policy makers on a defined set of activities that are of particular relevance to this population, or that are different from those for the non-Indigenous population.

These activities may prevent disease, detect early and unrecognised disease, and promote health in the Aboriginal and Torres Strait Islander population while allowing for variations based on regional and local circumstances.

General practitioners should use the recommendations to enhance the clinical care that they provide to their Aboriginal and Torres Strait Islander clients. The *National guide* aims to complement the RACGP *Guidelines for preventive activities in general practice* (known as the 'red book') by dealing with health issues that are specific to the Aboriginal and Torres

Strait Islander population. The chosen subject areas represent key health issues that are amenable to primary health care intervention and contribute to morbidity and mortality in the Aboriginal and Torres Strait Islander population. Where issues common in the general Australian population have not been dealt with in this guide (eg. osteoporosis), GPs are encouraged to cross reference with the 'red book' which is available on the RACGP website at: [www.racgp.org.au/document.asp?id=4169](http://www.racgp.org.au/document.asp?id=4169).

To assist health care providers, the *Evidence base* used to form the *National guide* provides a summary of recommendations from the 'red book' and from other groups, such as the Central Australian Rural Practitioners Association and the Northern Zone Management Unit of Queensland Health in north Queensland.

The authors have presented the information in this guide so that it can apply to both Aboriginal and Torres Strait Islander peoples. It is recognised that, while the health of Torres Strait Islanders is very similar to the Aboriginal population, they represent a distinct Indigenous Australian population.

Health care providers should use the *National guide* to systematically appraise current preventive practice, especially where recommendations for the general population have previously been applied to Aboriginal and Torres Strait Islander clients. Providers may also benefit by appraising certain screening activities for which there is little evidence. These activities may draw resources away from other activities to improve the health of the Aboriginal and Torres Strait Islander population, eg. risk factor modification and immunisation programs.

General practitioners may undertake preventive health assessment activities as part of their normal consultations. Medicare benefits are payable for a medical examination or test on a symptomless patient by that patient's own medical practitioner in the course of normal medical practice, to ensure the patient receives any medical advice or treatment necessary to maintain his or her state of health.

Specific Medicare rebates for preventive health assessments are also available for Aboriginal and Torres Strait Islander peoples in two different age groups:

- the Enhanced Primary Care (EPC) health assessment for older Australians items (704 and 706) provide for annual voluntary health assessments for Aboriginal and Torres Strait Islander people aged 55 years and over, and
- the Aboriginal and Torres Strait Islander adult health check item (710) provides for 2-yearly health checks for Aboriginal and Torres Strait Islander people aged 15–54 years inclusive.

The Medicare requirements for the EPC 55+ health assessment and adult health check items vary in some respects from the recommendations contained in the *National guide*. The *National guide* covers all age groups, whereas the Medicare items are designed for specific age groups. In some areas, the *National guide* recommends checking/testing more frequently than 2-yearly. The *National guide* does not cover some elements of the 55+ EPC health assessment (eg. activities of daily living) and some of the optional elements of the adult health check (eg. reproductive health, skin conditions, and hearing loss in adults). Refer to the RACGP *Standards and guidelines for the Enhanced Primary Care Medical Benefits Schedule items* (2000) for more information on older age health assessments.

While the *National guide* is a valuable and important reference document for GPs providing health assessments for Aboriginal and Torres Strait Islander people, **GPs need to be aware of, and comply with, the specific MBS requirements** when providing these services. General practitioners are advised to check the requirements in the current edition of the Medicare Benefits Schedule before claiming these items.

# LEVELS OF EVIDENCE

The definitions of the types of evidence used in the *National guide* are the same as those used by the RACGP in the *Guidelines for preventive activities in general practice*, (updated 5th edn, 2002). They were adapted from definitions published by the National Health and Medical Research Council (NHMRC) in *How to use the evidence: assessment and application of scientific evidence* (2000) which is available on the NHMRC's website at: [www.nhmrc.gov.au/publications/pdf/cp69.pdf](http://www.nhmrc.gov.au/publications/pdf/cp69.pdf).

The RACGP evidence grading scheme was used because the NHMRC levels of evidence exclude expert opinion and consensus from an expert committee in the grading process (shown as level V). A vast number of grading schemes have been developed from around the world in the past few decades.

Readers are advised that selection from these evidence grading systems is dependent on the reason for measuring evidence strength, the type of studies that are being summarised, staff, time, and financial resources.<sup>1</sup> The RACGP grading scheme describes research related to therapy, prevention, or aetiology/harm. It does not describe research related to diagnostic or prognostic studies (such as laboratory testing) or economic analyses.

The definitions of the levels of evidence used in the *National guide* are set out as follows:

Level	Type of evidence
I	Evidence obtained from a systematic review (SR) of all relevant randomised controlled trials
II	Evidence obtained from at least one properly designed randomised controlled trial
III	Evidence from any of the following: <ul style="list-style-type: none"><li>• well designed pseudo-randomised controlled trials</li><li>• comparative studies (including SR of such studies) with concurrent controls and allocation not randomised</li><li>• cohort studies</li><li>• case control studies</li><li>• interrupted time series with a control group</li><li>• comparative studies with historical control or interrupted time series without a control group</li></ul>
IV	Evidence obtained from case series, either post- or pre-test and post-test
V	Opinions of respected authorities based on clinical experience, descriptive studies or reports of expert committees

## Reference

1. West S, King V, Carey TS, et al. Systems to rate the strength of scientific evidence. Evidence Report/Technology Assessment No. 47 (Prepared by the Research Triangle Institute – University of North Carolina Evidence-based Practice Center under Contract No. 290-97-0011). AHRQ Publication No. 02-E016. Rockville, MD: Agency for Healthcare Research and Quality, 2002. Available at: [www.ahrq.gov/clinic/tp/strengthtp.htm](http://www.ahrq.gov/clinic/tp/strengthtp.htm).

## ALCOHOL – PREVENTION OF PROBLEM DRINKING

Hazardous ingestion of alcohol is more prevalent among Indigenous Australian males and females aged 35–44 years than among the general population.	
EVIDENCE	Level of evidence
Hazardous ingestion of alcohol contributes substantially toward poor health in the Aboriginal and Torres Strait Islander population through chronic disease, acute infection, injury, mental health issues, cancer, and foetal alcohol syndrome.	IV
Control of problem drinking can prevent alcohol related injuries.	I
Opportunistic assessment reduces problem drinking and may reduce alcohol related consequences in the general population, especially when followed by brief intervention by general practitioners or other health care providers.	I
Few studies have evaluated the effectiveness of brief intervention for problem drinking in the Aboriginal and Torres Strait Islander population. Given the burden of disease associated with alcohol, even a small reduction in alcohol consumption may have significant public health benefits.	V
The use of screening questionnaires such as the Alcohol Use Disorders Identification Test (AUDIT) is effective in identifying clients with, or at risk of, hazardous drinking in the general population.	III
The AUDIT questionnaire is widely used as a tool by Aboriginal and Torres Strait Islander health care providers to identify problem drinking and may be accessed via the internet at: <a href="http://www.health.gov.au/oatsih/pubs/alco.htm">www.health.gov.au/oatsih/pubs/alco.htm</a> . However, some difficulties in using this test have been reported in the Aboriginal health setting.	IV
Aboriginal and Torres Strait Islander community based programs for problem alcohol drinking are effective at reducing alcohol consumption and its consequences when there is both community and statutory support.	IV
There is no optimal laboratory test for population based screening and detection of problem drinking. A gamma glutamyl transferase (GGT) test is insensitive as a screening test, but may be used for monitoring progress of those known to be problem drinkers, especially if dishonesty about intake is suspected.	V
RECOMMENDATIONS	
Base assessment of problem drinking on the National Health and Medical Research Council guidelines (see <i>Table 1</i> ). Follow by brief interventional counselling commencing at a young age (14–15 years) (see <i>Box 1</i> ). Repeat opportunistically at least annually, but care is needed to avoid jeopardising the client's ongoing relationship with the health care provider.	V

Refer those who continue to have high levels of alcohol consumption for treatment. Assess and manage comorbidities, including relevant preventive interventions (such as vaccination for those at risk of pneumonia).	V
Strongly advise pregnant women and those likely to conceive to abstain from alcohol.	V
Routine measurement of biochemical markers, such as GGT testing, is not recommended as a screening tool for problem drinking.	V

**Table 1. Risk levels from the various patterns of drinking<sup>1</sup>**

RISK OF HARM IN THE SHORT TERM			
	Low risk standard drinks	Risky standard drinks	High risk standard drinks
MALES On any one day	Up to 6 on any one day, no more than 3 days per week	7–10 on any one day	11 or more on any one day
FEMALES On any one day	Up to 4 on any one day, no more than 3 days per week	5–6 on any one day	7 or more on any one day
RISK OF HARM IN THE LONG TERM			
	Low risk standard drinks	Risky standard drinks	High risk standard drinks
MALES On an average day	Up to 4 per day	5–6 per day	7 or more per day
MALES Overall weekly level	Up to 28 per week	29–42 per week	43 or more per week
FEMALES On an average day	Up to 2 per day	3–4 per day	5 or more per day
FEMALES Overall weekly level	Up to 14 per week	15–28 per week	29 or more per week

Adapted from: NHMRC. Australian alcohol guidelines: health risk and benefits, 2001

**Box 1. Elements of brief intervention for problem drinkers<sup>2</sup>**

- Simple advice about safe drinking
- Personalised advice based on a presenting problem or test result
- Referral to specialist service or therapist
- Brief motivational interview
- Discuss practical ways to reduce or avoid alcohol consumption, relevant to the experience and home environment of the client.

Extracted from: OATSIH. National recommendations for the clinical management of alcohol related problems in Indigenous primary care settings, 2000

See *Evidence base: Alcohol – Prevention of problem drinking* pages 16–26

## CANCER

### Early detection of breast cancer

Aboriginal and Torres Strait Islander women may be less likely than other women to be diagnosed with breast cancer. However, the incidence of breast cancer may be increasing (as reported in the Northern Territory). The risk of death due to breast cancer, the 'case fatality', is greater for Aboriginal and Torres Strait Islander women than for the general population.

EVIDENCE	Level of evidence
Mammography may reduce breast cancer mortality in women aged 50–69 years.	I
Within the general population, organised client reminder and recall systems reduce barriers to participation in screening for breast cancer.	I
Aboriginal and Torres Strait Islander women have lower participation rates than the non-Indigenous in BreastScreen Australia programs.	III
There is evidence that breast self examination (BSE) offers no benefit in reducing morbidity or mortality due to breast cancer. There is evidence that women may experience harm as a result of practising it. (Aboriginal women also report difficulties implementing BSE.)	III
RECOMMENDATIONS	
Screen women aged 50–69 years using mammography every 2 years.	I
Advise women aged 40–49 years that there may be a small benefit in mammography screening when weighed against factors such as their age (the benefits of screening may increase through the decade), family history, possible risk factors, personal concerns, levels of anxiety, inconvenience, cost, and discomfort.	I
Clinical breast examination is not recommended for breast cancer screening alone or in place of mammography.	III
Coordinate screening and recruitment strategies between local primary care service providers, such as Aboriginal Community Controlled Health Services and mobile BreastScreen Australia units in order to utilise client reminder and recall systems set up for preventive health assessments.	V

See *Evidence base: Cancer – Early detection of breast cancer* pages 27–35

## CANCER

## Prevention of cervical cancer

Cervical cancer is the most common cause of death due to cancer among Aboriginal women. There is an overall mortality rate that is more than nine times greater than that of non-Aboriginal women. Aboriginal women in remote areas appear to be at higher risk than those in urban areas.

EVIDENCE	Level of evidence
With regular biennial Pap tests, up to 90% of the most common form of cervical cancer can be prevented.	III
Aboriginal and Torres Strait Islander women have a lower participation rate than non-Indigenous women in Pap test screening.	III
Evidence is lacking regarding the risk to the client of delaying Pap tests until age 18 years when sexual activity has commenced at a much younger age.	N/A
RECOMMENDATIONS	
Screen women who have no symptoms or history suggestive of cervical pathology with Pap tests every 2 years.	V
Commence Pap tests for all women who have ever been sexually active at 18–20 years or 2 years after their first sexual intercourse, whichever is later.	V
Use strategies to reduce barriers to uptake of Pap tests by Aboriginal and Torres Strait Islander women. Examples of these strategies include the involvement of female health workers, culturally appropriate educational materials, transport subsidies, and locally appropriate recall and reminder systems.	III–V

See *Evidence base: Cancer – Prevention of cervical cancer* pages 36–42

## DENTAL HEALTH

**The Aboriginal and Torres Strait Islander population has a higher risk of developing dental caries and periodontal disease than the general Australian population.**

EVIDENCE	Level of evidence
There is good evidence for the effectiveness of the following clinical interventions in the prevention of dental disease: access to timely clinical examination, brushing and flossing, topical application of fluorides, application of dental sealants, scaling, and other prophylactic measures.	I–IV
Dental outcomes depend on access to dental services, an individual's ability and motivation to look after their oral health and on affordable food and oral hygiene items in stores. There is evidence that Aboriginal people have poor access to dental services.	III
Aboriginal and Torres Strait Islander clients at high risk of dental caries and periodontal disease include those: <ul style="list-style-type: none"> <li>• with co-existing disease (eg. diabetes, valvular heart disease, past rheumatic fever)</li> <li>• who are aged 14–35 years</li> <li>• who smoke</li> <li>• who have non-fluorinated water supplies</li> <li>• who are school children.</li> </ul>	V
RECOMMENDATIONS	
Consider dental health needs as part of the comprehensive health assessment of clients. Identify those who are at high risk of dental caries and periodontal disease.	V
Encourage high risk clients to attend dental care at least annually, depending on the availability of dental services. This should be coordinated with other relevant health programs (such as diabetes, nutrition and oral health) in order to reinforce the advice offered by dentists.	V
Encourage all clients to use fluorinated toothpaste twice per day, especially in regions with little or no fluoride in the water supply.	I
Advocate fluorination of water in areas of need where communities have a well monitored reticulated water supply.	V
Ensure annual dental assessments are undertaken by all school age children as part of the school dental programs funded by state and territory governments. The promotion of effective brushing of teeth and the use of fluorinated toothpaste may be enhanced by cooperation with local schools.	IV
Involve Aboriginal Health Workers and community representatives in the planning and delivery of dental services. Integrate these with other primary health care programs to improve results.	V

See *Evidence base: Dental health* pages 43–50

## DIABETES PREVENTION AND EARLY DETECTION

The Aboriginal and Torres Strait Islander population has a higher risk of developing and dying from diabetes than the general Australian population.

The prevalence of undiagnosed diabetes in the Aboriginal and Torres Strait Islander population exceeds 5% in all those over 35 years of age. In some regions the prevalence approaches 5% as young as 18 years of age. The prevalence of risk factors for diabetes and impaired glucose tolerance (IGT) in this population under 35 years of age exceeds 5%.

The incidence of diabetes in the Aboriginal and Torres Strait Islander population is 10 times higher than in the general population and reaches 2% per year in those over 15 years of age in some regions (eg. central Australia).

EVIDENCE	Level of evidence
Screening high risk population for diabetes can lead to early detection and treatment. Early treatment of type 2 diabetes reduces morbidity from long term complications and has been shown to be cost effective.	I
Screening for diabetes is warranted if it leads to at least 5% of the population being diagnosed for diabetes.	V
In those at risk of diabetes, weight loss, a healthy diet and physical activity have been shown to prevent or delay the onset of diabetes.	II
Reduction in the risk of developing diabetes occurs with increased fish consumption and where monounsaturated fat comprises 20–25% of total energy.	II
RECOMMENDATIONS	
Commence screening for diabetes at age 15–18 years in regions with a high prevalence of early onset of diabetes. In regions known to have a lower prevalence of diabetes, commence screening at age 35 years.	V
Commence 12-monthly re-screening for diabetes in those found to have IGT or impaired fasting glucose (IFG), or IGT/IFG which is not confirmed on a subsequent visit. Commence re-screening 3-yearly for those with a negative screening test. A pragmatic approach is to offer 2-yearly screening in line with the MBS health assessment (item 710) (see <i>Box 2</i> ).	III
Offer diabetes screening by measuring fasting venous blood glucose. A random venous blood sample is acceptable if a fasting sample is impractical.	V
It is not recommended to screen for type 2 diabetes by using tests for glycosylated haemoglobin or capillary screening with blood glucose meters.	III
Provide dietary advice and further support to aid consumption of a low energy density diet with <30% total fats and <10% saturated fat and containing a wide range of carbohydrate foods rich in dietary fibre and of low glycaemic index (cereals, vegetables, legumes and fruits). Dietary recommendations should be consistent with the NHMRC <i>Dietary guidelines for Australian adults</i> (see <i>Box 3</i> , and also <i>Physical activity and Overweight and obesity</i> in the <i>Vascular health</i> section).	II

Encourage all clients to undertake moderate intensity physical activity on most, preferably all, days of the week to prevent diabetes (see also <i>Physical activity</i> and <i>Overweight and obesity</i> in the <i>Vascular health</i> section).	II
Promote a combined program of diet and physical activity as more effective in maintaining weight loss than either diet or physical activity alone (see also <i>Physical activity</i> and <i>Overweight and obesity</i> in the <i>Vascular health</i> section).	II

### Box 2. The interpretation of venous plasma glucose test results<sup>3</sup>

Fasting <5.5 mmol/L or Random <5.5 mmol/L	Fasting 5.5–6.9 mmol/L or Random 5.5–11.0 mmol/L	Fasting >7.0 mmol/L or Random > 11.1 mmol/L
Diabetes unlikely Offer lifestyle advice. Retest with fasting blood glucose after 3 years*	Diabetes uncertain Perform oral GTT	Diabetes likely Confirm with repeat laboratory blood glucose unless diagnosis is clinically unequivocal. Oral GTT is not usually indicated



### Interpretation of oral glucose tolerance test

<b>Impaired fasting glucose</b> Fasting $\geq 6.1$ and $< 7.0$ mmol/L and 2-h (if measured) $< 7.8$ mmol/L  Retest with fasting plasma glucose after 1 year	<b>Impaired glucose tolerance</b> Fasting concentration $< 7.0$ mmol/L and 2-h post glucose load $\geq 7.8$ & $< 11.1$ mmol/L  Retest with fasting plasma glucose after 1 year	<b>Diabetes mellitus</b> Fasting $\geq 7.0$ mmol/L or 2-h post glucose load $\geq 11.1$ mmol/L
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\* For the Aboriginal and Torres Strait Islander population, a pragmatic approach is to offer 2-yearly screening in line with the Medicare Benefits Schedule health assessment (item 710)

Source: Australian Government Department of Health and Ageing. National Integrated Diabetes Program – guide for general practitioners

### Box 3. Dietary guidelines for Australian adults<sup>4</sup>

Enjoy a wide variety of vegetables, legumes and fruits:

- Eat plenty of vegetable, legumes and fruits
- Eat plenty of cereals (including breads, rice, pasta and noodles), preferably whole grain
- Include lean meat, fish, poultry and/or alternatives. Reduced fat varieties should be chosen where possible
- Drink plenty of water.

and take care to:

- Limit saturated fat and moderate total fat intake
- Choose foods low in salt
- Limit your alcohol intake if you choose to drink
- Consume only moderate amounts of sugars and foods containing added sugars.

Prevent weight gain – be physically active and eat according to your energy needs

Care for your food – prepare and store it safely

Encourage and support breastfeeding

Note: Dietary guidelines for children and adolescents in Australia, incorporating the infant feeding guidelines for health workers is available on the NHMRC website at: [www7.health.gov.au/nhmrc/publications/synopses/dietsyn.htm](http://www7.health.gov.au/nhmrc/publications/synopses/dietsyn.htm)

See *Evidence base: Diabetes prevention* pages 51–65

## EYE HEALTH

## Visual acuity

**The Aboriginal and Torres Strait Islander population has a higher risk of developing cataracts than the general Australian population.**

EVIDENCE	Level of evidence
Cataract surgery may improve vision and therefore quality of life.	I
Cataracts are reduced when the eyes are protected from ultraviolet light exposure. Non-smokers have a lower rate of cataract formation. Avoidance of sun exposure by using sunglasses is unlikely to result in large reductions in visual disability from cataract.	III
Progressive loss of vision due to cataracts has been shown to be associated with increased risk of multiple falls.	III
RECOMMENDATION	
Screen adults (from age 40 years) for reduced visual acuity at least every 2 years. The need for cataract surgery and/or correction of any refractive errors should be identified.	V

See *Evidence base: Eye health – Visual acuity* pages 66–8

## Active trachoma

**Active trachoma is endemic in the Aboriginal populations of northern and central Australia, and predominantly affects children.**

EVIDENCE	Level of evidence
Population based strategies integrated with primary health care delivery may prevent the spread of trachoma, treat complications, and eradicate the disease.	I–II
RECOMMENDATIONS	
Where trachoma is endemic, collaborate with your regional public health unit to annually screen children for trachoma, and treat those affected and their household contacts.	V
Perform an opportunistic eye examination as part of any child health assessment where trachoma affects a community. If trachoma is diagnosed, contact the relevant public health unit or primary health care service to ascertain the individual's treatment history.	V
Single dose azithromycin is the treatment of choice for active trachoma (see <i>Therapeutic guidelines: antibiotic</i> for treatment instructions available at: <a href="http://www.tg.com.au/home/index.html">www.tg.com.au/home/index.html</a> ).	I

See *Evidence base: Eye health – Active trachoma* pages 68–70

## Trichiasis

**Trichiasis affects a significant proportion of the elderly Aboriginal population (defined as aged >50 years) in remote areas of northern and central Australia.**

<b>EVIDENCE</b>	<b>Level of evidence</b>
Trichiasis causes progressive blindness from corneal abrasions, repeated bacterial conjunctivitis and associated inflammation.	III
Surgical repair of the damage caused by trichiasis can prevent blindness.	IV
<b>RECOMMENDATIONS</b>	
Screen for trichiasis as part of the routine annual examination from age 40 years if the region is or has been endemic for trichiasis.	V
Refer for surgery when trichiasis is present.	III

See *Evidence base: Eye health – Trichiasis* pages 70–1

## KIDNEY DISEASE PREVENTION

**The Aboriginal and Torres Strait Islander population has a much higher risk of developing chronic kidney disease and end stage kidney failure than the general Australian population.**

<b>EVIDENCE</b>	<b>Level of evidence</b>
In those Aboriginal and Torres Strait Islander clients with and without type 2 diabetes, overt proteinuria and microalbuminuria are predictors of kidney disease and cardiovascular disease.	II
Proteinuria has a higher prevalence in the Aboriginal population than in the general Australian population. It may be evident from a young age ( $\geq 15$ years).	III
In those with type 2 diabetes, the progression of microalbuminuria to overt proteinuria may be prevented or delayed by using antihypertensive therapy that targets the renin-angiotensin systems.	II
In those without type 2 diabetes, the progression of kidney disease in the presence of hypertension and/or overt proteinuria may be prevented or delayed by using antihypertensive therapy that targets the renin-angiotensin systems.	II
With such therapy, the rate of natural death may be reduced by an estimated 50%. Kidney deaths may be reduced by 57% in those with hypertension, or in diabetics who have progressed to micro or overt albuminuria, as well as in all other people with overt albuminuria. This is regardless of blood pressure and blood sugar levels after a mean treatment period of 3 years.	III
Smoking increases the risk of progression to end stage kidney failure.	III
<b>RECOMMENDATIONS</b>	
Offer testing for overt proteinuria annually by simple dipstick commencing from age 15–18 years, depending on regional/local protocols.	V
If urine dipstick test is positive (1+ positive for protein or greater) a quantitative test for albumin-creatinine ratio (ACR) should be arranged. If two or more ACR tests performed 1–2 weeks apart are positive, persistent proteinuria is present and the patient should be further evaluated for chronic kidney disease (see <i>Table 2</i> ).	V
Assess microalbuminuria annually in those with diabetes.	V
It is not recommended to routinely screen for microalbuminuria in those who are not recognised as having diabetes or hypertension.	V
It is not recommended to screen for serum creatinine as part of a routine health assessment.	V
Offer an annual serum creatinine to clients with any of the following risk factors: overt proteinuria, a family history of kidney disease or in diabetics with microalbuminuria.	V
Provide all clients with advice against smoking (see also <i>Smoking in the Respiratory disease – Non-communicable</i> section).	V

**Table 2. Definitions of proteinuria**

Test	Normal	Microalbuminuria	Overt proteinuria
24 hour total protein	<30 mg/24 hours	30–299 mg/24 hours	≥300 mg/24 hours
Dipstick protein	<30 mg/dL	N/A	>30 mg/dL or ≥ +1 protein
Albumin-creatinine ratio	<2.5 mg/mmol	2.5–25 mg/mmol (males) 3.5–25 mg/mmol (females)	>25 mg/mmol

Note: Due to variability in urinary albumin excretion, an abnormal result is confirmed if it is present in two of three specimens collected within a 3–6 month period. Exercise within 24 hours, infection, fever, congestive heart failure, marked hyperglycaemia, marked hypertension, pyuria, and hematuria may elevate urinary albumin excretion over baseline values

Sources: American Diabetes Association. Diabetic nephropathy. *Diabetes Care* 2003;26:S94–S98. Available at: [care.diabetesjournals.org/cgi/content/full/26/suppl\\_1/s94](http://care.diabetesjournals.org/cgi/content/full/26/suppl_1/s94) [Accessed 11 June 2004] and Morgensen CE, Keane WF, Bennett PH, Jerums G, Parving H-H, et al. Prevention of diabetic renal disease with specific reference to microalbuminuria. *The Lancet* 346:1080–4

See *Evidence base: Kidney disease prevention* pages 73–83

## RESPIRATORY DISEASE – COMMUNICABLE

## Influenza

Influenza and secondary pneumonia contribute to the much higher rates of hospitalisation for respiratory diseases among Indigenous Australians. Nearly five times as many hospitalisations as expected occurred in both sexes during the period 1997–1998.

EVIDENCE	Level of evidence
Influenza vaccination in the elderly reduces the risk of hospitalisation, pneumonia and mortality during influenza outbreaks where the vaccine has predicted the epidemic strain.	I
In healthy adults, the efficacy of influenza vaccine in preventing or reducing the severity of influenza illness is estimated to be around 70–90%.	I
Influenza vaccination prevents hospitalisation for pneumonia in those with exacerbations of chronic pulmonary disease and in diabetics.	I
Vaccine coverage in the Aboriginal and Torres Strait Islander population has not been well documented, but there is some evidence that coverage is suboptimal in those aged less than 65 years.	III
Antiviral agents are effective at reducing the severity of influenza but are not routine substitutes for vaccination.	I
<b>RECOMMENDATIONS</b>	
Offer annual influenza vaccination from age 50 years.	V
Offer annual influenza vaccination to clients with chronic illness from age 6 months (see the <i>Australian immunisation handbook, 8th edition</i> ).	V
Combine clinic based and outreach methods to enhance vaccine coverage. Vaccination in non-traditional settings should be included.	V

See *Evidence base: Respiratory disease – Communicable – Influenza* pages 84–8

## Pneumococcal pneumonia

The rate of invasive pneumococcal disease in the Aboriginal and Torres Strait Islander population far exceeds that in the non-Indigenous population. Some reported rates have been the highest ever recorded in the world. Improving vaccine coverage in this population requires collaborative efforts between public health units, the representative health organisations of Aboriginal and Torres Strait Islander communities (such as Aboriginal Community Controlled Health Services) and general practice.

EVIDENCE	Level of evidence
The 23-valent pneumococcal polysaccharide vaccine (23vPPV) significantly protects against pneumococcal pneumonia (76–92% efficacy) in young (<55 years) healthy adult populations.	I
The 23vPPV is 56–81% protective against invasive pneumococcal disease from vaccine serotypes and non-vaccine serotypes in immunocompetent adult individuals.	I
The 23vPPV has been shown to reduce invasive pneumococcal disease in the Aboriginal and Torres Strait Islander population of far north Queensland.	III
The 23vPPV may also add protection to those with severe chronic diseases such as alcoholism, chronic renal failure, and other diseases (although there are conflicting research findings).	III
The 7-valent pneumococcal conjugate vaccine (7vPCV) is protective against invasive pneumococcal infections of the vaccine serotypes and reduces the total invasive pneumococcal disease burden (from vaccine and non-vaccine pneumococcal serotypes) for children.	II
Opportunistic vaccination and vaccination delivered through the use of client reminder and recall systems are effective at increasing vaccine coverage.	I–III
A program coordinated with primary health care has been found to increase adult vaccination rates. Some of the strategies used include the use of computer generated lists of eligible clients, free vaccination, encouragement from a primary care provider, outreach services and health promotion.	I–III
<b>RECOMMENDATIONS</b>	
The 7vPCV is recommended for all Aboriginal and Torres Strait Islander children as part of the Australian Standard Childhood Vaccination Schedule (see <i>Australian immunisation handbook, 8th edition</i> ).	V
Offer 23vPPV with a single repeat vaccination 5 years after the initial dose from age 50 years (see <i>Australian immunisation handbook, 8th edition</i> ).	V
The 23vPPV is specifically recommended for Aboriginal and Torres Strait Islander clients aged 15–49 years who smoke or who have chronic illnesses (eg. chronic cardiac, renal and pulmonary disease, diabetes and/or alcohol related problems). Re-vaccination is required after 5 years, and again 10 years later or at 50 years, whichever is later (see <i>Australian immunisation handbook, 8th edition</i> ).	V
Combine clinic based and outreach methods to enhance vaccine coverage. Vaccination in non-traditional settings should be included.	V

See *Evidence base: Respiratory disease – Communicable – Pneumococcal pneumonia* pages 88–94

## RESPIRATORY DISEASE – NON-COMMUNICABLE

## Smoking

**Smoking is more prevalent among Indigenous Australians than the general population. Indigenous Australian adults from age 18 years are approximately twice as likely to be current smokers than non-Indigenous adults (51% vs 24% respectively).**

EVIDENCE	Level of evidence
The use of tobacco is probably the major cause of preventable premature mortality and morbidity among the Aboriginal and Torres Strait Islander population.	III/IV
Two or 3 minutes of brief advice from health professionals (doctors, nurses and others) may result in cessation of smoking rates of about 5%.	I
The delivery of brief advice on smoking cessation is likely to be effective in reducing the prevalence of tobacco use by Aboriginal and Torres Strait Islander clients, especially when repeated over long periods of time.	V
Those at higher risk of developing smoking related complications include diabetics, pregnant women, parents of babies and young children, those with mental illness, those with other chemical dependencies, and those with cardiovascular risk factors.	III
RECOMMENDATIONS	
Incorporate counselling against smoking as a brief intervention into the preventive health assessment of all clients commencing at age 10 years (see <i>Box 4, page 25</i> ).	V
Advise smokers at a higher risk of developing smoking related complications and those with smoking related disease about the benefits of quitting.	III
Advise on the adverse health effects of environmental smoke.	V
Offer smokers support including self help health promotion materials and access to cease smoking courses, and where appropriate nicotine replacement therapy or bupropion (see <i>Box 4</i> ).	I
Complement strategies targeted at individuals with an Indigenous community based approach to tobacco control.	V

**Box 4. Guidelines for smoking cessation<sup>5</sup>**

A system for identifying all smokers and documenting tobacco use should be used in every practice.

**Ask** “Do you smoke?” and “Have you ever smoked?” Once the current smoker is identified take a brief history including:

- number of cigarettes smoked per day
- previous quit attempts and what happened
- presence of smoking related disease.

**Assess** readiness to quit by asking “How do you feel about your smoking at the moment?” and to determine readiness to quit in the next 30 days by asking “Are you ready to quit now?” Also examine barriers to quitting, triggers for smoking, social support, implications of other health issues and experiences with previous quit attempts. Determine ‘stage of readiness to change’ to tailor brief intervention:

- not ready
- unsure
- ready
- action
- maintenance
- relapse.

**Assess** nicotine dependence using the Fagerstrom Test for Nicotine Dependence.\* In the absence of contraindications, pharmacotherapy should be offered to all motivated smokers who have evidence of nicotine dependence (either nicotine replacement therapy or bupropion slow release).

**Advise** all smokers (at least annually) to quit in a way that is:

- clear and unambiguous
- supportive and non-confrontational.

**Assist** based on the assessment process above by providing:

- minimal advice and provide written information and option of referral to support service (Quitline)
- GP based assistance (by GP or skilled practice staff)
- GP based assistance plus coordination of assistance from other services.

**Arrange** follow up with all smokers after advice to quit.

\* Peters MJ, Morgan LC. The pharmacotherapy of smoking cessation. *Med J Aust* 2002;176:486–90.  
Available at: [www.mja.com.au/public/issues/176\\_10\\_200502/pet10850\\_fm.html](http://www.mja.com.au/public/issues/176_10_200502/pet10850_fm.html)

See *Smoking cessation guidelines for Australian general practice* for further information.

See *Evidence base: Respiratory disease – Non-communicable – Smoking* pages 100–5

## Chronic obstructive pulmonary disease

Chronic obstructive pulmonary disease (COPD) is the progressive development of airflow limitation that is not fully reversible. COPD is 10 times more prevalent in the Aboriginal and Torres Strait population and may be attributed to the high rates of smoking as well as factors in early life which reduce the level of optimal lung function.

COPD in Aboriginal and Torres Strait Islander clients is under-recognised by individuals and their care providers even when this is associated with significant symptoms.

EVIDENCE	Level of evidence
Tobacco consumption is a major contributor to the development of COPD.	I
Stopping people taking up smoking and getting those who do smoke to stop before the onset of COPD is likely to be the most effective means of preventing the development of COPD.	V
Treatment for COPD can improve the quality of life, reduce disability, and prolong life.	I
RECOMMENDATIONS	
Use spirometry opportunistically to assess airway obstruction in smokers and people with recurrent episodes of acute respiratory infection and chronic respiratory symptoms as part of a preventive health assessment. An optimal schedule for repeating measurements cannot be recommended, however, serial testing every 2 years may be useful.	V
Educate clients that cough and sputum symptoms may indicate underlying COPD, especially in those older people with a history of tobacco consumption. Advise that symptoms of chronic bronchitis include chronic cough or mucous production for at least 3 months (in at least 2 consecutive years when other causes of chronic cough have been excluded).	V
It is not recommended to screen for COPD using spirometry as part of a preventive health assessment.	V
It is not recommended to use chest X-ray to detect lung cancer in smokers as part of a preventive health assessment.	I

See Evidence base: Respiratory disease – Non-communicable – Chronic obstructive pulmonary disease pages 105–10

## SEXUAL HEALTH

**The occurrence of sexually transmitted infections (STIs) and associated complications (including pelvic inflammatory disease [PID]) in the Aboriginal and Torres Strait Islander population is more common than in the rest of the Australian population.**

<b>EVIDENCE</b>	<b>Level of evidence</b>
Screening may be made more efficient by the use of criteria to identify those at an increased risk of STI (eg. harmful alcohol use, age, recent change in sexual partner, increased number of sexual partners, past history of an STI, type of contraception).	IV
Brief advice in the clinic setting may not be effective in changing sexual behaviour, but clients provided with culturally appropriate and gender specific counselling may achieve short term increases in reported condom use for vaginal intercourse.	I
Screening of men as well as women for chlamydia and gonorrhoea may help reduce population transmission and reinforce health promotion messages.	V
The hepatitis B vaccine is effective in preventing neonatal infections with hepatitis B.	I
Systematic annual screening may reduce the prevalence of chlamydial and gonorrhoeal infection in the Aboriginal and Torres Strait Islander population.	II–III
<b>RECOMMENDATIONS</b>	
Offer annual sexual and reproductive health counselling to all clients aged 15–30 years. Extend this age range if indicated by local data.	V
Offer screening at least every 1–2 years for chlamydia infection to all sexually active women younger than 25 years to reduce likelihood of PID. Also test women for gonorrhoea in areas where it is common. Extend screening beyond age 25 years if indicated by local data.	II–III
Screen at least every 1–2 years (may coincide with the biennial Pap tests). Offer more frequent screening to individuals with higher risk indicators (eg. recent STI, substance abuse, multiple partners).	IV–V
Consider STI screening of men at a regional level, particularly where disease rates are high.	V

Nucleic acid amplification (NAA) tests of either self obtained vaginal swabs (or tampons) or endocervical swabs are recommended for screening both chlamydia and gonorrhoea in women. Urine specimens are preferred for NAA testing of men. Wherever practicable, culture specimens for gonorrhoea should also be obtained.	V
For populations where syphilis is highly endemic, screen for syphilis in men and women every 1–2 years.	II–IV
Screening is not recommended in the non-pregnant population for hepatitis B, trichomonas vaginalis, human immunodeficiency virus, herpes simplex virus or human papilloma virus infections.	V
A universal birth dose for hepatitis B and follow up vaccination is recommended for all Australians as part of the Australian Standard Childhood Vaccination Schedule (see <i>Australian immunisation handbook, 8th edition</i> ).  Vaccinate susceptible sexual partners and household contacts of asymptomatic hepatitis B carriers and sexual partners of persons with acute hepatitis B (see <i>Australian immunisation handbook, 8th edition</i> for detailed recommendations).	V

See *Evidence base: Sexual health* pages 116–26

## SUICIDE PREVENTION

**In both males and females, death rates due to suicide are 2–3 times higher among Aboriginal and Torres Strait Islander peoples than among non-Indigenous Australians. Most of the suicides occur in people aged 15–29 years.**

EVIDENCE	Level of evidence
Increased suicide rates are known to be associated with a range of psychiatric disorders. There are effective pharmacological treatments for some of these conditions, particularly for unipolar and bipolar depressive disorders and schizophrenia. However, these treatments have not been shown to be associated with a reduction in suicide rates at a population level.	I
A number of psychosocial and cognitive interventions have been shown to be associated with a reduction in suicidal behaviour among young people. However, these have not been shown to be associated with a reduction in suicide rates at a population level.	I
Interventions designed to reduce or eliminate alcohol consumption may lead to a reduction in suicide attempts.	I
There is no optimal screening method to assess suicidal ideation. Direct questioning may identify clients who are at risk of suicide and self harm.	IV
Screening adults for depression improves the accurate identification of depressed patients in primary health care settings and the benefits of screening are likely to outweigh any potential harms. Screening is recommended in clinical practices that have systems in place to assure accurate diagnosis, effective treatment, and follow up.	I
The utility of screening instruments for suicidal ideation currently incorporated into Indigenous health check protocols and school based screening needs further validation.	IV
<b>RECOMMENDATIONS</b>	
Evaluate suicide risk by assessing young Aboriginal and Torres Strait Islander clients for psychological distress opportunistically from age 15 years. Clinical markers include their mood and wellbeing. Use specific questioning of those found to be at risk to identify suicidal ideation. Refer those at risk of self harm to appropriate medical support and counselling services (see also recommendations in <i>Alcohol – Prevention of problem drinking</i> and refer to the RACGP ‘red book’ for specific questions on suicidal ideation).	V
Include a family member in suicide risk assessment of an Aboriginal or Torres Strait Islander person where possible.	V
Provided effective treatment and follow up are offered to those found to have depression, screen adults for symptoms of depression by asking clients if: “Over the past 2 weeks have you felt little interest or pleasure in doing things?” and “Over the past 2 weeks, have you felt down or depressed or hopeless?”	I

See *Evidence base: Suicide prevention* pages 127–33

## VASCULAR HEALTH

## Blood pressure

The Aboriginal and Torres Strait Islander population has a much higher risk of developing cardiovascular disease (CVD) and at an earlier age of onset than the general Australian population. Ischaemic heart disease (also known as coronary heart disease [CHD]) is a major contributor to mortality and morbidity in this population. There is also evidence that hypertension is more common, is present from a young age, and is often unrecognised in the Aboriginal and Torres Strait Islander population.

EVIDENCE	Level of Evidence
Treatment of hypertension decreases mortality from CHD and stroke in clients with high blood pressure (BP).	I
Modification of the following risk factors can reduce BP: <ul style="list-style-type: none"> <li>• reduction of heavy alcohol consumption</li> <li>• weight loss</li> <li>• an increase in physical activity</li> <li>• reduction in sodium intake may be used as a supplementary treatment in those with hypertension</li> <li>• smoking.</li> </ul>	I I I I I
The effectiveness of counselling to persuade people to modify risk factors as part of a preventive health assessment has not been adequately shown, particularly not in the long term. However, even modest modifications in risk factors resulting from counselling delivered in the primary health care setting could have large overall public health benefits.	V
<b>RECOMMENDATIONS</b>	
Measure BP of adults (>18 years) at every visit (ensuring BP has been measured at least annually). Screening may commence earlier (from 15 years) in regions known to have a high prevalence of hypertension from this age. Screen 6-monthly for those with diabetes or target organ damage. Follow up those with raised BP detected through screening (see <i>Table 3</i> for frequency).	V
Provide appropriate counselling to promote physical activity, a healthy diet, moderation in alcohol consumption, and weight control every time a BP is measured in order to encourage clients to modify risk factors for the primary prevention of hypertension.	V

**Table 3. Suggested follow up for untreated individuals ( $\geq 18$  years) in relation to various ranges of blood pressure<sup>6</sup>**

Systolic (mmHg)	Diastolic (mmHg)	Action
<120	<80	'normal' blood pressure (BP) – re-check in 2 years
120–139	80–89	'high-normal' BP – re-check in 1 year. Offer lifestyle advice
140–159	90–99	confirm within 2 months – lifestyle advice
160–179	100–109	evaluate or refer within 1 month – lifestyle advice
>180	>110	evaluate and refer within 1 week (or immediately depending on clinical situation)

NB: If systolic and diastolic categories are different, allow recommendations for shorter follow up (eg. BP 160/86 evaluate or refer within 1 month)

Source: National Heart Foundation of Australia. Guide to management of hypertension for doctors, 2004

See Evidence base: *Vascular health – Blood pressure* pages 134–8

## Physical activity

There is some evidence that the Aboriginal and Torres Strait Islander population has a lower level of physical activity than the general population, however, access to recreational facilities is poor in many Aboriginal communities. Surveys from remote Aboriginal communities have reported that recreational facilities are regarded as a priority.

EVIDENCE	Level of Evidence
Lack of physical activity is a major risk factor in heart and blood vessel disease, and diabetes.	I
Physical activity can prevent diabetes.	I
Moderate to high levels of physical activity reduce the risk of non-fatal and fatal coronary heart disease (CHD) and stroke.	I
Brief interventions within primary health care that are not linked to more intensive programs may not increase the physical activity of asymptomatic and sedentary people.	I
Creating and enhancing access to places for physical activity may improve uptake of physical activity.	I
Counselling for physical activity is not effective without environmental supports to sustain or enable physical activity. In many remote and rural Aboriginal communities, community infrastructure surveys have shown that facilities for sporting and recreational activities are lacking. People are more likely to participate in physical activity where there is a pleasant environment and opportunities for social contact.	III
<b>RECOMMENDATIONS</b>	
Enquire into the levels of physical activity as part of a regular preventive health assessment. Recommend moderate intensity physical activity (such as brisk walking) of 30 minutes or more on most, if not all, days of the week. The total 30 minutes may be accumulated in shorter bouts, such as three 10-minute walks. Advise that while this level of activity is recommended for health benefit, more vigorous or sustained levels of activity (for those who are able and choose to) can confer additional benefit in terms of cardiovascular health and weight loss.	II
Advise that increasing physical activity does not necessarily require participation in structured exercise programs, as health benefits can be gained by increasing the physical activity of everyday life.	V
Recommend both increased physical activity and modification of food intake for the management of clients who are overweight and obese. Advise that physical activity confers metabolic benefits even with a small degree of weight loss (see <i>Obesity and overweight</i> ).	III
Facilitate improvements in physical activity by linking health advice with locally available and appropriate Aboriginal community sport and recreation programs as well as social support programs (such as group activities).	V

See *Evidence base: Vascular health – Physical activity* pages 138–42

## Cholesterol and lipids

**There is evidence that there is a higher rate of dyslipidaemia in the Aboriginal and Torres Strait Islander population than in the general Australian population.**

EVIDENCE	Level of evidence
Lowering cholesterol in clients with known coronary heart disease (CHD) reduces risk for overall mortality, cardiovascular mortality, and non-fatal coronary events.	I
In those without known CHD, lowering cholesterol reduces the risk of cardiac events, but may not prolong life unless the risk of a cardiac event is high (generally it is in Aboriginal and Torres Strait Islander peoples. See <i>Blood pressure</i> ).	I
Lowering cholesterol in clients with known cardiac disease reduces the risk of stroke.	I
Lowering cholesterol in clients with type 2 diabetes (with or without known CHD) reduces risk of cardiovascular (CV) outcomes such as acute myocardial infarction or angina.	II
A diet low in saturated fat, total fat and cholesterol, and high in fruit and vegetables will reduce the risk of dyslipidaemia.	II
The benefit of lowering cholesterol is greatest in people with the highest baseline risk of an ischaemic cardiac event. The individual's risk for a cardiac event should influence decisions on the management of dyslipidaemia.	I
CV risk factors include diabetes, kidney disease, smoking, a family history of cardiovascular disease (CVD), obesity, physical inactivity, and hypertension. The more risk factors present, the higher the CV risk.	I
<b>RECOMMENDATIONS</b>	
Ascertain CV risk status every 1–2 years, commencing at age 18 years (see <i>Ischaemic heart disease</i> for advice on ascertaining CV risk. A risk table is available in <i>Appendix 1</i> ).	V
Provide dietary recommendations consistent with the National Health and Medical Research Council <i>Dietary guidelines for Australian adults</i> (see <i>Box 3, page 17</i> ).	III–V
Commence lipid screening at age 18 years and continue annually thereafter.	V
Screen lipid status in individuals using fasting blood samples for total plasma cholesterol, HDL-C and LDL-C levels and triglycerides.	III
Those whose cholesterol levels are raised but who are at low to moderate absolute risk of CVD should be given dietary and other lifestyle advice and monitored more closely over the next year (see also <i>Overweight and obesity, Physical activity, Smoking</i> in the <i>Respiratory disease – Communicable</i> section, and the <i>Alcohol – Prevention of problem drinking</i> section). Refer to RACGP 'red book' for recommendations on when to consider drug treatment for high cholesterol levels. <sup>7</sup>	I

See *Evidence base: Vascular health – Cholesterol and lipids* pages 142–7

## Overweight and obesity

**There is evidence that rates of obesity in the Aboriginal and Torres Strait Islander population are higher than in the general Australian population.**

<b>EVIDENCE</b>	<b>Level of evidence</b>
Obesity is an independent risk factor for morbidity and mortality related to cardiac disease.	III
Without energy restriction, dietary fat reduction alone will not achieve weight loss in overweight or obese individuals. A reduction in total energy intake remains the main mechanism by which dietary weight loss may occur.	I
Weight loss can lead to reductions in blood pressure and serum lipids.	I
Measures of central obesity such as waist-hip ratio or waist circumference (WC) are independent markers of increased cardiovascular risk. However, threshold values for these measures can be population specific.	III
Evidence for the benefit of weight loss in diabetes control is substantial.	I
Encouraging clients to eat healthier foods may improve dietary intake. Advice on a combination of diet and exercise is more effective than either diet or exercise alone.	I
Counselling may not be effective without family and environmental supports that provide the framework for any sustainable improvements in physical activity and dietary practices.	V
There is evidence that Aboriginal and Torres Strait Islander communities in remote regions face significant access barriers to nutritious and affordable food.	III
Food subsidies and 'healthy food store' policies in Aboriginal communities can lead to increased consumption of healthy food.	III
Medications to effect weight loss (such as anorectics and others) are effective at achieving weight loss in the short term.	I
<b>RECOMMENDATIONS</b>	
Offer measurement of weight, body mass index (BMI) and WC as part of a preventive health assessment.	V
Use a combination of BMI and WC measures to assess level of risk for type 2 diabetes and cardiovascular disease, based on threshold values for the general population as values for the Aboriginal and Torres Strait Islander population are unclear (see <i>Table 4</i> ).	III
Offer measurement of WC every 6 months in the presence of overweight or obesity.	V
Provide advice on diet and physical activity to those found to be overweight or obese, consistent with the National Health and Medical Research Council (NHMRC) <i>Clinical practice guidelines for the management of overweight and obesity</i> .	III

Seek the support of family members to assist in achieving weight loss. Assess obstacles such as barriers to food supply and consumer options from community stores in each individual case.	V
Provide advice on physical activity as a component of every weight loss program (see also <i>Physical activity</i> ).	III
Provide dietary recommendations consistent with the NHMRC <i>Dietary guidelines for Australian adults</i> (see Box 3, page 17).	III

**Table 4. Combining measures to assess obesity and disease risk\* in Australian adults<sup>8,9</sup>**

Classification	Body mass index (kg/m <sup>2</sup> )	Disease risk (relative to normal measures)	
		Waist circumference Men 94–102 cm Women 80–88 cm	Waist circumference Men >102 cm Women >88 cm
Underweight	<18.5	-	-
Healthy weight	18.5–24.9	-	Increased
Overweight	25.0–29.9	Increased	High
Obesity	30.0–39.9	High to very high	Very high
Severe obesity	>40	Extremely high	Extremely high

\* Risk of type 2 diabetes and cardiovascular disease

Sources: NHMRC. Clinical practice guidelines for the management of overweight and obesity in adults, 2003, and Overweight and obesity in adults: a guide for general practitioners, 2003

See *Evidence base: Vascular health – Overweight and obesity* pages 147–53

## Ischaemic heart disease

Deaths from coronary heart disease (CHD) were 2–3 times as high in Indigenous Australians than in non-Indigenous Australians in 1996–1998, with this ratio increasing to 6–8 times for those in the 25–64 year age group. Death rates due to cardiovascular disease (CVD) for the Aboriginal and Torres Strait Islander population are similar to non-Indigenous people who are at least 20 years older.

EVIDENCE	Level of evidence
<p>It is possible to estimate a person's absolute statistical risk over 5 years of a cardiovascular (CV) event (eg. new angina, myocardial infarction, coronary death, stroke or transient ischaemic attack [TIA]). This may be done through the use of risk assessment tables (see <i>Appendix 1</i>) developed from longitudinal cohort studies for this purpose.</p> <p>The CV risk assessment tables are also available at: <a href="http://www.nzgg.org.nz/guidelines/0035/CVD_Risk_Chart.pdf">www.nzgg.org.nz/guidelines/0035/CVD_Risk_Chart.pdf</a>. The tables use information on sex, age, smoking status, the presence of diabetes, blood pressure, and lipid status to assess risk.</p> <p>A calculator to estimate risk of CV related death is available at: <a href="http://www.riskscore.org.uk/calculator.html">www.riskscore.org.uk/calculator.html</a>.</p>	III
<p>Conventional absolute CV risk assessment tools will underestimate absolute CV risk status in Aboriginal and Torres Strait Islander clients. This is because of under representation of high risk population groups in cohort studies, and a range of CV risk factors which are not accounted for in the tools, but which are highly prevalent in the Aboriginal and Torres Strait Islander population.</p>	V
<p>In those with existing symptomatic cardiovascular disease or history of a CV event (angina, anterior myocardial infarction, angioplasty, coronary artery bypass grafts, TIA, ischaemic stroke or peripheral vascular disease), the absolute risk for further events is very high (&gt;20% in 5 years) and the risk assessment charts no longer apply. CV risk is determined by history alone.</p>	III
<p>Risk assessment tables may underestimate risk in certain groups: those with body mass index &gt;30, those with first degree male relatives with CVD aged less than 55 years, those with first degree female relatives with CVD aged less than 65 years, those with central obesity, those lacking of physical activity, in cases of psychosocial stress, and those with impaired fasting glucose (IFG) and/or impaired glucose tolerance (IGT). The lack of data on the quantitative contribution of these additional risk factors means that clinical judgment is required to estimate an individual's incremental CV risk.</p>	V
<p>A cohort study in the Northern Territory showed that Aboriginal women's risk of CHD is not significantly lower than Aboriginal men. This suggests that conventional CV risk assessment tables for females are invalid when applied to Aboriginal women.</p>	III
<p>There is good evidence that aspirin should be commenced in those who have already experienced a CV event (this is an example of 'secondary prevention'). However, many will also have pre-existing contraindications to aspirin use. Contraindications to the use of aspirin include peptic ulceration, bleeding disorders and allergy to aspirin or other non-steroidal anti-inflammatory drugs.</p>	I

Clients at high risk of CVD ( $\geq 10\%$ over 5 years' risk) may derive a benefit from aspirin, including a 15–20% reduction in ischaemic stroke and all-cause mortality, because their risk is similar to that of clients with known CVD. This is an example of primary prevention.	I
There is evidence that the Aboriginal and Torres Strait Islander population may not be accessing timely treatment for ischaemic heart disease (IHD).	IV
An elevated blood level of homocysteine is a marker of risk for CHD but the benefit of testing for homocysteine as part of a preventive health assessment has not been established.	I
Elevated levels of homocysteine have been reported in Aboriginal and Torres Strait Islander peoples with risk factors for vascular disease.	III
<b>RECOMMENDATIONS</b>	
Inform clients that the overall goal of a CV risk assessment is to achieve a 5-year CV risk of less than 15% through appropriate management.	V
Inform clients with a past history of CVD and/or diabetes with microalbuminuria or overt proteinuria of their high risk for a CV event ( $>20\%$ over 5 years) and the need for appropriate lifestyle and medication management.	III
Assess for individual CV risk status from age 18 years by determining a previous relevant diagnosis or by the presence of the following: diabetes, hypertension, family history of early CV events ( $<55$ years), hyperlipidaemia, overt proteinuria, smoking, obesity (especially centralised), and sedentary lifestyle. Repeat assessments every 1–2 years.	V
If conventional CV risk assessment tables (see <i>Appendix 1</i> ) are used to ascertain an individual CV risk score in Aboriginal and Torres Strait Islander clients, the following corrections should be considered: <ul style="list-style-type: none"> <li>• tables can be used from age 35 years</li> <li>• tables for females may not apply to Aboriginal women</li> <li>• adjust the CV risk upward. Clinical judgment is required to estimate the incremental CV risk incurred.</li> </ul>	V
It is not recommended to conduct an electrocardiograph as a screening test for IHD.	V
It is not recommended to measure homocysteine levels as part of a routine preventive health assessment.	V
Offer appropriate and individualised advice to all clients who are at high risk, or who have a history of CV events (see above). Include descriptions of the symptoms of IHD and the vital importance of medical attention in the first few hours of such symptoms.	V
Provide advice related to the reduction of lifestyle risk factors (see <i>Overweight and obesity</i> , <i>Physical activity</i> , <i>Smoking in the Respiratory disease – Non-communicable</i> section, and <i>Alcohol – Prevention of problem drinking</i> section).	III
Consider low dose aspirin therapy (75 mg/day) in well controlled hypertensive clients who are at high risk for CHD (especially if there has been a previous CV event and/or the 5 year CV risk is greater than 15%).	V

See *Evidence base: Vascular health – Ischaemic heart disease* pages 153–61

## Stroke prevention

The Aboriginal and Torres Strait Islander population has a higher age standardised death rate from stroke. There is an earlier age of onset of stroke, by more than 20 years, compared with the general Australian population.

EVIDENCE	Level of evidence
Individuals with atrial fibrillation (AF) have a 5–6 times higher risk of stroke than those with normal sinus rhythm. Those who have had a transient ischaemic attack (TIA) have an increased risk of stroke and an increased risk of a subsequent coronary event.	III
The prevalence of AF in the Aboriginal community is not clear. However, the prevalence of major causes of AF, such as ischaemic heart disease, hypertension, rheumatic heart disease, and diabetes is higher in this population.	N/A
Oral anticoagulants and aspirin are effective in reducing the risk of stroke in those with AF.	I
Antiplatelet therapy such as aspirin prevents further stroke in those with a history of TIA or stroke. It is unclear if this treatment prevents stroke in those without such a history.	I
Those at high risk for a TIA and stroke include those who have had any of the following: a previous myocardial infarction or other form of cardiac disease, peripheral vascular disease, hypertension, hyperlipidaemia, diabetes or those with multiple lifestyle risk factors (eg. smoking, alcohol abuse, overweight, and lack of exercise).	III
<b>RECOMMENDATIONS</b>	
Screen for hypertension, smoking, alcohol consumption, overweight and obesity, and level of physical activity (see <i>Blood pressure, Overweight and obesity, Physical activity, Smoking in the Respiratory disease – Non-communicable</i> section, and <i>Alcohol – Prevention of problem drinking</i> section for details).	I–III
Screen for AF among individuals who are more than 40 years of age in conjunction with blood pressure measurements. Screen for AF by asking about irregular palpitations, and feeling the regularity of the rhythm of the radial artery pulse. Confirm an irregular pulse rate with an electrocardiograph and a medical consultation.	V
Screen for TIA every 12 months in those over 40 years by asking about the signs and symptoms including ‘funny turns’ or ‘dizzy spells’, weakness or numbness in the arms or legs, speech disturbances, double vision and vertigo.	V
Consider anticoagulation in patients with documented TIAs due to AF. Use antiplatelet therapy where TIAs are due to arterial disease.	I
Optimise management of chronic diseases and other factors that increase risk of stroke.	I–III

See *Evidence base: Vascular health – Stroke prevention* pages 161–4

## Anaemia

**Aboriginal and Torres Strait Islander preschool and school age children (from 5 years) from remote communities have a much higher documented prevalence of iron deficiency anaemia than non-Indigenous children.**

<b>EVIDENCE</b>	<b>Level of evidence</b>
Iron deficiency anaemia may cause developmental delay in children (psychomotor and cognitive). It is unclear if this effect is a confounder (eg. due to social deprivation through poverty).	III
Strategies to prevent anaemia by improving iron availability in the diet include the early introduction of iron rich solids during the weaning period.	III
Government funded nutritional support programs for socioeconomically disadvantaged populations may reduce the prevalence of iron deficiency anaemia.	II
In areas with a high prevalence and in children with a heavy burden of parasites, antihelminth treatment may improve weight gain.	I
Screening using capillary or venous blood samples may confirm iron deficiency anaemia in children. Provided there is good training and quality control, point-of-care testing may correlate well with the laboratory testing.	III
Educational strategies alone are insufficient to reduce the prevalence of iron deficiency anaemia in Aboriginal and Torres Strait Islander children.	V
<b>RECOMMENDATIONS</b>	
Include screening for anaemia in the preventive health assessment of high risk children. These include twins, those with low birth weight, failure to thrive, or recurrent infections. Check venous or capillary haemoglobin, mean cell volume, and blood film by age 6–9 months and repeat at 18 months.	V
Develop counselling and education strategies to promote healthy infant feeding practices locally.	V
Link child health assessments to nutritional and environmental support programs.	V

See *Evidence base: Child health – Anaemia* pages 176–9

## Growth failure

**Aboriginal and Torres Strait Islander children up to age 5 years have a higher rate of hospital admission than other Australian children. Aboriginal children from remote communities have particularly high rates of growth failure (wasting and stunting). The effects of malnutrition peaks in the 18–23 month age group.**

EVIDENCE	Level of evidence
At present there is insufficient evidence to be confident that routine growth monitoring is of benefit to child health in both developing and developed country settings. The National Health and Medical Research Council considers there is insufficient evidence to make a recommendation for or against screening for failure to thrive, but recommends weight monitoring as part of routine clinical care.	I
There is good evidence that improved health outcomes may be obtained by remedial action comprising nutritional supplementation to pregnant women and to disadvantaged families with children younger than 5 years.	III
Structured home visiting, particularly by nurses, to disadvantaged families during the perinatal period to infancy may prevent child abuse and neglect.	I
RECOMMENDATIONS	
Conduct regular postnatal review of infants. Assess growth as a minimum, with the routine immunisation schedule (age 2, 4, 6, 12 and 18 months, and at school entry). Include weight, length, and head circumference (commencing at age 6–8 weeks), and plot on the growth chart. When undertaking growth assessments, use these opportunities to improve immunisation coverage.	V
Follow up children with growth failure using an appropriate action plan, including history, examination, laboratory results, relevant advice, and home visits.	V
Routine measurement of height and weight of school age children (from 5 years) is not recommended. Weight, diet, and physical activity should be assessed opportunistically.	V
Routine formal developmental screening is not recommended. Assess children with risk factors (including prematurity, convulsions, microcephaly or possible foetal alcohol syndrome) for developmental delay by age 9 months.	V
Screening for children who are at risk of abuse is not recommended. Where available, refer disadvantaged families to a home visitation program to help prevent child abuse and neglect.	I
Supplement clinic interventions with population based programs in order to improve the nutrition and growth of Aboriginal and Torres Strait Islander children (see <i>Types of interventions</i> in the <i>Growth failure</i> section of the <i>Evidence base</i> ).	V
Use health assessments performed in a primary health care setting to identify any opportunities for individual referral. This may include referral to relevant agencies for socioeconomic support, white goods and housing.	V

See *Evidence base: Child health – Growth failure* pages 180–5

## Hearing loss

**Aboriginal and Torres Strait Islander children have a much higher rate of suppurative otitis media (OM) and consequent chronic complications than other Australian children.**

<b>EVIDENCE</b>	<b>Level of evidence</b>
Chronic otitis media in Aboriginal and Torres Strait Islander children causes prolonged periods of hearing loss during early childhood.	III/IV
Regular otoscopic examination is important as OM is often asymptomatic in Aboriginal and Torres Strait Islander children. Symptoms are an insensitive marker of infection.	III/IV
Early detection of acute otitis media (AOM) is important as antibiotic prophylaxis is effective against recurrent episodes of OM.	I
Early antibiotic intervention may prevent the chronic sequelae of OM.	IV
Breastfeeding offers some protection against AOM.	I
Peer support programs for breastfeeding should be encouraged. They have been shown to enhance breastfeeding in Aboriginal and Torres Strait Islander women.	I
Sound field amplification appears to significantly improve comprehension in the school classroom in children aged 8–11 years.	III
Children at high risk of hearing impairment include those from socioeconomically deprived communities and from regions with a high prevalence of OM.	V
Pneumococcal vaccination is effective for the prevention of invasive pneumococcal disease (see <i>Respiratory disease – Communicable</i> ). However, both conjugate and polysaccharide vaccines are less effective for the prevention of OM.	II
<b>RECOMMENDATIONS</b>	
Perform otoscopy regularly at primary health care well-baby checks and on children younger than 5 years at all other opportunities. Management of OM should proceed according to clinical practice guidelines. <sup>10</sup>	V
Screen for hearing loss in all children younger than 5 years and in older children at high risk of hearing impairment. Audiological screening tools that may assist in the detection of hearing loss in younger children include simplified parental questionnaires as well as pneumatic otoscopy or tympanometry in children older than 7 months. Management should proceed according to clinical practice guidelines. <sup>11</sup>	V
Conduct audiometry at or just before school entry.	V
Use a preventive health assessment to promote breastfeeding. Refer women to breastfeeding support programs if needed.	III

The 7vPCV is recommended for all Aboriginal and Torres Strait Islander children as part of the Australian Standard Childhood Vaccination Schedule (see <i>Immisation in the Respiratory disease – Communicable</i> section and <i>Australian immunisation handbook, 8th edition</i> ).	II
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See *Evidence base: Child health – Hearing loss* pages 185–90

## Kidney disease

There is evidence that Indigenous children have a higher rate of urinary tract infections, urinary calculi, and glomerulonephritis than other children.	
EVIDENCE	Level of evidence
It is unclear whether urinary screening may alter the outcome for children with glomerulonephritis.	III
Evidence does not support regular urinalysis or blood pressure measurement for detecting kidney disease in Indigenous children. There is a lack of evidence that those with disease detected via screening have a better outcome than those found symptomatically. It is unclear if harm, such as anxiety within the family, may arise from routine urinalysis in Indigenous children.	V
RECOMMENDATION	
It is not recommended that urinalysis or blood pressure be used to screen for kidney disease in children unless there is a clinical indication.	V

See *Evidence base: Child health – Kidney disease* pages 191–4

## Vaccine preventable diseases

Aboriginal and Torres Strait Islander children have a higher incident rate of vaccine preventable diseases than non-Indigenous Australian children.	
EVIDENCE	Level of evidence
National aggregate data indicate that immunisation coverage in Aboriginal and Torres Strait Islander children is suboptimal relative to non-Indigenous children.	III
The National Health and Medical Research Council <i>Australian immunisation handbook, 8th edition</i> identifies two diseases with vaccination requirements specific to Aboriginal and Torres Strait Islander children: Hib infections (PRP-OMP vaccine preferred) and pneumococcal infections (booster dose with pneumococcal polysaccharide vaccine [23vPPV], following primary course with the conjugate pneumococcal vaccine [7vPCV]).	V

Interventions effective at improving vaccine uptake include mechanisms that enhance opportunities for the delivery of vaccination, eg. recall systems and provider reminders, prompting at all clinic visits. Multicomponent interventions include client education, expanded medical clinic hours, reduction in distance from vaccination settings to the population (eg. home vaccination), reduced cost to individuals, and combining vaccination and nutritional programs.	I–III
<b>RECOMMENDATIONS</b>	
Conduct regular postnatal review of all infants and complete the Australian Standard Vaccination Schedule. <sup>12</sup>	V
Use reminders, checklists or computerised prompts during every clinic visit to remind parents and staff about immunisations needed at that visit.	V
Use growth or nutritional assessments as an opportunity to improve immunisation coverage.	V
Supplement clinic interventions with population based programs in order to improve immunisation coverage. Consider local promotional activities and home visits for the delivery of vaccinations.	V

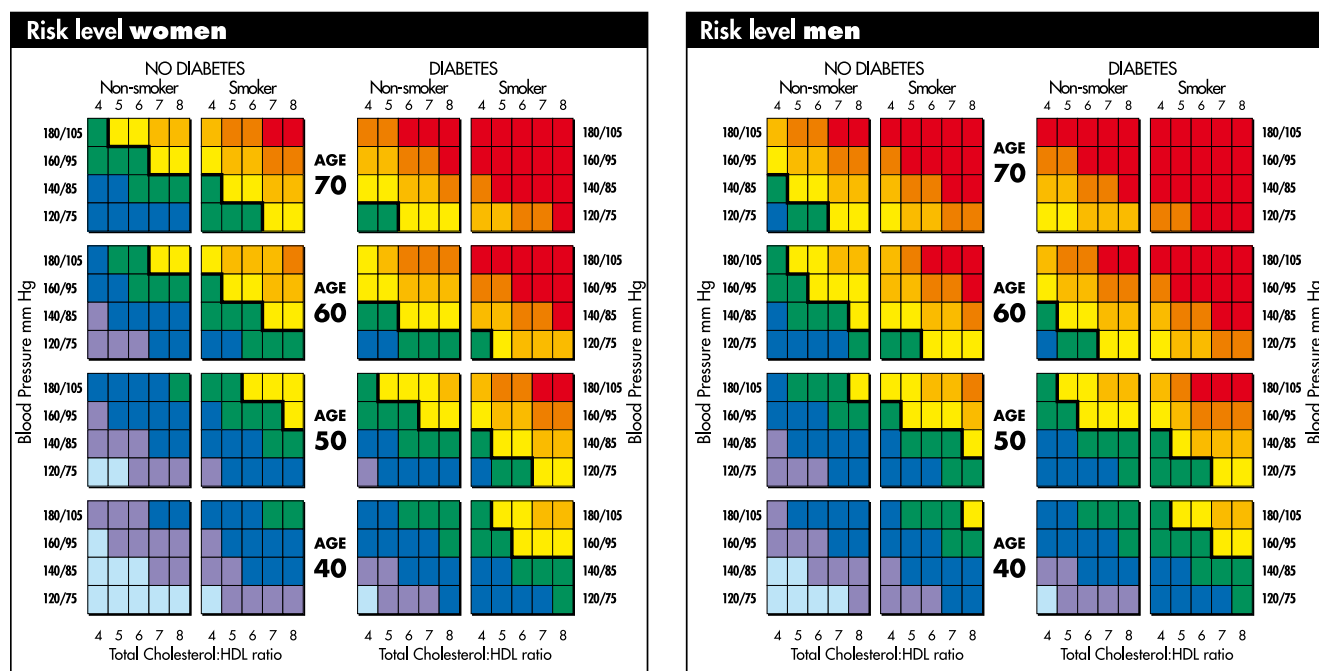
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# APPENDIX – CARDIOVASCULAR RISK TABLES

## ASSESSING CARDIOVASCULAR RISK AND TREATMENT BENEFIT



### Risk Level

5 year CVD risk (non-fatal and fatal)



### How to use the Tables

- Identify the table relating to the person's sex, diabetic status, smoking history and age.
- Within the table choose the cell nearest to the person's age, blood pressure and TC:HDL ratio. When the systolic and diastolic values fall in different risk levels, the higher category applies.
- For example, the lower left cell contains all non-smokers without diabetes who are less than 45 years and have a TC:HDL ratio less than 4.5 and a blood pressure less than 130/80 mm Hg. People who fall exactly on a threshold between cells are placed in the cell indicating higher risk.

The above tables have been reproduced with permission of the New Zealand Guidelines Group, [www.nzgg.org.nz](http://www.nzgg.org.nz).

### People at very high risk (>20% over 5 years) determined clinically

- People who have had a previous cardiovascular event (angina, myocardial infarction, angioplasty, coronary artery bypass grafts, transient ischaemic attack, ischaemic stroke or peripheral vascular disease)
- People with genetic lipid disorders (familial hypercholesterolaemia, familial defective ApoB and familial combined dyslipidaemia)
- People with diabetes and overt nephropathy (albumin:creatinine ratio >30 mg/mmol) or diabetes and other renal disease.

### Where CV risk is determined using the Framingham risk equation and tables

The following groups should be moved up one risk category (5%), as their cardiovascular risk may be underestimated in the Framingham risk equation:

- people with a family history of premature coronary heart disease or ischaemic stroke in a first-degree male relative before the age of 55 years or a first-degree female relative before the age of 65 years
- Māori
- Pacific peoples or people from the Indian subcontinent
- people with both diabetes and microalbuminuria
- people who have had type 2 diabetes for more than 10 years or who have an HbA1c consistently greater than 8% • people with the metabolic syndrome.

These adjustments should be made once only for people who have more than one criteria (the maximum adjustment is 5%).

### Where risk factor levels are extreme

- If blood pressure is consistently greater than 170/100 mm Hg or total cholesterol greater than 8 mmol/L or TC:HDL ratio greater than 8 the person is classified at least at high risk (>15%) and should receive specific lifestyle advice and medication to lower their risk, irrespective of their calculated cardiovascular risk
- For age greater than 75 years the 5 year cardiovascular risk is greater than 15% in nearly all individuals.