6th edition

Guidelines for preventive activities in general practice

The Royal Australian College of General Practitioners

Guidelines for preventive activities in general practice (6th edition)

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Introduction ii

One of the key roles of general practice is to prevent disease.[1] As primary health care providers who see 86% of the population every year, general practitioners and their staff play a central role in preventive care that[2]:

- is opportunistically provided when patients present with other problems or concerns
- anticipates the preventive needs of their patients by providing reminders for preventive care, and
- proactively targets high risk individuals who may be least likely to seek out such care.

Agreement should be reached between the clinician and patient about what preventive actions are to be taken. General practitioners should be aware of the potential psychosocial impact of preventive care such as a diagnosis being made after screening, and the need for adequate counselling following diagnosis. Informed consent should be obtained for the screening and for any subsequent actions.

Screening

Screening involves asking questions of, or conducting tests on, patients 'to identify those individuals who are more likely to be helped than harmed by further tests or treatment to reduce the risk of a disease or its complications'.[3]

The World Health Organisation has produced guidelines for the effectiveness of screening programs.[4,5] We have kept these and the United Kingdom National Health Services guidelines[3] in mind in the development of Australian recommendations about screening and preventive care:

The condition

- should be an important health problem
- should have a recognisable latent or early symptomatic stage
- the natural history of the condition, including development from latent to declared disease, should be adequately understood

The test

- should be simple, safe, precise and validated
- should be acceptable to the population targeted
- the distribution of test values in the target population should be known and a suitable cut-off level defined and agreed

Treatment

- there should be an effective treatment for patients identified, with evidence that early treatment leads to better outcomes
- there should be an agreed policy on who should be treated and how

Outcome

- there should be evidence of improved mortality, morbidity or quality of life as a result of screening and that the benefits of screening outweigh any harm
- the cost of case finding (including diagnosis and treatment of patients diagnosed) should be economically balanced in relation to possible expenditure on medical care as a whole

Consumers

- should be informed of the evidence so they can make an informed choice about participation.

Screening activities in general practice are complex. They involve patients accessing care, adopting systematic practices to registering and recalling patients, and organising their efforts to maximise the effectiveness of each consultation in providing preventive care.[6] Effective screening requires consideration of subgroups in the population who may have a higher prevalence of a disease or risk factor, or who may have difficulty accessing services.[7]

In these guidelines, screening usually refers to early detection using questions or a test, which GPs perform when patients present either for preventive care or opportunistically when patients present for other reasons (also known as case finding). Proactive recall of patients for screening is warranted for high risk groups or for those conditions where population coverage has been identified by the government as a public health priority. These include immunisation and screening for cervical and breast cancers. There are a number of conditions that are being considered for population screening at the time of publication, including colorectal cancer and pre-diabetes. However, it may be inappropriate to recall patients for assessment of conditions that have not been identified for population screening such as overweight or chlamydial infections.

Each preventive activity uses up some of the available time that GPs have to spend with their patients. Therefore it is important that each activity is based on sound research evidence of what is actually effective. This means that some activities are not recommended in these guidelines because of insufficient justification or because the cost or time outweigh the benefits, as demonstrated in carefully designed research studies. These guidelines include activities of relevance to general practice for which research has demonstrated benefit.

Equity issues

Making sure that preventive care services reach those who most need them and may be less likely to access them, requires a 'population' approach in general practice. Unless specific consideration is given to the reach of the preventive care and efforts are targeted toward particular groups, there is the risk of increasing health inequalities in the community. Health inequalities are differences in health status that are 'unnecessary, avoidable, unfair and unjust'.[8] They may be associated with socioeconomic status (SES), gender, ethnicity or rural and remote location. These inequitable differences in health status are responsible for about 17% of the total disease burden in Australia.[9] While mortality in Australia is improving, inequities are worsening.[10] Much of this inequitable disease burden is preventable through primary and secondary prevention which encompasses health promotion and early detection and intervention.[10] A more comprehensive approach to working in disadvantaged communities should take account of 'literacy, income, cultural values, access to services, and media'.[11] This issue is detailed in The Royal Australian College of General Practitioners *Putting prevention into practice* ('green book').

Socioeconomically disadvantaged communities

However socioeconomic disadvantage is defined – whether by area of residence, occupation, income or education level – disadvantage is associated with a higher prevalence of, and a higher mortality from, most diseases; particularly the major chronic diseases that form such a large part of the work of general practice.[12] Some studies have shown that preventive care is targeted to some extent at low SES individuals in general practice.[13] Nevertheless, these groups may make less use of preventive services[14] despite the higher need.

Aboriginal and Torres Strait Islander peoples

While indigenous Australians are at high risk of many diseases and premature death, they are less likely to receive many aspects of preventive care. The *National guide to a preventive health assessment in Aboriginal and Torres Strait Islander peoples*, in combination with these guidelines, outlines evidence based preventive care services for Aboriginal and Torres Strait Islander peoples. These guidelines can be found at www.racgp.org.au

Culturally and linguistically diverse communities

This diverse group includes different cultures and arrival backgrounds, ranging from refugee experiences to economic migration. Refugees in particular may have a high disease burden and come from countries where there is little preventive care.[15–17]

Rural and remote communities

The health of rural communities is determined in part by the lower income levels and socioeconomic conditions in those communities, as well as the higher percentage of Aboriginal and Torres Strait Islanders peoples.[18] Access to services is influenced by this mix, and rurality and low SES may compound disadvantage.[19,20] Men in rural communities have a particularly low use of preventive health services.[21]

The 'red book' approach

In general, there are few recommendations made for different screening activities in a particular disadvantaged subgroup. Often there is insufficient detailed evidence to justify substantially different recommendations, but there is a need to pay particular attention to population groups. The approach has been to assemble what evidence exists for a targeted approach under the heading 'Implementation' in each section.

iii Patient education

Patient education and counselling contribute to behaviour change for the primary prevention of disease.[22] The use of behavioural techniques, especially for self monitoring, is recommended, as well as the use of personal communication and written or other audiovisual materials **(A)**.[22]

Patients view the GP as a key first contact and credible source of preventive advice. Health education messages have a large impact when delivered by the GP. When patients present with symptoms and concerns, they are more receptive to advice about how to minimise or avoid illness. Factors that increase the effectiveness of patient education delivered by GPs include:

- a patient's sense of trust in their GP[23]
- face-to-face delivery[24]
- patient involvement in decision making[25–27]
- highlighting the benefits and costs[28,29]
- strategies to assist patients remembering what they have been told[30]
- tailoring information to the patient's interest in change[31]
- strategies that address the difficulty in adherence[27,32]
- use of decision aids.[33]

Many preventive activities involve a change in health related behaviour. As the patient plays a role in making this happen, it is useful to facilitate more active inclusion of patients in their health care. This process is an essential component of self management strategies[34,35] and has the potential to increase the patient's responsibility for their own health. In addition, it:

- enhances the quality of communication[36,37]
- and the doctor patient consultation[25]
- can reduce the cost of aspects of care through better informed patients[26]
- can increase the demand and use of appropriate referral to other health professionals and agencies,[37] and
- can increase adherence to recommended prevention activities and therapeutic regimens.[37,38]

General practitioners can encourage their patients to participate in protecting their own health through better knowledge, increased skills, and better access to services and programs. They can support their patients to do this through simple counselling or more structured interventions in their practice, or by referral to other health professionals.

Approaches to patient education

Patients need to develop their own understanding of the problem and what can be done about it. For simple behaviour changes such as having a Pap test, patients weigh up the perceived benefits and costs.[39] These benefits and costs may include answers to the following questions:

- How big the problem is to the individual?
- What are the consequences of not doing it?
- What are the benefits?
- What are the barriers?

A recall notice should specifically address the above issues in order to be effective. For Pap tests this may include information about the number of cases of cervical cancer in the patient's state of residence, the impact of early detection in preventing advanced cancer, and recognition of the barriers (eg. information about when a woman GP is available).

Some health education may require more complex actions over a period of time such as changing diet, stopping smoking or increasing physical activity. The 'stages of change' model[40] identifies five basic stages of change that are viewed as a cyclical, ongoing process during which the person has differing levels of motivation or readiness to change and the ability to relapse or repeat a stage. Each time a stage is repeated, the person learns from the experience and gains skills to help them move on to the next stage.

Stages of change model	
Pre-contemplation (Not thinking about change)	Stage during which a person does not consider the need to change • Has not had sufficient experience with negative consequences
Contemplation (Thinking of change)	In this stage, a person considers changing a specific behaviour • Beginning to seek relevant information • Re-evaluating behaviour • Obtaining help from others to support future attempts • Still weighing up options and isn't ready to take action
Determination (Ready for change)	The stage where a person makes a serious commitment to change • Ready to take action in the next 30 days • Need to set goals and develop priorities in order to manage their illness
Action (Changing behaviour)	Change begins (these can be large or small changes) • Efforts made to modify habits and environment • Increased use of behavioural processes of change, eg. stimulus control and counter conditioning
Maintenance (Maintaining change)	Change is sustained over a period of time • Counter conditioning and self liberation peak • Takes responsibility for actions • Susceptible to relapse, so remain aware of environmental and internal stimuli that may trigger problem behaviours
Motivational interviewing is dealt with in more detail in the RACGP *Putting prevention into practice* ('green book')	

Many of the motivators and barriers to behaviour change lie outside the patient and their immediate family. Advertising, availability of resources (eg. fresh food) and social and economic forces all exert a strong influence on patients. These need to be addressed at the community, state and national levels.

The complex needs and health problems of disadvantaged groups, and interactions between social, psychological, environmental and physical determinants of health, mean that special effort is required for patient education to be effective. In particular, GPs need to employ a range of strategies and work in collaboration with other services.[41] To be effective in patient education for indigenous communities, GPs need an understanding of the Aboriginal view of health, culture and history, and the ability to provide services within a culturally appropriate framework. This also requires GPs to collaborate with other agencies and providers to ensure the provision of high quality preventive health care for indigenous Australians.[2]

An explanation of the recommended preventive activity should always be provided to the patient. This is important even when advising a patient that a specific preventive activity is not recommended. For example, it is not recommended that asymptomatic male patients be screened with prostate specific antigen. This is because of the poor specificity of the tests, the cost and morbidity associated with investigating false-positives, and the lack of evidence for reduced mortality and morbidity. Providing such an explanation to the patient reduces rather than increases the medicolegal risk to the GP.

Development of the guidelines iv

The recommendations in these guidelines are based on current evidence based guidelines for preventive activities. Precedence has been given to those that are most relevant to Australian general practice. Usually this means that the recommendations are based on Australian guidelines such as those endorsed by the National Health and Medical Research Council (NHMRC). In cases where these are not available, or recent, other Australian sources have been used such as the National Heart Foundation of Australia or Canadian or US preventive guidelines. References to support these recommendations are listed. However, particular references may relate to only part of the recommendation (eg. only relating to one of the high risk groups listed) and other references in the section may have been considered in formulating the overall recommendation.

Recommendations are consistent with the Medicare Benefits Schedule at the time of writing. Comprehensive annual health assessment is currently approved for those 75 years of age and over (items 700 and 702) and Aboriginal and Torres Strait Islander peoples 55 years of age and over (items 704 and 706). The new Aboriginal and Torres Strait Islander adult health check (item 710) provides for 2 yearly health checks for those aged 15–54 years of age inclusive. However, preventive activities appropriate for age and risk status may also be provided opportunistically to patients as part of normal consultations. For example it is appropriate to check if a particular patient has been recently screened for cancer when they present for other conditions, and screen at that or a subsequent visit. It is also appropriate to assess risk factors such as smoking, physical inactivity or overweight, and offer interventions during the same or subsequent consultations if indicated.

Structure

These guidelines are designed for ease of use during the consultation. This 6th edition provides 'what is new' and 'how to use' sections. The folded chart provides an overview of what activities are recommended at each age of the lifecycle. Details are listed under each activity consisting of a paragraph summarising key recommendations and a table outlining the details. The guidelines are available (with links to additional information on the source guidelines) on the RACGP website at www.racgp.org.au

Scope and limitations

These guidelines have not included tertiary prevention or detailed information on the management of risk factors or early disease (eg. what medications to use in treating hypertension). Similarly it has not made recommendations about tertiary prevention (ie. preventing complications in those with established disease). Also, information about prevention of infectious diseases has been limited largely to immunisation and some sexually transmitted infections. There is limited advice about travel medicine. Information on travel medicine can be obtained from the Centres for Disease Control at www.cdc.gov/travel/index.htm or WHO International Travel and Health at www.who.int/ith/

These recommendations are based on the best available information at the time of writing. On past experience this means that the guidelines will remain current for no more than 2 years. Any update information will be posted on the RACGP website. Australian readers can find other information and guidelines on the NHMRC website at www.health.gov.au/ and the Cochrane Collaboration at www.cochrane.org.au

V How to use the guidelines

These guidelines are designed to be used in a number of ways, all of which can be useful in day-to-day general practice:

- a guide to who is most at risk and for whom screening or preventive care is most appropriate
- as a refresher to check latest recommendations
- as a reminder to check at a glance which preventive activities should be performed in various age groups and how often
- as a check list of preventive activities used according to an individual patient's health profile
- as an auditable standard for clinical practice
- as a study guide (a comprehensive list of references is provided with each section and links to further original sources are provided in the electronic version where appropriate; this allows more in-depth information on a topic)
- as a patient education tool – demonstrate to patients the evidence that exists for preventive activities.

Information is organised into three levels of detail.

The first level is the lifecycle chart which highlights when preventive activities should be performed and the optimum frequency for each activity. The lifecycle chart is organised by clinical topic. Simply glance at the column under a particular age group to see which activities should be considered for the patient. The preventive activities recommended for all patients within a particular age range, and for which there is sound research evidence, are shaded in 'dark grey', while activities to be performed only in patients with risk factors or where the evidence is not as strong are shaded 'light grey'.

A photocopy of this chart may be attached to the patient record as a systematic reminder for preventive activities. You may also use it as a wall chart or keep it handy on your desk.

The second level is more detailed and presents a summary of recommendations in addition to tables that identify which preventive activity should be provided for particular population groups. Each recommendation in the tables is graded according to levels of evidence and strength of recommendation. The levels of evidence are coded by Roman numerals I–V while the strength of recommendation is coded by letters of the alphabet A–E (*Table 1*).

The strength of recommendation is also included in the brief summary paragraph that accompanies each table, and is presented as a letter A–E in bold script and in brackets, eg. **(A)**. The level and strength may not always match up. For example there may be level I evidence against doing a particular procedure, therefore the strength of recommendation will be E. In some cases there is no evidence available so the column detailing level and strength of evidence will say 'no evidence'. On other topics the level of evidence may be low but the strength of recommendation is graded as high **(A)**. A good example is the recommendation that parents of babies and young children avoid smoking – level of evidence is III, as although there are no randomised clinical trials, the strength of recommendation is A.

Only key references used to formulate the recommendations are included in the tables. Where the evidence is available from the internet, the website address is given. There is also information on how the preventive care should be implemented, for example a brief outline of the method of screening. Finally, there is information included in the implementation tables on particular disadvantaged population groups who may be at risk for not receiving preventive care and what should be done to increase their likelihood of receiving preventive care.

Table 1. Coding scheme used for the levels of evidence and strength of recommendation

Levels of evidence	
Level	**Explanation**
I	Evidence obtained from a systematic review of all relevant randomised controlled trials
II	Evidence obtained from at least one properly designed randomised controlled trial
III	Evidence obtained from any of the following: • well designed pseudo randomised controlled trials (alternate allocation or some other method) • comparative studies with concurrent controls and allocation not randomised (cohort studies), case control studies, or interrupted time series with a control group • comparative studies with historical control, two or more single arm studies, or interrupted time series without a parallel control group
IV	Evidence obtained from case series, either post-test or pre-test and post-test
V	Opinions of respected authorities, based on clinical experience, descriptive studies or reports of expert committees
No evidence	After thorough searching no evidence was found regarding recommendations in general practice for the target disease or condition
Strength of recommendation	
Strength	**Explanation**
A	There is good evidence to support the recommendation
B	There is fair evidence to support the recommendation
C	There is poor evidence regarding the inclusion or exclusion of the recommendation but recommendations may be made on other grounds
D	There is fair evidence against the recommendation
E	There is good evidence against the recommendation

The levels of evidence are adapted from the NHMRC 1998 *Guide to the development implementation and evaluation of clinical practice guidelines*. The strength of recommendation coding scheme is adapted from the 1996 US Preventive Services Task Force *Guide to clinical preventive services*.[42]

iv What's new – highlighting significant changes

The format of this 6th edition of the *Guidelines for preventive activities in general practice* ('red book') has been modified for ease of use with the other preventive resources, the RACGP *Putting prevention into practice* ('green book') and the RACGP *Smoking, nutrition, alcohol and physical activity: A population health guide to behavioural risk factors in general practice* (*SNAP*). Material has been modified from the previous question and answer format and now distinguishes between those at 'population' risk and those at increased risk; identifying screening practices relevant to the determined risk level. This is a significant change, allowing GPs to tailor their approach to different groups of patients.

More detail is provided on how screening tests or preventive activities are performed. In each section there is added detail about issues relating to health inequalities, especially groups who are more at risk or less likely to be provided with preventive care because of their SES or ethnicity, and how this might be addressed.

Section 3. *Child and adolescent health* now includes a greater focus on health promotion activities for this age group, with a new section on overweight and obesity in acknowledgment of the increasing prevalence of this risk factor.

Section 5. *Communicable diseases* has been expanded to include chlamydia.

The preventive activities related to the behavioural risk factors of smoking, nutrition, alcohol and physical activity (SNAP) have been included in a new Section: 6. *Prevention of chronic disease*.

Section 7. *Vascular disease prevention* now includes stroke prevention and type 2 diabetes where previously these had their own sections. There is a new page on renal disease.

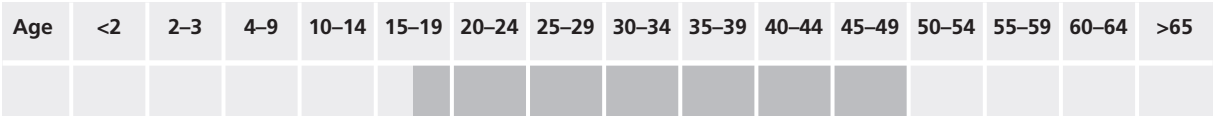
Section 8. *Skin cancer* has been divided into melanocytic and nonmelanocytic skin cancers.

Urinary incontinence has been removed from the elderly section as it is not just an issue with this age group.

Editions of the 'red book' prior to the 5th edition included a list of tests/screening that were not indicated, and these have been included once again in Section 15. *Tests of unproven benefit*.

This 6th edition provides two levels of information. First, the comprehensive lifespan charts (one each for children and adults) provide the GP with a quick overview of which preventive activities are relevant for each age group. The second level of information supplies brief recommendation/s for each topic together with the level of evidence and strength of recommendation. Key references for each suggested activity are also provided.

Preventive activities before pregnancy 01



Some women wishing to conceive, especially those in the older age range, may have medical conditions requiring specific advice and management, eg. diabetes, hypertension, and epilepsy. The following screening activities apply to all women regardless of other medical conditions.

Folic acid supplementation is recommended to reduce the risk of neural tube defects for all women planning to become pregnant **(A)**.

All women with a personal or extended family history of fragile X syndrome should be offered genetic testing before conceiving **(A)**.

Screening for rubella immunity and asking about a past history of chicken pox (or any varicella-zoster rash) is recommended for all women planning to become pregnant **(B)**. All susceptible nonpregnant women should be offered vaccination with measles, mumps and rubella vaccine (MMR) at least 1 month before conceiving.

Other immunisations to recommend before conception:

- two doses of varicella-zoster vaccine (in adults with no history of varicella or zoster rash); the second dose should be at least 1 month before conceiving
- adult triple antigen (Boostrix*) to boost pertussis immunity and prevent transmission to the baby after birth
- inactivated influenza vaccine offered in advance to women planning a pregnancy, and to pregnant women who will be in the second or third trimester during the influenza season, including those in the first trimester at the time of vaccination (all injectable influenza vaccines are currently inactive).

* Please note that this is the adult vaccine not the child vaccine

Source: NHMRC *Australian immunisation handbook*. 8th edition

The use of tobacco, alcohol and other drugs by pregnant women is associated with adverse outcomes for the child. All women should be informed that tobacco affects fetal growth and all women should be advised to stop smoking **(A)**. Women should be advised about the dangers of alcohol and illicit drug use for the developing fetus and advised to stop using drugs, and to limit, or preferably cease, drinking alcohol during pregnancy **(B)**.

The mortality rate due to listeriosis infection in fetuses and neonates is 30–50%. Education should be provided regarding the risk of listeriosis **(B)**.

Who is at higher risk?	What should be done?	How often?	Level of evidence and references
Average risk • All women planning to become pregnant	• Folic acid supplementation • Screening for rubella immunity and history of varicella or zoster rash (if negative immunise at least 1 month before conception) • Education regarding dietary restrictions for listeriosis	Opportunistically	I A 42–44 V B 45,46
Increased risk Women with lifestyle risk factors: • smoking • alcohol use • other drug use • overweight/obesity • poor nutrition Women with a family or obstetric history of neural tube defect (NTD)	As for 'average risk' above plus: • advice regarding smoking, cessation of drug use and limitation of alcohol use during pregnancy	Opportunistically	I A 47 III B 42,48
Increased risk Fragile X syndrome – women with a personal or extended family history of: • any male or female with intellectual disability, developmental delay or learning disability of unknown cause • any male with autism-like characteristics • individuals with a family history of undiagnosed intellectual disability or fragile X syndrome • individuals with a previous fragile X cytogenetic test that was negative or inconclusive See Section 2 *Genetic screening*	Offer genetic testing before conception	Opportunistically	I A 49

Intervention	Technique	References
Advice re listeriosis	• Good personal and food hygiene, advise avoidance of unpasteurised dairy products, soft cheeses, cold meats and raw seafood	45,46
Folate supplementation	• Women with increased risk: 5 mg/day supplementation ideally beginning 3 months before conception and for first trimester • Women with average risk: 0.5 mg/day supplementation ideally beginning 3 months before conception and for the first trimester	42–44
Smoking cessation	Women should be informed that tobacco affects fetal growth and all women should be advised to stop smoking. Evidence suggests improved cognitive ability in children of mothers who quit smoking during gestation. Pharmacotherapy should be considered when a pregnant woman is otherwise unable to quit, and when the likelihood and benefits of cessation outweigh the risks of pharmacotherapy and potential continued smoking	47
Alcohol and illicit drug use	Women should be informed of the potential harmful effects of alcohol to the fetus and should be advised to limit or preferably cease drinking during pregnancy. Women should be informed that illicit drugs may harm the fetus and advised to avoid use	42,48

Inequality

There is some evidence that socioeconomically disadvantaged groups may present later and access fewer episodes of antenatal care[50]

Strategy

Refer to general principles as discussed in introduction, in Section 6 *Prevention of chronic disease* and as outlined in the RACGP *Putting prevention into practice ('green book')*

02 Genetic counselling and testing

Age	0–9	10–14	15–19	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65–69	70–79	>80

There is insufficient evidence to recommend screening population groups utilising genetic testing except for pregnant women and neonates **(C)**. Genetic tests are appropriate for certain conditions where the individual is considered to be at high risk **(A)**.

In order to identify patients who may potentially benefit from genetic testing, the GP must ensure that a comprehensive family history (including first or second degree relatives) is taken from all patients **(A)** and regularly updated.

The presence of genetically determined disease may be suggested by: increased frequency and early onset of cancers in families, unexplained intellectual disability, birth defects, multiple pregnancy losses, stillbirth or early death, or children with multiple congenital abnormalities. Also, patients of particular ethnic backgrounds may be at higher risk, and may benefit from genetic testing. General practitioners should consider referral to, or consultation with, a genetic service (general or cancer genetics) for testing as test results (that rely on sensitivity, specificity and positive predictive value) are not straightforward. Testing often involves complex, ethical, social and legal issues.

Who is at higher risk?	What should be done?	How often?	Level of evidence and references
Average risk • General population	Assess family history	NA	V A 51
Breast cancer			
Increased risk • One or two relatives diagnosed with breast cancer before 50 years of age (without potentially high risk features) • Two first or second degree relatives on the same side of the family diagnosed with breast cancer or ovarian cancer (without potentially high risk features)	Consider referral to or consultation with a family cancer clinic for further assessment	Annual surveillance	II B 52

High risk • Two first or second degree relatives on one side of the family diagnosed with breast or ovarian cancer plus one or more of the following features on the same side of the family: – additional relative(s) with breast or ovarian cancer – breast cancer diagnosed before 40 years of age – ovarian cancer diagnosed before 50 years of age – bilateral breast cancer – breast and ovarian cancer in the same woman – Jewish ancestry – breast cancer in a male relative • One first or second degree relative diagnosed with breast cancer at 45 years of age or younger, plus another first or second degree relative on the same side of the family with sarcoma (bone/soft tissue) at 45 years of age or younger • Member of a family in which the presence of a high risk breast cancer gene mutation has been established Women in high risk groups may carry BRCA1, BRCA2 or other gene mutations. Women who carry BRCA1 and BRCA2 mutations are at high risk of developing breast cancer and ovarian cancer. See the National Breast Cancer Centre (NBCC) guidelines at www.nbcc.org.au for further information	Refer to a family cancer clinic	An individualised surveillance program may be needed	II B III A	52 53–55
Cystic fibrosis				
High risk • Those with a family history of cystic fibrosis (CF), or whose relative carries a known CF mutation • Those whose partner is affected or is a known carrier of CF • Partners from northern European backgrounds who are consanguineous, ie. cousins married to each other	Refer for testing	Before conception or in first trimester	III B	56,57

Down syndrome				
High risk • Women of advanced maternal age (≥35 years of age)	Maternal serum/ultrasound screening	In first or second trimester	V C	51,58,59
Very high risk • Women who have had a previous Down syndrome pregnancy • Women with positive maternal serum screening/nuchal translucency ultrasound in first trimester or maternal serum screening in second trimester	Fetal diagnostic genetic testing	In first or second trimester	V C	51,58
Hereditary haemochromatosis				
High risk • Patients with liver disease of unknown cause, including patients with suspected alcoholic liver disease • All first or second degree relatives of patients with haemochromatosis, or an altered HFE gene • Patients with conditions that could be a complication of haemochromatosis, ie. diabetes mellitus, atypical arthritis, cardiomyopathy, erectile dysfunction or chronic fatigue	Test for transferrin saturation and serum ferritin concentration. If fasting transferrin saturation >45% or ferritin is raised on more than one occasion, test by DNA typing All first and second degree relatives of an index case should be tested with DNA typing. Children in affected families should be tested at 10 years of age. However young children need not be tested if the spouse of an index case does not have the C282Y mutation	Repeat every 5 years	II A	58,60
Colon cancer				
Increased risk • Three or more first or second degree relatives on the same side of family diagnosed with colorectal cancer (CRC) (suspected hereditary nonpolyposis colon cancer [HNPCC]) or HNPCC related cancers* • Two or more first or second degree relatives on the same side of the family diagnosed with colorectal cancer, including any of the following additional high risk features: – multiple colorectal cancers in one person – colorectal cancer before 50 years of age – at least one relative with endometrial or ovarian cancer (suspected HNPCC)	Refer for genetic screening of affected relatives	Initially	III B	61,62

• At least one first or second degree relative with CRC with a large number of adenomas throughout large bowel (suspected familial adenomatous polyposis [FAP]) • Members of the family in whom the presence of a high risk mutation in the adenomatous polyposis coli (APC) or one of the mismatch repair (MMR) genes has been identified • Members of families with either FAP or definite or suspected HNPCC * HNPCC related cancers include cancer of the endometrium, ovary, pancreas, hepatobiliary tract, stomach, small intestine (usually duodenum or jejunum), upper urinary tract (transitional cell carcinoma of ureter and renal pelvis), brain (glioblastoma) and skin				
Haemoglobinopathies and thalassaemias				
Increased risk Patients from southern Mediterranean, African, Middle East, transcaucasus, central Asia, Indian subcontinent and southeast Asian backgrounds, who are contemplating pregnancy, particularly where there is a family history of haemoglobinopathy In some states with higher prevalence of at risk ethnic groups, all pregnant women are screened by mean corpuscular volume (MCV)	MCV Haemoglobin electrophoresis	Before conception	III B	63,64
Fragile X syndrome				
Increased risk Women with a personal or family history of: • a male or female with intellectual disability, developmental delay or learning disability of unknown cause • a male with autism-like characteristics • undiagnosed intellectual disability or fragile X syndrome • individuals with a previous fragile X cytogenetic test that was negative or inconclusive • a female with a history of premature menopause (<40 years of age)[65] • a male with ataxia and parkinsonism	Karyotyping (cytogenetic studies) and DNA studies of affected male, followed by testing mother or affected son or daughter Diagnostic test for males with ataxia, tremor or dementia who have a family history of fragile X syndrome	Before conception	I A IV B IV A	49 66 67

Intervention	Technique	References
Family history	At a minimum, the following is required: • information from three generations of both maternal and paternal family line • record if alive or dead • record age of onset of disease Identify affected first or second degree male or female relatives on either side of the family See Appendix 1 *Common genetic pedigree symbols, definitions and abbreviations*	51,52
Genetic testing	Genetic testing should be undertaken after the family history has been established in detail Genetic testing should be conducted under the supervision of a clinical geneticist, an appropriate specialist or ethically approved clinical research group, and should be supported by appropriate counselling. Fragile X syndrome and haemachromatosis may be exceptions	61
Breast cancer	If a woman wishes to clarify her genetic risk or that of her family, or wishes to consider risk reducing surgery, discuss referral to a specialist family cancer clinic for advice, appropriate counselling and management. Genetic testing may be appropriate No reduction in mortality from prophylactic mastectomy has been shown Oral contraceptive medication reduces risk of ovarian cancer for women with BRCA1 or BRCA2 mutations but has no effect on risk of breast cancer	68,69 53–55 70–72
Maternal Down syndrome screening	First trimester – free beta human chorionic gonadotrophin (HCG), pregnancy associated plasma protein, fetal ultrasound nuchal translucency screen at 12 weeks Second trimester serum screening – beta HCG, unconjugated oestriol, alpha-fetoprotein	51,58,59
Fetal diagnostic genetic testing for Down syndrome	First trimester – chorionic villus sampling Second trimester – amniocentesis	51,58

Terminology	Purpose
Diagnostic testing	To make or confirm a diagnosis of a specific disorder in a person who generally already has signs or symptoms of that disorder
Genetic carrier testing	To determine whether or not the person has a genetic or chromosomal abnormality that does not generally affect that person's health but increases his/her chance of having children with the disorder in question
Prenatal testing	Performed on a fetus in utero where there are 'at risk' parents, in order to inform decisions about termination of pregnancy or for therapeutic or surgical interventions

03 Prevention in children and adolescents

Age	<2	2–3	4–9	10–14	15–19	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	>65

Parents and young children should be opportunistically assessed for the risk of child abuse **(A)**. Mothers should be supported to breastfeed and be assessed for the risk of postnatal depression **(B)**. Child health surveillance should be conducted opportunistically at the time of other activities such as immunisation (2, 4, 6, 12 and 18 months and at school entry). Child surveillance should include assessment of growth using growth charts, age specific questions about development, speech, hearing and vision **(C)**.

Health inequality

There is clear evidence of poorer health among children and adolescents from socioeconomically disadvantaged families on many measures of physical, emotional, and social health[73] and from Aboriginal and Torres Strait Islander communities.[74] Children born to families living in areas of disadvantage do not have the same opportunity for good health as those living in more advantaged areas. There is a direct correlation between poorer health and residential location that exists at community or neighbourhood levels.[75,76]

Although there is insufficient evidence to merit screening, clinicians should be alert to iron deficiency and anaemia, especially in Aboriginal and Torres Strait Islander children and children from low SES groups. Intensive home visiting over the first 2 years of life has been shown to promote child health and family functioning, and prevent child abuse and neglect.[77–81]

Homeless young people reflect the most disadvantaged group and experience the worst physical, emotional and social health outcomes, including malnutrition, chronic infections, sexually transmitted infections, physical and sexual abuse, and mental illness.[82]

3.1 Parenting

Who is at higher risk?	What should be done?	How often?	Level of evidence and references
Average risk			
Parents	• Elicit and respond to concerns	All consultations	V C 42,83,84
	• Examine with parents present to allow question exchange		
	• Maintain child health record	4 weeks postpartum	V C 85
	• Discuss contraception		V C 42
	• Ask about:		
	– colic	0–4 months	
	– crying	6 months	
	– sibling rivalry	0–4 months	

Increased risk of postnatal depression Women with: • excess of adverse life events • lack of social support • past history of depression • emergency caesarean section	Ask about parental distress	1–8 weeks postpartum	V C	48,86,87
Increased risk of maltreatment and neglect • Parents of low SES • Young mother • Parents with little support • Maternal history of abuse • Large family • Parent with substance abuse • Parent with mental illness • Child with special needs	Maintain awareness	All consultations	III C	42,88

Intervention	Technique	References
Postnatal depression awareness	Depression impedes child care and may lead to impaired physical and emotional development, decreased IQ and increased behavioural problems	83,84
Maltreatment and neglect awareness	Home visits by child health team for assessment/prevention. There needs to be a close link between the GP and the home visiting service	48,89

3.2 Preventive counselling and advice

Preventive counselling and advice should be given at every opportunity **(C)**. When children enter school, health promotion may also be provided through the school curriculum.

Prevention area	What advice should be given?	How often?	Level of evidence and references
Accident/injury prevention	1–24 months Include home safety: stair guards, fire guards, smoke detectors, hot water <54 degrees, safe poison storage, never leave alone in water, and use of nonflammable night wear. Car safety: rear facing car restraint <9 kg 2–5 years Include water safety, swimming, car restraints, bicycle helmets	At every visit	II B 48,90,91

Sun protection advice	Babies should not be exposed to direct sunlight. Use lightweight wraps to shield their skin and only small amounts of sunscreen on the exposed skin Sunscreen – apply broad spectrum (SPF30) water resistant sunscreen preferably 20 minutes before going into sun and every 2 hours while in the sun (more often if swimming or sweating) Shade – avoid direct sun if possible Protective gear – use lightweight clothing with longer sleeves that covers more of the skin, hats that protect the face, eyes and neck and sunglasses	At every visit	III C	42,48,92
Physical activity advice	5–12 years At least 60 minutes (and up to several hours) of moderate to vigorous physical activity every day No more than 2 hours per day of electronic media for entertainment, eg. computer games, television and internet 12–18 years At least 60 minutes of moderate to vigorous physical activity every day No more that 2 hours per day of electronic media for entertainment	At every visit	III C	93 94
Nutrition advice	Encourage and support breastfeeding. Enjoy a wide variety of nutritious foods Eat plenty of: Vegetables, legumes and fruits Cereals (including breads, rice, pasta and noodles preferably wholegrain) Include: Lean meat, fish, poultry and/or alternatives Milks, yoghurts, cheese and/or alternatives (reduced fat not suitable for <2 years of age) Water as a drink Low salt foods Limit saturated fat and moderate total fat intake (low fat diets are not suitable for infants). Consume only moderate amounts of sugar and foods containing sugars	At every visit	III C	95

3.3 Overweight and obesity

An estimated 20–25% of children and adolescents in Australia are overweight, and a quarter of this group is obese. In certain ethnic groups, including Middle Eastern and Mediterranean backgrounds, and Aboriginal and Torres Strait Islander peoples, the prevalence appears to be even higher.[96] Screen for overweight and obesity every 1–2 years and assess the extent in relation to other children as the same stage of development, along with comorbidities associated with weight **(B)**.

Who is at higher risk?	What should be done?	How often?	Level of evidence and references
Average risk 2–18 years	Assess growth: • Height • Weight • Waist circumference • Pubertal stage	1–2 yearly	III B 96
Increased risk • Middle Eastern and Mediterranean backgrounds • Aboriginal and Torres Strait Islander peoples • Children with early (4–5 years of age) upward change in body mass index (BMI) • Children with obese parents	Assess growth: • Height • Weight • Waist circumference • Pubertal stage	Every 6 months	III B 96

Intervention	Technique	References
Compare BMI with BMI for age and gender	Compare BMI for age and gender using CDC charts (*Appendix 2*). BMI >85th percentile suggests overweight and BMI >95th percentile suggests obesity. Change over time provides more meaningful clinical information	48
Lifestyle intervention	See Section 3.2 *Preventive counselling and advice* for physical activity and nutrition advice. Details on overweight and obesity management can be found in NHMRC *Overweight and obesity in children and adolescents – a guide for general practitioners* www.health.gov.au/internet/wcms/Publishing.nsf/Content/obesityguidelines-guidelines-gp_guide.htm/$FILE/children_gp.pdf	96

3.4 Newborns

Although evidence is limited, newborn screening and examination is recommended **(B)**.[97]

Who is at higher risk?	What should be done?	How often?	Level of evidence and references
Average risk Normal delivery	Newborn blood screening for: • hypothyroidism • phenyl ketonuria • cystic fibrosis	Birth	IV B 48,97
	Physical examination	Birth and 6 weeks	V C 48,97
	Vitamin K	Birth	V C 98

Intervention	Technique	References
Newborn physical examination	This should include cardiovascular system, examination of the hips, external genitalia (especially looking for undescended testes) and weight	97

3.5 Infants: 1–24 months of age

Child health surveillance should be conducted at 2, 4, 6, 12 and 18 months including assessment of growth, hearing, vision, speech and breastfeeding **(B)**. Preventive counselling advice that should be given includes accident/injury prevention, sudden infant death syndrome (SIDS) prevention, sun protection and the promotion of breastfeeding.

Who is at higher risk?	What should be done?	How often?	Level of evidence and references
Average risk	Assess growth: • Height • Weight • Head circumference	2, 4, 6, 12, 24 months	III B 48,90,91,97
	Breastfeeding Preventive counselling and advice re injury prevention, SIDS, sun safety and nutrition Assessment of: hearing, vision and speech	Opportunistically	IIII VA 95
Increased risk of iron deficiency anaemia • Lower SES • Uncorrected iron deficiency in mother during pregnancy • Prematurity • Introduction of cows milk before 12 months • Consumption >600 mL cows milk per day	Detection of anaemia or iron deficiency Provide with age appropriate dietary information	Opportunistically	IV C 97

Intervention	Technique	References
SIDS risk reduction advice	• Sleep baby: – supine from birth – with face uncovered (sleeping with feet at the base of the cot may be the best way to keep face uncovered) • Avoid passive smoking • Avoid sleeping with the baby in bed if adult affected by drugs or alcohol	86,99,100
Breastfeeding	• Provide antenatal information and counselling about the benefits and practical aspects of breastfeeding (and the risks of not breastfeeding) to all potential parents • Encourage, support and promote exclusive breastfeeding for the first 6 months of life	95
Hearing assessment	Parental questioning (eg. turning to sound, responding to name) and clap test	48
Speech assessment	Parental questioning, eg. laughing/squealing at parent, babbling, using different sounds to get attention. Ask: 'Do you have any concerns about how your child talks and makes speech sounds?' and 'Do you have any concerns about how your child understands what you say?'	97
Vision assessment	Test for strabismus using the cover test and light reflex (Hirschberg) test	48,97

3.6 Preschool: 2–5 years of age

Child health surveillance should be conducted at 2 years of age and before school entry. This should include assessment of growth, hearing, vision and speech. Preventive counselling advice should include accident/injury prevention, sun protection, dental care and promotion of physical activity and nutrition **(C)**.

Who is at higher risk?	What should be done?	How often?	Level of evidence and references
Average risk	Assess growth: • Height and weight Hearing Vision Preventive counselling: • injury prevention • sun protection advice • dental care • physical activity • nutrition	Every 6–12 months	III C 48,97

Intervention	Technique	References
Growth assessment	Use growth charts	48
Hearing/speech assessment	Parental questioning, eg. number of words, understanding directions. Ask: 'Do you have any concerns about how your child talks and makes speech sounds?' and 'Do you have any concerns about how your child understands what you say?'	97
Vision assessment	Screen to detect educationally significant refractive error, amblyopia, strabismus, and defects in visual acuity (increased risk in those with developmental delay and learning difficulties)	101,102

3.7 School age: 6–13 years of age

Regular assessment of school age children should include growth, hearing and vision **(C)**. Health promotion advice includes accident/injury prevention, sun protection, dental care and promotion of physical activity, nutrition and mental health. These may be best provided through school based programs **(B)**.

Who is at higher risk?	What should be done?	How often?	Level of evidence and references
Average risk	• Assess growth (See Section 3.3 *Overweight and obesity*) • Ask about progress at school	1–2 yearly	V C 96
	Preventive counselling and advice: • injury prevention • sun protection • dental care • physical activity • nutrition	1–2 yearly Throughout school curriculum	II B 42,48,90,91,103

School programs	Explanation	References
Educational progress	Consider learning disability, ADHD, or abuse if progress is inadequate	48

3.8 Adolescence: 14–19 years of age

There is limited evidence for effectiveness of interventions in general practice. Screening for scoliosis is not recommended in general practice. There is evidence that early detection does not lead to improved long term outcomes **(D)**.

Who is at higher risk?	What should be done?	How often?	Level of evidence and references
Average risk	Screen for: • presence of health risk behaviours and physical activity • psychosocial development • educational progress • sexual development • depression and suicide • abuse – emotional, sexual or physical	Opportunistically	III C 104–106,48 V C 48,107

Intervention	Technique	References
Health risk behaviours	Ask about smoking, alcohol, and drugs. See Section 3.3 *Overweight and obesity*	105,108
Psychosocial development	Ask about home, family support, peers and friends, social life, feelings, employment and perceptions of progress	106
Educational progress	Consider learning disability, ADHD, or abuse if progress is inadequate	48
Sexual development	Ask about physical sexual development, sexual activity, contraception, risk behaviours for infection or pregnancy	48
Depression and suicide	The following questions might be asked: • How are you going generally? • Do you ever feel miserable? • How are things at home (or where you live)? • Lots of people use alcohol and drugs, how about you?	107,109
Abuse – emotional, sexual or physical	Maintain awareness of possible problems	48
Scoliosis screening not recommended	The screening test (Adam's forward bend) is inaccurate resulting in a high number of false-positives, which in turn leads to over referral for X-rays. The effectiveness of treatment of curves by bracing, local surface stimulation or exercise therapy has not been established Bracing for 18 hours per day or more has been shown to prevent curve progression as long as bracing continues. Compliance with such treatment is low and therefore overall effectiveness is also low	110

Preventive activities in the elderly 04

4.1 Falls and physical activity

Age	0–9	10–14	15–19	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65–69	70–79	>80

Patients should be screened for risk factors for falls from 65 years of age **(A)**. Advise all elderly patients about moderate physical activity **(A)**.

Who is at higher risk of falls?	What should be done?	How often?	Level of evidence and references
Average risk All people 65 years of age or over	Screen for risk factors	Every 12 months	I A 111,112
Moderately high risk Older people presenting with one or more falls, who report recurrent falls or with multiple risk factors (see below)	Screen for risk factors and involve in preventive activities	Every 6 months	I A 111,113

Intervention	Technique	References
Screening for risk of falls	Ask about the occurrence of falls and any gait or balance problems. A quick screening tool is the 'get up and go test' which involves looking for unsteadiness as the patient gets up from a chair without using his/her arms, walks a few metres and returns Identify risk factors **Personal:** • increased age • past history of falls • chronic medical conditions, eg. stroke or Parkinson disease • multiple medications and specific medications, eg. long acting benzodiazepines and psychotropic medication • impaired balance and mobility • reduced muscle strength • sensory problems, eg. impaired visual acuity and depth perception and peripheral neuropathy • dizziness • impaired cognition • depression • low levels of physical activity, low BMI and osteoporosis	111,113–116

	• fear of falling • female gender See Section 4.5 *Polypharmacy* and Section 12 *Urinary incontinence* **Environmental:** eg. poor home safety, stairs, slippery surfaces, ramps and rails	
Falls risk reduction	A range of falls risk reduction strategies in the community and residential care can be found in 'An analysis of research on preventing falls and falls injury in older people: community, residential care and hospital settings: 2004 update' www.health.gov.au/internet/wcms/Publishing.nsf/Content/health-pubhlth-strateg-injury-falls-index.htm	113

Epidemiology

Approximately 30% of people aged 65 years or older have reported one or more falls in the previous 12 months.[113] Inactivity in an older person makes them more likely to suffer from the effects of illness. For the older person, exercise provides the usual benefits, as well as minimising some of the limitations of later life, eg. reduced mobility, tendency to fall and reduced interaction with the environment.[117] Impairment in vision has been well described as a risk factor for falls.[118] Untreated cataracts have been shown to be associated with increased risk of multiple falls[119] and reduced quality of life related to social isolation and depression.[120]

4.2 Visual and hearing impairment

Age	0–9	10–14	15–19	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65–69	70–79	>80

Patients aged 50 years and over should be asked about their vision and have their visual acuity measured using the Snellen chart **(B)**. Annual questioning about hearing impairment is recommended for people 65 years of age and over **(B)**.

In some Australian states there are legal requirements for annual screening, eg. driving over 70 years of age.[121] (See *Assessing fitness to drive, commercial and private vehicle drivers: medical standards for licensing and clinical management guidelines*. Sydney: Austroads Inc, National Road Transport Commission, 2003 www.austroads.com.au/aftd/index.html)

Who is at higher risk of visual impairment and hearing loss?	What should be done?	How often?	Level of evidence and references
Increased risk for visual impairment All people 50–64 years of age	Screen for vision impairment	Every 5 years	III B 122
Increased risk for visual and hearing impairment All people 65 years of age or over	Screen for vision impairment Screen for hearing impairment	Every 12 months	II B III B 42,123

Intervention	Technique	References
Visual impairment screening	Use a Snellen chart to screen for visual impairment in the elderly. (See Section 11 *Glaucoma*)	124
Fundus (opthalmoscopy)	There is some evidence that new generation (panoptic) opthalmoscopes can better detect macular degeneration, diabetic retinopathy and glaucomatous discs **(B)**	125
Hearing impairment screening	A whispered voice out of field of vision has a high sensitivity for hearing loss, as does a single question about hearing difficulty	126

Epidemiology

Eye disease and vision impairment increase threefold with each decade of life after 40 years of age. People at greater risk of vision loss are older people and those with diabetes and a family history of vision impairment. Over 80% of vision loss is caused by five conditions: age related macular degeneration, cataract, diabetes, glaucoma, and uncorrected refractive error. Only half of those with diabetes have a regular eye exam and one-third have never been checked. One person in 10 will develop glaucoma but half of those with glaucoma do not know they have it.

Implementation

Inequality
Data suggests an association between lower SES and a higher rate of blindness[127]

Strategy
Refer to general principles as discussed in I. *Introduction*, 6. *Prevention of chronic disease* and as outlined in the RACGP *Putting prevention into practice* ('green book')

4.3 Dementia and depression

In patients over 65 years of age a high level of clinical awareness of the symptoms of depression and dementia should be maintained. These may be opportunistically assessed using questions addressed to the patient and/or their carer **(C)**. They may coexist and need differential diagnosis. Routine screening is not recommended because of the absence of evidence of benefit. Depression should be treated. Early pharmacotherapy for dementia is still controversial.[128,129] Ensuring adequate patient, carer and family support is very helpful.[130]

Who is at higher risk of dementia and depression?	What should be done?	How often?	Level of evidence and references
Average risk Those without symptoms	No evidence of benefit from screening	NA	II C 131
Increased risk • a family history of Alzheimer disease • patients with repeated history of head trauma • patients with Down syndrome	Case finding and early intervention	NA	III C 132
High risk • those presenting with anxiety, memory impairment, or depression • past history of depression	Case find if suspected, as early intervention, comprehensive assessment and support helps Patients who complain of memory loss are more likely to have depression than dementia	Opportunistically	IV C 133 II B

Intervention	Technique	References
Case finding and confirmation	Ask: 'How is your memory?' Obtain information from others who know the patient	130
	History from patient and family/carer and full physical examination over several consultations, functional assessment using Instrumental Activities of Daily Living (IADL), plus cognitive assessment using Mini-Mental State Examination (MMSE) or General Practitioner Assessment of Cognition (GPCOG), and clock drawing test. The Rowland Universal Dementia Assessment Scale (RUDAS) is a multicultural cognitive assessment scale that has been used to detect dementia across cultures	134,135
	See Section 9 *Psychosocial*	136
Preventive action if early dementia is suspected	Regular assessment over time – months or years	130

Implementation

Inequality

The association between depression and socioeconomic disadvantage persists in the elderly.[137,138]
Cognitive impairment is more common in more socioeconomically disadvantaged aged groups[139]

Strategy

Similar strategies as those recommended for addressing inequality in the general population are recommended. Refer to general principles as discussed in *Introduction*, and Section 6 *Prevention of chronic disease* and as outlined in the RACGP *Putting prevention into practice* ('green book')

4.4 Nutrition and alcohol

Elderly patients, particularly those living alone, are at increased risk of poor nutrition. Alcohol intake is as much a problem in the elderly as it is in younger people. (See Section 6.3 *Nutrition* and 6.4 *Early detection of problem drinking*).

4.5 Polypharmacy

Elderly patients are at risk of medication related problems which may cause unnecessary hospital admissions or death. This may be related to patient confusion and inadequate knowledge about medicines, poor compliance, and GPs and pharmacists not having full details of all the medications the patient is taking. Several risk factors to medication related problems include:

- currently taking five or more regular medications
- taking more than 12 doses of medication per day
- significant changes in medication treatment regimen during the past 3 months.

Further information can be found at www.health.gov.au in *'Domiciliary medication management – home medicines review'*.

4.6 Health of family caregiver

Patients over 65 years of age often have multiple chronic conditions and rely on help from family and carers. The burden on carers, particularly for patients with dementia or depression, often affects carers' health, and their need for support should be assessed when patient health is assessed.

Patients with disabilities due to multiple chronic conditions, particularly those with mental illness or psychosocial problems, rely on help from carers, who may be family or others. Carers are at risk of depression, anxiety, emotional distress, loneliness and isolation, but their health care needs are often overlooked.[140–144] Their need for support should be assessed when patient health is assessed.[145]

Who is at higher risk of carer stress?	What should be done?	How often?	Level of evidence and references
Those caring for someone who is chronically ill, disabled or frail	Conduct carer assessment and offer support	Every 12 months	III B 140–144

Intervention	Technique	References
Carer assessment	Ask all adults: 'Do you care for someone with a disability on a regular basis?' Ask carers about their own mood, social contact and supports	140
Carer support	Be aware of common health problems carers may experience and offer opportunistic preventive health care to identified carers. Offer information on sources of support, eg. carer support groups, respite care. Carer support resources are helpful for carer wellbeing and delay the need for institutionalisation of the person being cared for	140,146–148

Communicable diseases 05

General practitioners play an important role in the prevention and management of communicable diseases. This includes immunisation, early detection and treatment. Updates on communicable diseases are available from the Australian Department of Health website www.health.gov.au/internet/wcms/publishing.nsf/Content/cda-new.htm

General practitioners, laboratories and hospitals are required by law to notify particular infectious diseases to their local or state public health units. These laws override all privacy regulations. Notification should be done by telephone so that the public health unit can take immediate action. A list of notifiable infectious diseases is available from state health department websites.

Sexually transmitted infections (STIs) are frequently seen in general practice. Although they may be asymptomatic, they are important to detect early in order to minimise potential complications such as infertility.

Taking a sexual history

A key skill involved in the assessment and management of STIs is taking a sexual history. A nonjudgmental environment which is supportive for patients to discuss sexual matters is essential[149]. It is important to ask open questions and to avoid terms that make assumptions about sexual behaviour or orientation (eg. by using the term 'partner'). The history should address issues such as current sexual activity, gender and number of partners, contraception (including use of condoms), immunisation status and other risk factors for blood born viruses (eg. IV drug use). Any investigations should be explained and patients should be counselled before ordering tests such as those for HIV or hepatitis C (see www.racgp.org.au/downloads/pdf/20031029hepc.pdf). A follow up appointment may be suggested with the partner and explicit permission is required for the GP to undertake follow up with contacts.

5.1. Immunisation

Age	<2	2–3	4–9	10–14	15–19	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	>65

Immunisation is recommended for all children and adults according to the Australian Standard Vaccination Schedule **(A)**. General practitioners should advocate immunisation and counter the common misunderstandings and antivaccine campaigns.

The Australian Standard Vaccination Schedule (ASVS) shown here is that recommended by the National Health and Medical Research Council in the current *Australian Immunisation Handbook* (8th edition). There may be variability in vaccines recommended or funded depending on which state or territory one resides in (eg. hepatitis A vaccine for Aboriginal and Torres Strait Islander peoples). From November 2005, there will be a National Vaccine Schedule, which results in most of the vaccinations in the ASVS (2003) being funded for vaccine providers.

Health inequality

For immunisation to be effective there needs to be high coverage. Thus, GPs need to be aware of groups with lower levels of age appropriate immunisation including[150]:

- young parent families (under 25 years of age)[85,151]
- single parent families and families with more than one child[152]
- migrant families (particularly in the first years of their arrival in Australia or if a language other than English is spoken at home)[85,151–154]
- families where the parents are unemployed,[150,154] on low incomes,[85,154] or having very high or very low education levels[151,152,155]
- families who move frequently[153]
- Aboriginal children in rural and urban areas.[156–158]

The Australian Standard Vaccination Schedule (2003)

Age	Vaccine
Birth	Hepatitis B* (hepB)
2 months	• Hepatitis B* (hepB) • Diphtheria, tetanus and acellular pertussis (DTPa) • Haemophilus influenzae type b (Hib)** • Inactivated poliomyelitis (IPV)*** • Pneumococcal conjugate (7 vPCV)
4 months	• Hepatitis B* (hepB) • Diphtheria, tetanus and acellular pertussis (DTPa) • Haemophilus influenzae type b (Hib)** • Inactivated poliomyelitis (IPV)*** • Pneumococcal conjugate (7 vPCV)
6 months	• Hepatitis B* (hepB) • Diphtheria, tetanus and acellular pertussis (DTPa) • Hib (extra)† (only if Hiberix, HibTITER, or ActHIB used at 2 and 4 months) • Inactivated poliomyelitis (IPV)*** • Pneumococcal conjugate (7 vPCV)
12 months	• Hepatitis B* (only if Hib-hepB used at 2 and 4 months) • Haemophilus influenzae type b (Hib)** (may need to use monovalent Hib vaccine) • Measles, mumps and rubella (MMR) • Meningococcal C (MenCCV)
12–24 months	• Pneumococcal conjugate or polysaccharide** (7vPCV or 23vPPV) (booster for high risk groups. See footnote)
18 months	• Varicella zoster vaccine (VZV) (only if no history of varicella or prior vaccination)
4 years	• Diphtheria, tetanus and acellular pertussis (DTPa) • Measles, mumps and rubella (MMR) • Inactivated poliomyelitis (IPV)** • Pneumococcal conjugate or polysaccharide# (7vPCV or 23vPPV) (booster for high risk groups. See footnote)
10–13 years	• Hepatitis B (2 adult doses for those born pre-May 2000, or not vaccinated against hepB) • Varicella zoster vaccine (VZV) (only if no history of varicella or prior vaccination)

15–17 years	• Diptheria, tetanus and acellular pertussis (dTpa is the adult/adolescent vaccine)
15–49 years	• Influenza and pneumococcal polysaccharide (23vPPV) (for at risk Aboriginal and Torres Strait Islander peoples)
50 years	• Diptheria and tetanus (ADT=dT)
50 years and over	• Influenza (Aboriginal and Torres Straits Islander peoples) • Pneumococcal polysaccharide (23vPPV) (Aboriginal and Torres Straits Islander peoples)
65 years and over	• Influenza • Pneumococcal polysaccharide (23vPPV)

* three Hepatitis B doses after birth dose required

** Use Hib-OMP (Pedvax or Comvax) in indigenous children in areas of higher risk (Queensland, Central and Northern areas of Australia)

*** IPV in IPV-combination vaccines, eg. DTPa-hepB- IPV, DTPa-IPV, DTPa-IPV-Hib, DTPa-hepB-IPV-Hib (their use may create a need for one dose monovalent Hib vaccine at 12 months)

† third dose at 6 months if using PRP-T (ActHib, Hiberix) or HbOC (HibTITER) Hib type vaccines in non-Aboriginal and Torres Straits Islander children and indigenous children in southern states (areas of lower risk)

Pneumococcal vaccination (in addition to 7vPCV at 2, 4 and 6 months, 23vPPV or 7vPCV booster doses are recommended and funded for:
- Aboriginal and Torres Strait Islander children up to 5 years in Central Australia
- booster at 18–24 months in NT, Qld, SA and WA
- Children under 5 years at risk from specified medical conditions; booster 7vPCV at 12 months and 23vPPV at 4–5 years (refer http://immunise.health.gov.au *Australian Immunisation Handbook, 8th edition*, 2003)

Aboriginal and Torres Strait Islander peoples may be eligible for more funded vaccines (eg. hepatitis A) depending on where they live

Notes

a. Hepatitis B vaccine should be given to all infants at birth and should not be delayed beyond 7 days after birth. Infants whose mothers are hepatitis B surface antigen positive (HbsAg+ve) should be given hepatitis B immunoglobulin (HBIG) within 12 hours of birth

b. Diphtheria tetanus (dT) should be given at 50 years of age unless a dT booster dose has been documented in the previous 10 years. Boostrix can be used instead of dT to protect infant relatives from pertussis, but is not funded

c. Vaccine cold chain: to maintain vaccine quality by keeping the temperature of vaccines in the 2–8 degrees C range. Temperatures outside this range damage vaccines and render them less effective or useless. Accurate monitoring of refrigerator storage temperatures or use of vaccine storage refrigerators is recommended

Immunisation information resources

http://immunise.health.gov.au/handbook.htm

http://immunise.health.gov.au/indigenous.htm

http://immunise.health.gov.au/vaccine storage.htm

http://www.ncirs.usyd.edu.au

5.2 Chlamydia

Age	0–9	10–14	15–19	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65–69	70–79	>80

All sexually active females under 25 years of age should be screened opportunistically for chlamydia infection **(A)**. Those infected should be screened again after 6–12 months because of the high risk of re-infection. Male partners of infected females should be treated **(A)**. Men who have sex with men should be screened for chlamydia and other STIs every 12 months **(B)**.[159]

Who is at higher risk?	What should be done?	How often?	Level of evidence and references
Increased risk All sexually active women under 25 years of age	Urine or endo-cervical swab for ligase chain reaction (LCR) or polymerase chain reaction (PCR)	Opportunistically	II A 159–162
High risk • All sexually active teenagers, particularly female, Aboriginal or Torres Strait Islander, and • Those with pattern of inconsistent or no condom usage, or with recent change in sexual partner	Urine or endo-cervical swab for LCR or PCR (consider screening for other STIs)	Every 12 months	II A 159–162
High risk men Men who have anal sex with men	Urine for PCR and blind rectal swab for PCR (consider screening for other STIs)	At least every 12 months	III B 163
Sexual partners of infected women and men	Test and treat immediately	Every 12 months	II A 164,165

Intervention	Technique	Site	References
PCR/LCR	20 mL first void urine (not mid stream) or at least 1 hour after last void. This has been found to be the best performing test in both sexes. Urine samples should be kept at under 4°C. Room temperature reduces sensitivity of LCR PCR endocervical or low vaginal swab (patient can self collect) also possible in females There has been no validation of this technique for anal or throat swabs	Urine, endo-cervix, vagina	163,166
Elisa swab	Inferior to PCR/LCR. Cheap, variable sensitivity and specificity, stores at room temperature	Endo-cervix, urethra	163,166

Prevention of chronic disease 06

The smoking, nutrition, alcohol and physical activity (SNAP) risk factors are common among patients attending general practice. They contribute significantly to the burden of disease largely due to their effect on the incidence and complications of chronic diseases such as diabetes, cardiovascular disease, chronic respiratory disease and some cancers. A detailed description of the appropriate interventions is covered in the RACGP '*SNAP' guide*.[167]

Each of these risk factors may interact with each other throughout the lifecycle. Thus, it is important not to deal with each risk factor in isolation. The 'absolute risk' approach being advocated by the National Vascular Disease Prevention Alliance attempts to place assessment and intervention of an individual risk factor within the context of the 'absolute risk' that the patient will have a vascular event in the next 5 years. Absolute risk is determined both by the SNAP behavioural risk factors and the physiological risk factors described in the following section on vascular disease prevention, and the patients age and gender.

It is important to tailor the intervention to the patient's readiness to change[168] as well as using behavioural counselling approaches such as motivational interviewing. This is described in pages 8 and 9 of the RACGP *SNAP guide*. Strategies which increase the likelihood of lifestyle change include motivational interviewing and the use of patient held records (see the RACGP *Putting prevention into practice* ('green book').[169]

Health inequality

Disadvantaged groups are less likely to be offered preventive care (see I. *Introduction*). Strategies to increase screening in this group involve addressing barriers to preventive care including financial and structural (including transport), providing longer consultations with disadvantaged patients with complex needs, and avoiding assumptions about patients on the basis of SES (see the RACGP *Putting prevention into practice* ('green book').

6.1 Smoking

Age	0–9	10–14	15–19	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65–69	70–79	>80

Smoking status should be assessed for every patient over 10 years of age.[170] Patients who smoke, regardless of the amount they smoke, should be offered regular brief advice to stop smoking **(A)**.[47]

Who is at higher risk of developing smoking related complications?	What should be done?	How often?	Level of evidence and references
Average risk All people 10 years of age or over	Ask about smoking of cigarettes, pipes or cigars	Every 12 months	I A 47,171
Increased risk • Aboriginal and Torres Strait Islander peoples • People with mental illness • People with other chemical dependencies	Include smoking status as part of all routine history taking	Every 6 months	I A III A 47

Identified smoking risk	What should be done?	How often?	Level of evidence and references
• Smoker at any age	• Assess readiness to quit and nicotine dependence • Offer brief nonjudgmental advice to quit • Refer to Quitline 131 848	At first consultation Follow up monthly	I A 47,172–174
• Smokers who are physically addicted • People with smoking related diseases • People with diabetes or other cardiovascular risk factors who smoke	Add to the above: • offer Quit book • suggest nicotine replacement therapy (NRT) or bupropion depending on clinical suitability and patient choice	At every consultation	III B 47
Passive smoking • Pregnant women • Parents of babies and young children	Counselling nonsmokers, especially parents of babies and young children, and pregnant women, to avoid exposure to tobacco smoke	At every consultation	III B 175,176

Intervention	Technique	References
Advice	Patients who are not interested in quitting should be offered brief advice on the risks of smoking and encouraged to consider quitting Patients who are interested in quitting should be offered information on smoking cessation including Quitline, motivational counselling, NRT or bupropion if they are dependent, and suggest a follow up visit to discuss further (see RACGP *SNAP guide* and *Smoking cessation guidelines for Australian general practice*) Consider implementing practice changes to identify in the medical record smokers/those who have quit within the past year	47,177
Drug therapy	Both NRT and bupropion (Zyban) produce a twofold increase in smoking cessation at 3–5 months. Both have been shown to be effective when combined with behavioural therapies. See RACGP *SNAP guide* and *Smoking cessation guidelines for general practice*	173,178

Implementation

Inequality

Aboriginal and Torres Strait Islander peoples have higher rates of smoking. Smoking is more common among low socioeconomic patients including the unemployed, those with lower education, and those living in rural and remote areas. Low income and less educated patients are less likely to be offered interventions[179,180]

Strategy

Strategies to increase screening and effective motivational and behavioural interventions in this group are discussed in the RACGP *Putting prevention into practice* ('green book'). Consider complementing strategies targeted at individuals with Aboriginal and Torres Strait Islander community based approaches to tobacco control

6.2 Overweight

Age	0–9	10–14	15–19	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65–69	70–79	>80

Body weight reflects the balance between levels of dietary intake and physical activity. Body mass index (BMI) and adult waist circumference should be measured every 2 years for those patients who appear overweight **(A)**.[181] BMI may be misleading especially in older people and muscular individuals, and classifications may need to be adjusted for some ethnic groups.[182]

Overweight poses a health burden at all ages. Patients who are overweight or obese should be offered individual lifestyle education and skills training.[183] Restrictive dieting is not recommended for children and adolescents. A modest weight loss of 5–10% of starting body weight in adults who are overweight is sufficient to achieve some health benefits.[182]

Who is at higher risk of developing obesity related complications	What should be done?	How often?	Level of evidence and references
Average risk All Australians	Assess BMI and waist circumference in all adults over 18 years of age. In children and adolescents use age specific BMI charts (see Section 3.3 *Overweight and obesity*). Offer general education on nutrition# and physical activity*	Every 2 years	I A 183
Increased risk • Aboriginal and Torres Strait Islander peoples and those from Pacific islands • Patients with existing diabetes or cardiovascular disease, stroke, gout, liver or gallbladder disease	Assess BMI and waist circumference in all adults over 18 years of age. Offer individual education on nutrition and physical activity	Every 12 months	I A 183 III A
Identified risk of obesity • Patients who are overweight or obese	Assess weight and waist circumference. Develop weight management plan	Every 6 months	III B 183

For more information see the NHMRC *Dietary guidelines for Australian adults*

* For more information see the NHMRC *Physical activity guidelines*

For further information see pages 14–16 of the RACGP *SNAP guide* and the NHMRC *Overweight and obesity: a guide for general practitioners*

Intervention	Technique	References
BMI	Body mass index = body weight in kilograms divided by the square of height in metres. BMI of 25 or greater conveys increased risk	181,183
Waist circumference	An adult's waist circumference is measured half way between the inferior margin of the last rib and the crest of the ilium in the mid-axillary plane. The measurement is taken at the end of normal expiration >94 cm in males and >80 cm in females conveys increased risk >102 cm in males and >88 cm in females conveys high risk	181,183

Combining measures to assess obesity and disease risk* in Australian adults[183]

Classification	BMI (kg/m²)	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	>40.0	Extremely high	Extremely high

* Risk of type 2 diabetes and cardiovascular disease

Based on: NHMRC *Clinical practice guidelines for the management of overweight and obesity in adults* and NHMRC *Overweight and obesity in adults and in children and adolescents: a guide for general practitioners*

Implementation

Inequality
Aboriginal and Torres Strait Islander peoples and those from Pacific islands have higher rates of overweight and obesity as well as a higher incidence of vascular disease. Low income and less educated patients are less likely to be offered interventions to prevent overweight[184]

Strategy
Strategies to increase screening in this group are discussed in the RACGP *Putting prevention into practice* ('green book') and the *National guide to a preventive health assessment in Aboriginal and Torres Strait Islander peoples*

6.3 Nutrition

Age	0–9	10–14	15–19	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65–69	70–79	>80

Breastfeeding should be promoted as the most appropriate method for feeding infants and one that offers protection against infection and some chronic diseases.[185] In adults, ask how many portions of fruit or vegetables are eaten in a day and advise to follow the *Dietary guidelines for Australian adults* **(B)**.[186]

Who is at higher risk of developing nutrition related complications	What should be done?	How often?	Level of evidence and references
Average risk All patients	Ask about the number of portions of fruit and vegetables eaten per day and the types of fat eaten. All patients should be advised to follow the NHMRC *Dietary guidelines for Australian adults* (see below)	Every 2 years	I B 187–190
High risk • Overweight or obese • High cardiovascular absolute risk (>15%) • Past or first degree family history of cardiovascular disease (including stroke) before the age of 60 years • Type 2 diabetes	Provide advice (see RACGP *SNAP guide*) Refer to a dietician	Every 6 months	I B 191

Intervention	Technique	References
Vitamin supplements	Vitamin supplementation is not of established value in asymptomatic individuals* (with the exception of folate in pregnancy)	48
Dietary guidelines for Australian adults	Enjoy a wide variety of vegetables, legumes and fruits: • eat plenty of vegetables, 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 alcohol intake • consume only moderate amounts of sugars and foods containing added sugars Prevent weight gain: be physically active and eat according to energy needs Care for food: prepare and store it safely Encourage and support breastfeeding Note: There are also dietary guidelines for children and adolescents: *Dietary guidelines for children and adolescents in Australia*, incorporating the *Infant feeding guidelines for health workers*	186
Encourage breastfeeding	Encourage and support exclusive breastfeeding in the first 6 months, then the introduction of complementary foods and continued breastfeeding thereafter. It is recommended that breastfeeding continue until 12 months of age and thereafter as long as mutually desired	185

* Prevalence of nutritional deficiency is high in certain groups such as people with alcohol dependence, and the elderly living alone and in institutions

Implementation

Inequality

There is evidence that Aboriginal and Torres Strait Islander communities in remote regions face significant access barriers to nutritious and affordable food.[192,193] Nutritious food tends to cost more in rural and remote areas; cost may be an issue in low socioeconomic groups

Strategy

Refer to general principles as discussed in I. *Introduction*, in 6. *Prevention of chronic disease* and as outlined in the RACGP *Putting prevention into practice* ('green book')

6.4 Early detection of problem drinking

Age	0–9	10–14	15–19	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65–69	70–79	>80

All patients should be asked about the quantity and frequency of alcohol intake and number of alcohol free days each week from 14 years of age **(B)**. Those with at risk patterns of alcohol consumption should be offered brief advice to reduce their intake **(A)**.

Who is at higher risk of developing alcohol related complications?	What should be done?	How often?	Level of evidence and references
Average risk All patients 14 years of age or over	Ask about the quantity and frequency of alcohol intake and number of alcohol free days each week. As some patients may be sensitive to your question, it is important to be nonjudgmental	Every 3 years	II B 194,195
Increased risk • People with high blood pressure, liver disease, major organ damage • Pregnant women or those planning to be pregnant • Those with a first or second degree relative with/had alcohol or mental health problems • Those taking medication or other drugs	Ask about the quantity and frequency of alcohol intake and number of alcohol free days each week. Provide advice on the benefits of low levels of alcohol consumption	Every 12 months	I A 194

Identified as 'risky' or 'high risk' alcohol consumption	What should be done?	How often?	Level of evidence and references
Males: average of more than four standard drinks per day, more than 28 standard drinks over a week and more than six standard drinks in any one day Females: average of more than two standard drinks per day, more than 14 standard drinks over a week and more than four standard drinks in any one day	• Assess readiness to reduce alcohol consumption • Offer brief tailored intervention • Consider referral to drug and alcohol service or counsellor • Counsel about the dangers of operating a motor vehicle or performing other potentially dangerous activities after drinking • Pregnant women should consider abstaining from alcohol	At first consultation Follow up monthly	I A 194
• Those who are physically or psychologically dependant • Those with psychological, physical or social consequences of excessive alcohol consumption	Consider relapse preventive drug therapy	At every consultation	IV C 196–198

Intervention	Technique	References
Brief interventions	Patients should be encouraged to set their own goals. Try to reach agreement about the number of drinks per day and the number of alcohol free days. Ask patients to assess their own motivation and confidence in making a change. High risk situations should be identified and avoided and appropriate social support such as friends or family should be enlisted. Monitor progress at a follow up visit	194
Drug therapy	Acamprosate (Campral) and naltrexone have been demonstrated to improve the rate of abstinence and reduce the rate of relapse to drinking. Naltrexone should not be used where patients are using opioids, or have acute hepatitis or hepatic failure. Acamprosate should not be used in patients with renal failure. See RACGP *SNAP guide*	196–198

Epidemiology

Drinking at risk levels is most common for men and women 30–45 years of age. The proportion of men drinking at risk levels, especially binge drinking is one and a half to two times that of women at all ages. In Australia it has been estimated that alcohol is associated with 44% of fire injuries, 34% of falls and drowning, 30% of car accidents, 47% of assaults, 16% of child abuse, 10% of suicides and 7% of industrial machine accidents. At 0.05 blood alcohol concentration, the risk of being involved in a road crash doubles.[199] Brief advice in general practice has been

demonstrated to have resulted in reductions of 19 to 34% in alcohol use.[194,200–202] Alcohol is a risk factor for some types of cancer (especially mouth, pharynx, larynx, oesophagus, liver and breast.[203–205]

Implementation

Inequality

Alcohol consumption tends to be higher among young people and the unemployed, and those living in rural and remote areas.[206] Low income and less educated patients are less likely to be offered interventions.[179] Aboriginal and Torres Strait Islander peoples are more likely to suffer chronic illness as a result of alcohol consumption

Strategy

Refer to general principles as discussed in I. *Introduction*, in 6. *Prevention of chronic disease* and as outlined in the RACGP *Putting prevention into practice* ('green book'). Consider complementing strategies targeted at individuals with Aboriginal and Torres Strait Islander community based approaches to alcohol consumption

6.5 Physical activity

Age	0–9	10–14	15–19	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65–69	70–79	>80

All adults should be advised to participate in 30 minutes of moderate activity on most, preferably all days of the week **(A)**. While moderate physical activity is recommended for health benefit, more vigorous exercise may confer additional cardiovascular health and cancer prevention benefits, if carried out for a minimum of 30 minutes 3–4 times a week.

Who is at higher risk?	What should be done?	How often?	Level of evidence and references
Average risk Those already performing moderate levels of activity for 30 minutes daily on at least 5 days of the week	Question regarding current level of activity	Every 12 months	III B 207
Increased risk Those at higher risk include: teenage girls, Aboriginal or Torres Strait Islander peoples, low SES backgrounds and non-English speaking backgrounds	Question regarding current level of activity and readiness to be more active	Every visit	IV C 208
Increased risk Those with a chronic condition or other cardiovascular disease (CVD) risk factors (see Section 7 *Prevention of vascular disease*)	Question regarding current level of activity and readiness to be more active	Every visit	IV C 209

Test	Technique	References
Determine level of physical activity	Question regarding current level of activity and readiness to be more active. See RACGP *SNAP guide*	167
Brief interventions to increase levels of physical activity	Interventions in general practice that have been shown to have short term benefit in changing behaviour related to physical activity include: • patient screening to identify current level of activity and readiness to be more active • provision of brief advice or counselling on exercise • supporting written materials, and/or • written prescription for exercise See RACGP *SNAP guide*	208

Epidemiology

Engaging in regular, moderate intensity physical activity reduces the risk of diseases such as cardiovascular disease, type 2 diabetes, osteoporosis, colon cancer, breast cancer, obesity, falls in the elderly and mental illness. The amount of disease that could be prevented if the population was at least moderately active is 18% for CHD, up to 16% for stroke, 13% for NIDDM, 19% for colon cancer, 9–12% for breast cancer and up to 10% for depression symptoms. Approximately 122 deaths per year from CHD, diabetes and colon cancer could be avoided for every 1% increase in the proportion of population achieving sufficient level of regular activity.[208]

Implementation

Inequality

Lower levels of physical activity have been reported for Aboriginal and Torres Strait Islander peoples[210] and people living in rural and remote areas.[184] There is poor access to facilities for physical activity in many Aboriginal communities[211]

Strategy

Facilitate improvements in physical activity by linking health advice with locally available and appropriate Aboriginal and Torres Strait Islander community sport and recreation programs, as well as social support programs (eg. group activities)[212]

Prevention of vascular disease 07

It has been estimated that 5% of Australians 31–79 years of age have coronary heart disease (CHD)[213] and that 40% of direct cardiovascular disease (CVD) costs are associated with hospitalisation.

Changing the following physiological risk factors has been demonstrated to reduce vascular events including strokes and myocardial infarctions:

- lowering blood pressure in patients with hypertension or high absolute cardiovascular risk
- reducing blood levels of total cholesterol, low density lipoprotein (LDL) cholesterol, triglycerides and raising high density lipoprotein (HDL) cholesterol levels
- maintaining good glycaemic control in patients with diabetes.

In addition to the behavioural risk factors outlined in Section 6. *Prevention of chronic disease*, CVD also frequently coexists with depression, social isolation and lack of quality social support.[214]

Estimation of the absolute cardiovascular risk (the percentage chance for an individual experiencing a cardiovascular event over the next 5–10 years) is important in decision making about who to intervene in and the intensity of interventions.

Health inequality

Low SES is associated with an increased risk of CVD and a decreased likelihood of preventive care.[215] Data from the National Nutrition Survey suggests that people of low SES or living in rural locations have higher dietary saturated fat intake, although relationship with serum cholesterol levels is less clear.[216] People of low SES have a higher prevalence of diabetes.[217] This group is less likely to access the full range of clinical services including testing.

Hypertension and CVD is more common in low socioeconomic groups including Aboriginal and Torres Strait Islander peoples and the unemployed.[217,218] The incidence of end stage renal disease (ESRD) among Aboriginal and Torres Strait Islander people varies from up to 30 times the national incidence in some remote areas to about double in some urban areas.[219] Factors that affect rates of ESRD in Aboriginal and Torres Strait Islander peoples include low birth weight, poor nutrition, infections such as scabies, smoking, other behavioural risk factors and socioeconomic disadvantage.[220–222] There is also threefold variation within urban areas among nonindigenous Australians, with higher ESRD incidence in more disadvantaged areas.[223]

Preventive care is less likely to be provided to these patients.[224] There is some evidence that absolute cardiovascular risk using Framingham data may underestimate the risk in Aboriginal people.[225] A prospective study in an Aboriginal population demonstrated that urine dipstick testing followed by the prescription of angiotensin converting enzyme (ACE) inhibitors in those patients with significant proteinuria resulted in a substantial reduction in the incidence of kidney failure and cardiovascular events.[226]

7.1 Blood pressure

Age	0–9	10–14	15–19	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65–69	70–79	>80

Blood pressure should be measured in all adults from 18 years of age at least every 2 years **(A)**. The risk of CVD is continuous across a range of blood pressures beginning at 115/75 and doubles with each increment of 20/10.[227] Thus, the benefit of lowering blood pressure should be considered in all patients, especially those with other risk factors **(A)**.

Who is at higher risk of vascular disease or hypertension?	What should be done?	How often?	Level of evidence and references
Average risk of vascular disease and/or hypertension Adults 18–50 years of age (dependent on risk factors identified through absolute cardiovascular risk assessment)	Measure BP	Every 2 years from age 18 years if systolic BP <120 and diastolic BP <80	I A 227,228
Increased risk of vascular disease and/or hypertension • Lifestyle risk factors: – smoking – physical inactivity – overweight /obesity – poor nutrition – lower SES and psychological factors – excessive alcohol consumption	Measure BP Lifestyle risk factor counselling	Every 12 months	II A 228
High risk of vascular disease and/or hypertension • Biological risk factors: – age >50 years – dyslipidaemia – proteinuria – atrial fibrillation • Established disease: – known macrovascular disease – diabetes/IGT/IFG – chronic kidney disease	Measure BP Assess absolute cardiovascular risk Lifestyle risk factor counselling	Every 6 months	I A 227 229,230

High risk of vascular disease and hypertension • Aboriginal or Torres Strait Islander peoples • South Asians • Maori and Pacific islanders	Measure BP Assess absolute cardiovascular risk	Opportunistically; at least annually Begin at 15 years of age in areas with known high prevalence of hypertension Every 1–2 years starting at 35 years of age (in absence of risk factors above)	V A	231

Intervention	Technique	References
Measure BP	With sphygmomanometer at initial visit, then two subsequent visits with two readings at each visit if above 120/80	232
Absolute cardiovascular risk assessment	Assessment of the risk of a coronary event or stroke in the next 5–10 years. Required information is gender, age, total cholesterol, HDL, presence of diabetes, family history of CVD, and smoking status. Computer and paper based tools are available using algorithms derived from Framingham and other study findings. See *Appendix 3* for tables. However these tables may underestimate the risk in Aboriginal people and people with diabetes	233

Guide to follow up of adults 18 years and over

Systolic (mmHg)	Diastolic (mmHg)	Action
<120	<80	Re-check in 2 years
120–139	80–89	Re-check in 1 year – lifestyle advice
140–159	90–99	* Confirm within 2 months – lifestyle advice
160–179	100–109	* Evaluate and treat within 1 month – lifestyle advice
≥180	≥110	* Further evaluate and treat within 1 week (or immediately depending on clinical situation). If BP has been confirmed at ≥180 mmHg systolic and/or ≥110 mmHg diastolic (after multiple readings and excluding 'white coat' hypertension), drug treatment should be commenced

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

* Note: earlier initiation of drug therapy may be indicated for some patients. See *Hypertension management guide for doctors*, 2004

Source: Adapted from Heart Foundation, Hypertension management guidelines for doctors, 2004

7.2 Cholesterol and lipids

Age	0–9	10–14	15–19	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65–69	70–79	>80

Screening of healthy people without other risk factors is recommended every 5 years starting at 45 years of age (**A** for men, **C** for women). High risk patients should be screened as part of absolute cardiovascular risk assessment **(A)**.

Who is at higher risk of vascular disease or dyslipidaemia?	What should be done?	How often?	Level of evidence and references
Increased risk of vascular disease or dyslipidaemia Patients 45 years of age and over	Fasting blood lipids	Every 5 years	I A 234
High risk Patients 45 years of age and over with: • risk factors such as smoking, hypertension, overweight • family history of premature CVD in first degree blood relatives (<60 years of age)	Fasting blood lipids	Every 1–2 years	I A 234
Very high risk of vascular disease or dyslipidaemia • Patients with an absolute cardiovascular risk >15% over the next 5 years • Patients with the following existing diagnoses: – diabetes mellitus (types 1 and 2) or impaired glucose tolerance – CVD, peripheral arterial disease or ischaemic cerebrovascular disease – familial hypercholesterolaemia or familial combined hyperlipidaemia – chronic kidney disease	Fasting blood lipids	Every 12 months	I A 234 229,230

Intervention	Technique	References
Fasting blood lipids	Fasting total cholesterol, LDL cholesterol, HDL cholesterol and triglycerides. If total cholesterol (TC) is raised (>4 mmol/L) or LDL >2.5 mmol/L, a second confirmatory sample should be taken on a separate occasion (as levels may vary between tests) before a definitive diagnosis is made	234
Absolute cardiovascular risk assessment	Assessment of the risk of a coronary event or stroke in the next 5–10 years (derived from the Framingham and other studies). See Section 7.1 *Blood pressure*	233
Dietary advice	All people regardless of their cholesterol level should be given dietary advice. In patients whose cholesterol is raised, absolute cardiovascular risk should be determined (see *Appendix I*). Those 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 Section 6 *Prevention of chronic disease*. See NHMRC *Dietary guidelines for Australian adults*	186,235

Cholesterol lowering therapy	Cholesterol lowering therapy should be considered in patients with overt CVD, in patients with diabetes with LDL >2.5 or TG >2, in Aboriginal and Torres Strait Islander peoples with LDL >2.5, or in patients with elevated cholesterol due to familial hypercholesterolaemia. In other patients, cholesterol lowering therapy should be considered when the absolute cardiovascular risk is elevated (above 15% risk in the next 5 years) and there has been an insufficient response to lifestyle changes. See Australian Heart Foundation *Lipid guidelines* at www.heartfoundation.com.au	234

7.3 Type 2 diabetes

Age	0–9	10–14	15–19	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65–69	70–79	>80
*															
**															

* Those with impaired glucose tolerance test or impaired fasting glucose, obesity (BMI ≥30), hypertension, clinical CVD or women with polycystic ovary syndrome who are obese

** Aboriginal and Torres Strait Islander peoples and certain ethnic groups (people of Pacific islander, Indian subcontinent or Chinese origin)

All patients should be screened every 3 years from 55 years of age. This should commence from 45 years of age in those with other risk factors, or from 35 years of age in Aboriginal or Torres Strait Islander peoples, Pacific islanders or those from the Indian subcontinent or China **(B)**. High risk groups should be screened every year **(B)**.

Who is at higher risk of type 2 diabetes?	What should be done?	How often?	Level of evidence and references
Increased risk • Age >55 years • Women with previous gestational diabetes • People 45 years of age and over who have a first degree relative with type 2 diabetes	Fasting blood sugar	Every 3 years	III B 236

Who is at higher risk of type 2 diabetes?	What should be done?	How often?	Level of evidence and references
High risk • Those with impaired glucose tolerance test (IGT) or impaired fasting glucose (IFG) • Aboriginal and Torres Strait Islander peoples 35 years of age and over • High risk culturally and linguistically diverse groups 35 years of age and over (specifically Pacific islander peoples, people from the Indian subcontinent or of Chinese origin) • People 45 years of age and over who have either or both of the following risk factors: – obesity (BMI ≥30), abdominal circumference >88 cm females, >102 cm males – hypertension • All people with clinical CVD • Women with polycystic ovary syndrome who are obese	Fasting blood sugar	Every 12 months	III B 236

Intervention	Technique	References
Fasting blood sugar	Measure plasma glucose levels preferably on a fasting sample although a 'random' sample is acceptable for screening purposes. The test should be performed by a laboratory rather than by desktop devices as these are less accurate: • <5.5 mmol/L – diabetes unlikely • 5.5–6.9 mmol/L fasting – perform oral glucose test • 7.0 mmol/L or more fasting – diabetes likely, repeat fasting blood sugar to confirm on a separate day	236
Oral glucose test	2 hours after a 75 gm oral glucose load is taken orally, the plasma glucose is measured. If this is greater than 11.1 mmol/L diabetes is likely. If it is between 7.8 and 11.0 mmol/L then there is IGT. If it is less than 7.8 mmol/L diabetes is unlikely	236

Prevention of diabetes

Target group	Intervention	References
Pre-diabetes (IGT, IFG, gestational diabetes) and those with identified risk factors with negative screening test	• Give advice on healthy low fat diet, weight loss and increased physical activity (see RACGP *SNAP guide*) • Refer patients to a dietician and a physical activity program • Provide pre-conception advice to women with a history of gestational diabetes	108,237,238

7.4 Stroke

Age	0–9	10–14	15–19	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65–69	70–79	>80

All patients over 55 years of age with hypertension, diabetes, smoking or multiple risk factors should be asked about the presence of symptoms of transient ischaemic attacks (TIAs). Anticoagulation or antiplatelet therapy should be considered for patients with TIAs and those with atrial fibrillation (AF) and a history of previous thrombotic stroke or myocardial infarction **(A)**.

Who is at higher risk of stroke?	What should be done?	How often?	Level of evidence and references
Increased risk Adults over 55 years of age with: • hypertension • diabetes • smoking • multiple risk factors	Question patient or carer regarding symptoms of TIA	Every 12 months	III B 239,240
High risk People with: • atrial fibrillation with other risk factors • previous thrombotic stroke or myocardial infarction • chronic kidney disease	Question about symptoms of TIA and consider anticoagulation Determine cause of AF and treat	Every 12 months	III B 241 242–244
People who have had a TIA	Anticoagulation with warfarin should be considered in patients with documented TIAs due to AF Antiplatelet therapy should be used if the TIAs are due to arterial disease	Every 12 months	I A 239

Intervention	Technique	References
Question about TIA	Question patient or carer regarding symptoms of sudden onset of loss of focal neurological function such as weakness or numbness of arms or legs, speech disturbance, double vision or vertigo	239
Auscultation for carotid bruit	Auscultating for carotid bruits in asymptomatic people has been shown to have good sensitivity but a low specificity. It is not good in differentiating the degree of carotid stenosis and therefore is not useful in low risk populations. However it may be of use in higher risk populations such as people with diabetes, especially if there is other evidence of vascular disease	245,246

7.5 Kidney disease

Age	0–9	10–14	15–19	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65–69	70–79	>80

All patients 50 years of age and older should have their blood pressure and urinalysis performed every year **(B)**. Patients at high risk should also have glomerular filtration rate (GFR) assessed.

Who is at higher risk of kidney disease?	What should be done?	How often?	Level of evidence and references
Increased risk • People over 50 years of age • Those that smoke	BP, urinalysis	Every 12 months	III B 247–249
High risk People over 50 years of age with one of the following risk factors: – hypertension – family history of kidney disease	BP, urinalysis, microalbumin and GFR	Every 12 months	III A 222,250–252
Very high risk • People with diabetes • Aboriginal or Torres Strait Islanders >35 years of age • Multiple risk factors • Evidence of kidney disease	BP, urinalysis, microalbumin and GFR	Every 12 months	III B 222,236,247

Intervention	Technique	References
Urinalysis	Dipstick proteinuria test on random urine sample. Proteinuria present if dipstick 1+ or more	
Micro-albuminuria	Milligrams of albumin in 24 or 8 hour timed urine collection or albumin/creatinine ratio. Microalbuminuria present in men: 2.5–25 mg/mmoL, women: 3.5–25 mg/mmoL Timed or random collection allows calculation of albumin/creatinine ratio in mg/min	253
GFR	Can be estimated by using either the Cockcroft-Gault formula: $\text{GFR (mL/min)} = \frac{([140 - \text{age (years)}] \times \text{weight (kg)})}{[814.5 \times \text{plasma creatinine } (\mu\text{mol/L})]}$ multiply x 1 for males; multiply x 0.85 for females Or abbreviated modification of diet in renal disease (MDRD) formula: GFR (mL/min/1.73 m^2) = GFR = 186 x {[plasma creatinine (μmol/L)/88.4]$^{-1.154}$ x (age)$^{-0.203}$ x (0.742 if female) x (1.210 if Afro-American) An automated calculator for MDRD can be found at www.kidney.org.au Staging of chronic kidney disease: – stage 1 90 mL/min/1.73 m2 with proteinuria or haematuria – stage 2 (mild) 60–90 mL/min/1.73 m2 – stage 3 (mod) 30–60 mL/min/1.73 m2 – stage 4 (severe) 15–30 mL/min/1.73 m2 – stage 5 (end stage) <15 mL/min/1.73 m2 Refer patients with stage 4 or 5 or earlier if proteinuria >1g or rapidly deteriorating GFR to renal unit or a nephrologist	254 253 253

08 Early detection of cancers

General practitioners play an important role in screening for cancer especially skin, cervical, breast and colorectal cancer (CRC). This involves intervention in general practice as well as facilitating patients attending population screening programs.

Barriers to screening for cancer include concerns about the cost, radiation, embarrassment, poor access including travel difficulties, anxiety about test results, inconvenience, forgetting or procrastination, and discomfort associated with the screening test.[255] Strategies to overcome these are discussed in the RACGP *Putting prevention into practice* ('green book').

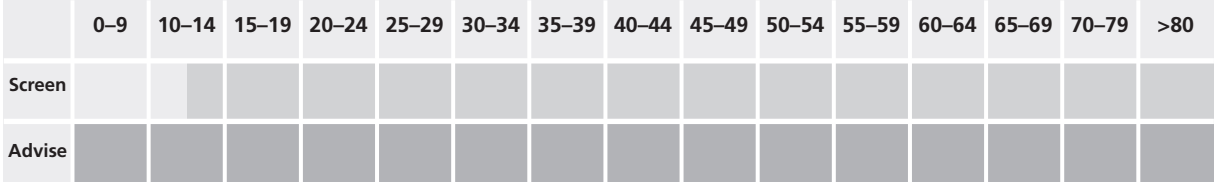
Health inequality

Some cancers are more common in low socioeconomic groups. Aboriginal women, older women and women living in low socioeconomic areas have a higher incidence of cervical cancer.[256] Oral cancer is more prevalent among low socioeconomic groups.[257] Low income and less educated patients are less likely to be screened and more likely to be diagnosed with late stage CRC.[258–260]

There is also evidence to suggest that low socioeconomic groups are less like to be screened for cancer and are less likely to have attended health services for a Pap test.[261] This is not corrected by increased access to general practice.[262] Aboriginal and Torres Strait Islander women are less likely to take part in both cervical and breast cancer screening. There is also evidence to suggest that women of low SES are less likely to have attended health services for a mammogram.[262] Women from non-English speaking backgrounds, Aboriginal and Torres Strait Islander women, and women who report symptoms at the time of first screening are less likely to attend for second round screening.[263]

Strategies to increase screening in this group involve addressing barriers to preventive care including financial and structural (including transport), providing longer consultations with disadvantaged patients with complex needs, and avoiding assumptions about patients on the basis of SES. See the RACGP *Putting prevention into practice* ('green book').

8.1 Melanocytic skin cancer



Patients 13 years and older at high risk for melanoma should be examined for skin cancer every 12 months **(B)**. Skin self examination should be encouraged for high risk individuals **(B)**. The most common preventable cause of melanoma is excessive exposure to UV light. All patients, particularly children, should be advised to adopt protective measures when in the sun **(C)**. There is evidence to suggest that sunscreen does not prevent melanoma as much as other means of sun protection.[264–267]

Who is at higher risk?	What should be done?	How often?	Level of evidence and references
Average risk People with light skin without past history of risk	Preventive advice	Opportunistically	III B 268
Increased risk • Family history of melanoma in first degree relative • Fair complexion, a tendency to burn rather than tan, the presence of freckles, light eye colour, light or red hair colour • Age over 30 years (>50 years of age most at risk) • Presence of solar lentigines • Past history of nonmelanoma skin cancer (<40 years of age higher risk) • People with childhood high levels of UV exposure and episodes of sunburn in childhood	Preventive advice and examination of skin	Opportunistically	V B 268,269
High risk People with multiple atypical or dysplastic naevi who have a history of melanoma in themselves or in one or more first degree relative (usually >15 years of age)	Preventive advice, examination of skin (with or without photography) and advice on self examination	Every 12 months	III C 270

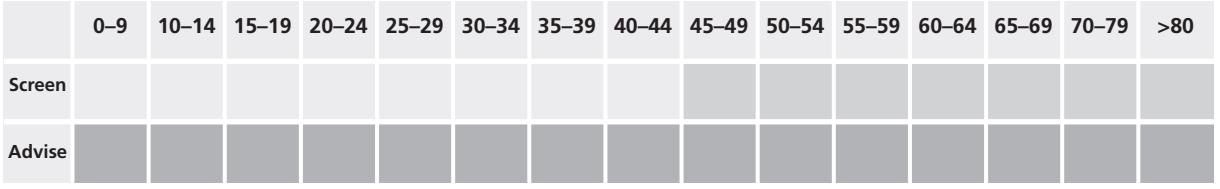
Intervention	Technique	References
Sun protection advice	All patients (especially children) should be advised to adopt protective measures when in the sun, especially between the hours of 10 am and 4 pm. These measures include use of hats, sunscreens, protective clothing and sunglasses	268
Skin examination	Skin examination should be preceded by inquiry for patient concern, eg. of newly grown lesions or change in appearance of any lesions in the past few months. Examination should assess asymmetry, border, colour, diameter and elevation (ABCDE). Lesions which are asymmetric, have an irregular border, variation in colour or have a red halo, are >6 mm or elevated are possibly melanomas. To identify nodular melanoma use EFG (elevated, firm, growing for more than 1 month). Excision biopsy or referral should be considered. Examination under surface magnification (x 10) can assist in diagnosis (after appropriate training). Use of photography can reduce the excision rate of benign lesions[271]	268,273

	Full body skin examination has been shown in general practice to take on average 2–3 minutes[272] Photography may aid in monitoring skin lesions over time	
Self examination	Patients should be advised on the specific changes that suggest melanoma, and encouraged to perform self examination especially of naevi. Those at high risk can benefit from use of total body photography	269,274

Implementation

General practitioners should question the need to excise moles and pigmented lesions in patients who are younger, or female.[275] Evidence suggests that GPs tend to excise relatively more benign lesions in these groups.[275] General practitioners should be more active at examining the skin of men over 50 years of age and excising their suspicious pigmented lesions.[275]

8.2 Nonmelanoma skin cancer (basal cell and squamous cell carcinoma)



High risk individuals from 40 years of age should be examined for nonmelanoma skin cancer (NMSC) **(B)**. Skin self examination should be encouraged for high risk individuals **(B)**. The most common preventable cause of NMSC is UV exposure. All patients, including children, should be advised to use protective measures when in the sun **(A)**. Use of sunscreen helps prevent squamous cell skin cancer **(B)**.[276]

Who is at higher risk?	What should be done?	How often?	Level of evidence and references
Average risk People with fair to lighter than olive skin colour, <40 years of age without any risk factors	Preventive advice	Opportunistically	III B 277
Increased risk Fair complexion, a tendency to burn rather than tan, the presence of freckles, light eye colour, light or red hair colour and one of the following: • Family history of skin cancer • Over 40 years of age • Male sex • Presence of multiple solar keratoses • People with high levels of UV exposure such as outdoor workers	Preventive advice, education to present if changes occur in a skin lesion, and examination of skin	Opportunistically	III B 277

High risk Fair complexion, a tendency to burn rather than tan, the presence of freckles, light eye colour, light or red hair colour and one of the following: • Previous NMSC (up to 60% grow another in 3 years) • Past exposure to arsenic • Immunosuppressed (eg. postrenal or heart transplant)	Preventive advice, education to present if changes occur in a skin lesion, examination of skin, and advice on self examination	Every 12 months	III B	278

Intervention	Technique	References
Sun protection advice	All patients (particularly children) should be advised to adopt protective measures when in the sun, especially between the hours of 10 am and 4 pm. These measures include use of hats, protective clothing, sunglasses, and sunscreens	270
Skin examination	Skin examination should be preceded by inquiry for relevant history, eg. lesions of concern to patient or recent appearance or change in any lesions in the past few months or years. Examination should identify skin lumps, ulcers or scaly patches particularly growing, scarred or inflamed lesions. Incision, shave, or excision biopsy for histology (or referral) should be considered. There are many means to treat NMSCs including the use of surgery, cryotherapy, curettage, cytotoxic and immune modulating creams. Examination under magnification can assist in diagnosis. Full body skin examination has been shown to take on average 2–3 minutes in general practice	275
Self examination	Patients should be advised to look for skin lesion changes	277

8.3. Cervical cancer

Age	0–9	10–14	15–19	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65–69	70–79	>80

Pap tests are recommended for all women 18–70 years of age who have ever had sex and have not had a hysterectomy (ie. an intact uterus and cervix) **(A)**. Pap tests should be performed every 2 years and should commence between 18–20 years of age, or 1–2 years after sexual activity commences, whichever is later **(B)**. Women over 70 years of age who request a Pap test or who have never had a Pap test should be screened. Screening should be ceased for this group only after two successive negative tests.

Who is at higher risk?	What should be done?	How often?	Level of evidence and references
Average risk Women who have ever had sex and still have an intact uterus. Women with female sex partners are also at risk of developing cervical cancer and are eligible for screening	Pap test	Every 2 years between 18–70 years of age	II A 279
Increased risk Infection with human papilloma virus (HPV) is necessary, although not sufficient, for the development of cancer of the cervix. Other risk factors include immunosuppression and long term use of oral contraceptives (>5 years)	Pap test	Every 2 years between 18–70 years of age	III B 280
Increased risk Woman with Pap test result: low grade squamous intra-epithelial lesion (LSIL) (definite or possible) (previously categorised as HPV effect or CIN1 either possible or definite)	Repeat Pap test in 12 months See below for specific age recommendations		III B 280
High grade squamous intraepithelial lesion (definite or possible) or any glandular lesions	Refer for colposcopy		IV 280

Intervention	Technique	References
Pap test	An optimal Pap test sample contains sufficient mature and metaplastic squamous cells to indicate optimal sample from the transformation zone, and sufficient endocervical cells to indicate that the upper limit of the transformation zone was sampled, and to provide a sample for screening for adenocarcinoma and its precursors. It is preferable to avoid taking the smear during menstruation, if obvious vaginal infection is present, or within 24 hours of vaginal cream or pessary use. The appropriate sampling instrument to be used depends on the position of the transformation zone. In some women, the squamo-columnar junction is within the endocervical canal – for these a cytobrush and spatula should be used. Cytobrushes should not be used in pregnant women. Cervical cells should be spread onto a glass slide and immediately fixed with spray or in alcohol. If the slide test is technically unsatisfactory, it should be repeated within 6–12	279

	weeks. It is important to ensure that the patient obtains the result of her test. If the report shows: • for low grade LSIL (definite or possible) the woman should have a repeat test in 12 months. There is insufficient evidence to support the use of HPV testing in triage LSIL. If the woman is over 30 years of age with no history of a negative test in the past 2–3 years, offer immediate colposcopy or repeat Pap test within 6 months • if the test at 12 months shows LSIL (definite or possible) the woman should be referred for colposcopy. If any repeat test shows high grade changes, if the woman is symptomatic, or if she has a clinically abnormal cervix or is unduly anxious about the situation, earlier referral for colposcopy is recommended • for high grade squamous lesions, the woman should be referred for colposcopic assessment and targeted biopsy where indicated • for glandular abnormality or adenocarcinoma, refer for colposcopy by an experienced gynaecologist or oncologist	

8.4 Breast cancer

Age	0–9	10–14	15–19	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65–69	70–79	>80

Screening by mammogram every 2 years is recommended for women at average risk and aged 50–69 years **(A)**. Clinical breast examination is not recommended as a routine screening test for women undergoing regular mammographic screening **(E)**. Mammographic screening is not recommended for women at average risk under 40 years of age. All women should be advised to be aware of the normal look and feel of their breasts and to report any new or unusual changes to their GP without delay. There is no evidence that teaching women to undertake regular breast self examination is effective.

Who is at higher risk?	What should be done?	How often?	Level of evidence and references
Average risk or slightly above • No confirmed family history of breast cancer • One first degree relative diagnosed with breast cancer at 50 years of age or older • One second degree relative diagnosed with breast cancer at any age	Breast awareness Mammogram	Every 2 years from 50–69 years of age* Regular	I A 281–285

• Two first or second degree relatives diagnosed with breast cancer at 50 years of age or older, but on different sides of the family				
Increased risk • One or two relatives diagnosed with breast cancer before 50 years of age (without additional features of the potentially high risk group) • Two first or second degree relatives on the same side of the family diagnosed with breast or ovarian cancer (without additional features of the high risk group)	Breast awareness See Section 2 *Genetic counselling and testing* Mammogram	At least every 2 years from 50–69 years of age*	III C	286
High risk • Two first or second degree relatives on one side of the family diagnosed with breast or ovarian cancer plus one or more of the following features on the same side of the family: – additional relative(s) with breast or ovarian cancer – breast cancer diagnosed before 40 years of age – ovarian cancer diagnosed before 50 years of age – bilateral breast cancer – breast and ovarian cancer in the same woman – Jewish ancestry – breast cancer in a male relative • One first or second degree relative diagnosed with breast cancer at 45 years of age or younger plus another first or second degree relative on the same side of the family with sarcoma (bone/soft tissue) at 45 years of age or younger • Member of the family in which the presence of a high risk cancer gene mutation has been established	Advise referral to a cancer specialist or family cancer clinic for development of an individualised surveillance program May include clinical breast examination, mammogram and/or ultrasound and surveillance for ovarian cancer See Section 2 *Genetic counselling and testing*	Individualised surveillance program	III C	286

* For all women there is a chance that mammography will either miss a change due to breast cancer (false-negative) or that further tests will be performed to examine a change that is not due to breast cancer (false-positive). The chance of a false-negative or false-positive result is higher in younger women because their breast tissue is more dense. Women aged 40–49 years should be advised that the benefits of mammographic screening increase with increasing age. Women in this age group are more likely to be recalled for additional assessment and investigation.[285,287] Women in this age group should balance the benefits and downsides of mammographic screening. Breast cancer remains common and can be readily detected by mammography in women over 70 years of age. With increasing life expectancy some women may elect to continue regular mammographic screening to an age decided in consultation with their GP having regard to comorbidities and life expectancy[288]

Other tests	Comment	References
Clinical breast examination	Clinical breast examination (CBE) has not been shown to reduce mortality from breast cancer and is not recommended as a screening test for women at average or slightly increased risk. However CBE remains an important clinical adjunct to mammography for the surveillance of women deemed to be at increased risk	289,290
Breast awareness	In Australia, even with a fully implemented mammographic screening program, more than half of breast cancers are diagnosed after investigation of a breast change found by the woman or by her doctor. It is recommended that women of all ages regardless of whether they attend for regular mammographic screening, are aware of the normal look and feel of their breasts and report any new or unusual changes to their GP without delay. Historically, public awareness campaigns have promoted specific techniques that women should use to examine their breasts. Recent evidence from meta-analyses and randomised controlled trials show that a systematic approach to breast self examination does not result in a reduction in the size or stage of tumours at diagnosis or a decrease in mortality from breast cancer. There is no evidence to promote the use of any one self examination technique over another	291,292

Epidemiology

The lifetime risk of breast cancer in the general population is between 1:12 and 1:8. For those in the increased risk group, it is between 1:8 and 1:4. For those in the high risk group it is between 1:4 and 1:2 or possibly higher if the woman is shown to have a high risk mutation.

8.5 Oral cancer

Age	0–9	10–14	15–19	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65–69	70–79	>80
	Not recommended as a preventive activity														

There is insufficient evidence to recommend screening for oral cancer in all patients in general practice.

Who is at higher risk?	What should be done?	How often?	Level of evidence and references
Average risk	Education regarding prevention	Every 2 years	V B 270
Increased risk • Smokers, heavy drinkers, patients chewing tobacco or areca nut • Patients exposed to excessive amounts of sunlight (at risk of lip cancer)	Examination of the mouth	Every 12 months	V B 270

Intervention	Technique	References
Education	All patients should be advised about the hazards of smoking or chewing tobacco and excessive alcohol consumption	293
Oral examination	• Examination of the extra oral areas: neck, lips and facial areas looking for lumps and swellings • Inspection of the mouth: buccal mucosa (cheeks), gingivae (gums), tongue: lateral borders, dorsum, floor of mouth, palate looking for white or red patches, ulceration or induration	294

8.6 Colorectal cancer (bowel cancer)

Age	0–9	10–14	15–19	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65–69	70–79	>80
High risk															

Screening by faecal occult blood testing is recommended for the well population (average risk) from 50 years of age every 2 years **(A)**.[61] Digital rectal examination (DRE) is not recommended **(D)**. Increased risk is determined by family history.

Who is at higher risk?	What should be done?	How often?	Level of evidence and references
Average or slightly increased risk • No family history of bowel cancer or ulcerative colitis and not confirmed family history of CRC, or	Faecal occult blood test (FOBT)	Every 2 years from 50 years of age	I A 61,268,270,295

• One first degree or second degree relative with CRC diagnosed at 55 years of age or older				
Increased risk • One first degree relative with CRC diagnosed before 55 years of age, or • Two first or second degree relatives on the same side of the family with CRC diagnosed at any age	Colonoscopy (sigmoidoscopy plus double contrast barium enema acceptable if colonoscopy is unavailable) Consider offering FOBT	Every 5 years from 50 years of age, or at an age 10 years younger than the age of first diagnosis of CRC in the family, whichever comes first In intervening years	III C I A	61
High risk • Three or more first or second degree relatives on the same side of the family with CRC diagnosed at any age, or • Two or more first or second degree relatives on the same side of the family diagnosed with CRC, including any of the following: – multiple colorectal cancers in the one person – colorectal cancer before 50 years of age – family member who has/had an hereditary nonpolyposis colorectal cancer (HNPCC), related cancer (endometrial, ovarian, stomach, small bowel, renal pelvis or ureter, biliary tract, brain or skin cancer), or • At least one first or second degree relative with CRC, with a large number of adenomas throughout the large bowel (suspected familial adenomatous polyposis [FAP]), or • A family member in which a gene mutation that confers a high risk of CRC has been identified (Members of proven FAP and HNPCC families who test negatively for the mutation are no longer at high risk and revert to the average risk group)	Consider referral to familial cancer clinic Refer to bowel cancer specialist to plan appropriate surveillance FAP: flexible sigmoidoscopy HNPCC: colonoscopy FOBT: See Section 4 *Genetic screening for screening of high risk individuals*	Those at risk for: FAP: every 12 months from 10–15 years of age to 30–35 years of age and every 3 years after 35 years of age HNPCC: 1–2 yearly from 25 years of age or 5 years earlier than the youngest affected member of the family (whichever is earliest) Alternate years	III C	61,296

Intervention	Technique	References
Faecal occult blood test (FOBT) screening	Two main types of FOBT are available: guaiac and immunochemical tests. Two or three serial stools should be tested, depending on the type and brand of test being used. Follow the manufacturer's instructions. It is essential that any person with a positive FOBT (including just one of three samples) be appropriately investigated by diagnostic tests (as the person is at least 12 times more likely to have CRC than someone with a negative test). With guaiac tests, even if a subject fails to follow dietary restrictions, it is dangerous to assume that a positive result is a result of dietary noncompliance	297
Sigmoidoscopy	Tests should be carried out by experienced endoscopists either in rooms or in an endoscopy clinic. Patients should be informed that the procedure is quite simple, does not require sedation or an elaborate bowel washout (although an enema is needed)	61

8.7 Testicular cancer

Age	0–9	10–14	15–19	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65–69	70–79	>80
	Not recommended as a preventive activity														

There is insufficient evidence to routinely screen for testicular cancer.[270] General practitioners may screen those at high risk **(C)**. There is little evidence to show that those performing testicular self examination are more likely to detect early stage tumours or have better survival than those who do not **(C)**.[270]

Who is at higher risk?	What should be done?	How often?	Level of evidence and references
High risk • Those with a history of cryptorchidism, orchidopexy, testicular atrophy, or previous testicular cancer	Testicular examination	Opportunistically	V C 298,299

8.8 Prostate cancer

Age	0–9	10–14	15–19	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65–69	70–79	>80
										Inform patients of risks and benefits					

Routine screening for prostate cancer with digital rectal examination, the prostate specific antigen (PSA) or trans-abdominal ultrasound is not recommended. Patients should make their own decision after being fully informed of the potential benefits, risks and uncertainties of prostate cancer testing **(C)**.

Who is at higher risk?	What should be done?	How often?	Level of evidence and references
Average risk The risk of developing prostate cancer increases with age. Men aged over 75 years or with a life expectancy of <10 years are at reduced threat of dying from a diagnosis of prostate cancer Men with uncomplicated lower urinary tract symptoms (LUTs) do not appear to have an increased risk of prostate cancer. The most common cause of LUTs is benign prostate enlargement. Early prostate cancer often does not have symptoms	Inform patients of risks and benefits of screening	Opportunistically	V C 300
High risk Men with one or more first degree relatives diagnosed under the age of 60 years	Inform patients of risks and benefits of screening	Opportunistically	V C 301,302

Not recommended	Justification	References
PSA	While there is currently good evidence that PSA screening can detect early stage prostate cancer, there are problems with its sensitivity and specificity and there is inconclusive evidence that such early detection can reduce mortality	303–305
	Testing and treatment for prostate cancer can cause substantial harms, including erectile dysfunction (20–70%) and urinary incontinence (15–30%)	61,303

Implementation

Strategy

Patients who request testing should be informed about the risks and benefits of tests for prostate cancer, and assisted to make their own decision.[306] Written decision aids may be useful for this purpose.[307] See the RACGP *Putting prevention into practice* ('green book'). Responding to the patient's concerns and fulfilling medicolegal responsibilities are considerations in discussion with patients

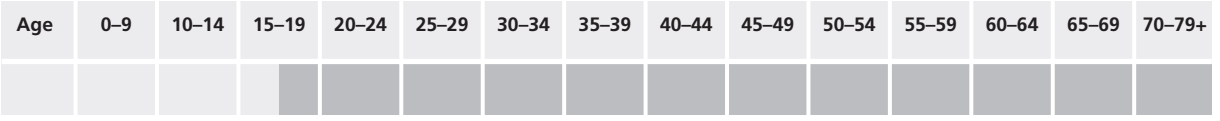
09 Psychosocial

General practitioners play an important role in the detection and management of mental illness, especially high prevalence conditions such as depression and anxiety. The lifetime incidence of major depression is up to 30% and is twice as common among women than men. The prevalence in the community of major depression is 3–5%.

Health inequality

The likelihood of depression among low SES persons is almost double that of high SES persons (most marked among persistent depression).[308] Anxiety and affective disorders are more common in unemployed people and they are less likely to seek help from their GP.[309] In patients with chronic disease, lower educational level and unemployment are predictive of depression.[310] Practices in disadvantaged areas have a higher prevalence of depression to identify and manage in their patients.[311] Being aware of this is important in the opportunistic screening for depression. Suicide and attempted suicide are consistently associated with markers of socioeconomic disadvantage, including low SES, limited educational achievement and homelessness,[312–318] and are more prevalent in Aboriginal and Torres Strait Islander peoples.[319] Refer to the *National guide to a preventive health assessment in Aboriginal and Torres Strait Islander peoples*.

9.1 Depression



Patients 18 years of age and older should be assessed for depression opportunistically provided there is effective treatment and follow up offered to those found to have depression **(B)**. There is insufficient evidence to recommend for or against routine screening in adults where clinical management services are not available, or in children and adolescents (see Section 3.8). Clinicians should maintain a high level of awareness for depressive symptoms in patients at high risk for depression.

Who is at higher risk?	What should be done?	How often?	Level of evidence and references
Average risk People 18 years of age and over	Screen for depression and offer effective management and follow up	Opportunistically	I B 109, 320, 321
Increased risk • People with a family history of depression • People who have experienced a recent loss • Postpartum women • People with poor social supports • Un/underemployed people • Young men living in rural areas • Mothers from low SES groups • People suffering from life stress including refugees, recent migrants	Screen for depression and offer effective management and follow up Maintain a high level of clinical awareness of those at high risk of depression	Opportunistically Opportunistically	II C 107,270,322
High risk • People with a past history of depression • People with multiple or unexplained somatic complaints • People with chronic illness/pain • People abusing alcohol or other drugs • Comorbid psychological conditions (eg. panic disorder or generalised anxiety)	Screen for depression and offer effective management and follow up Maintain a high level of clinical awareness of those at high risk of depression	Every 12 months At every encounter	I B 320,321

Intervention	Technique	References
Question regarding mood and anhedonia	Asking two simple questions may be as effective as longer instruments: 'Over the past 2 weeks, have you felt down, depressed or hopeless?', and 'Over the past 2 weeks have you felt little interest or pleasure in doing things?'	320,321

* Refer to NHMRC. *Clinical practice guidelines: depression in young people*. Canberra: Commonwealth of Australia, 1997

9.2 Suicide

Age	0–9	10–14	15–19	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65–69	70–79	>80
	Not recommended as a preventive activity														

There is a lack of evidence for the routine screening of patients using a screening instrument **(C)**. General practitioners should consider the possibility of suicide in those patients with multiple risk factors. The incidence of suicide has decreased in older men and women in association with exposure to antidepressants.[323]

Who is at higher risk?	What should be done?	How often?	Level of evidence and references
Average risk General population	No routine screening for suicide	NA	III C 324,325
Increased risk When two or more risk factors are present: • People with mental (psychiatric) illness especially depression, schizophrenia, alcohol and drug abuse, personality disorder and antisocial behaviour • People who have made a previous suicide attempt • Male • Youth (14–24 years of age) (see Section 3.8 *Adolescence*) • People who are homeless • Aboriginal and Torres Strait Islander peoples • People with social, educational and employment disadvantage • People with a recent loss • Isolated individuals • People with a family history of suicide • Young men of low SES	Evaluate risk for suicide	Opportunistically	III VC 324,325

Intervention	Technique	References
Evaluate the risk of suicide in the presence of risk factors	Ask the questions: • 'How is life going for you?' • 'Is this unhappy feeling so strong that you ever wished you were dead?' • 'Have you ever thought about how you might kill yourself?' Patients with suicidal ideation should be questioned regarding preparatory actions, eg. obtaining a weapon, making a plan, putting affairs in order, giving away prized possessions, preparing a suicide note	107,270,322

10 Oral hygiene

Age	<2	2–3	4–9	10–14	15–19	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	> 65

Good oral hygiene helps prevent dental caries, gingivitis and improves oral health. General practitioners may provide the following brief advice opportunistically. There is insufficient evidence to recommend for or against routine assessment of preschool children for dental caries.[326]

Who is at higher risk?	What should be done?	How often?	Level of evidence and references
Average risk	Education regarding prevention	Opportunistically	IV C 42,327
Increased risk • Aboriginal and Torres Strait Islander peoples • Rural and remote populations • Migrant groups (especially refugees • People with reduced saliva flow, eg. head and neck radiation therapy, Sjogren syndrome, multiple drug therapy including psychotropic medications	Examination of the mouth Education regarding prevention Recommendation of professional or home application of topical fluoride pastes, gels or mouth rinses	At least every 12 months (more frequent dental check ups – as determined by dentist)	IV C 42,327 I B 48,328,329 I A 329

Intervention	Technique	References
Education	• All patients should be advised about the hazards of high carbohydrate and acidic between meal snacks and drinks	42,48,329
	• Advise against the use of baby bottles with any fluid apart from water at night	42,48,329
	• Brush teeth twice per day with fluoride toothpaste	42,48,328,329
	• Home use of high fluoride toothpastes, gels or mouth rinses for those at high risk	
	• Use sugar free chewing gum for saliva stimulation	330
	• Mouthguards for contact sports	
	• Recommend regular dental check ups	331
Oral examination	• Inspection of mouth for carous, stained, or worn teeth and gums for swelling and inflammation	
	• Xerostomia may present as dry and reddened gums and increased caries rate particularly on root surfaces	
Fluoridation	Approximately two-thirds of Australians now drink fluoridated water. Details regarding fluoride levels in Australian water supplies and recommended dosages of fluoride can be found at www.health.gov.au:80/nhmrc/advice/pdf/fluoride.pdf	

Implementation

Inequality

Oral disease is more prevalent among low socioeconomic groups[332]

11 Glaucoma

There is insufficient evidence to recommend routine screening for glaucoma using tonometry or visual fields test **(C)**. However, GPs play an essential role in identifying patients at higher risk for glaucoma, and referring them to an ophthalmologist for testing.

Who is at higher risk of glaucoma?	What should be done?	How often?	Level of evidence and references
Increased risk Patients with: • Family history of glaucoma • Age over 60 years • High myopia >8 diopters • Diabetes (see Section 7. *Prevention of vascular disease*) • History of long term steroid use	Refer to ophthalmologist for testing	Every 12 months	III C 333

Intervention	Technique	References
Tonometry	Tonometry is not recommended. Schiotz tonometry has poor sensitivity and specificity for early detection of glaucoma. Tonometry is an inadequate screening tool as it grossly overestimates glaucoma prevalence **(C)**	124
Perimetry (visual fields)	Not advisable in general practice as only automated perimetry is sensitive for detecting glaucoma **(C)**	334
Fundus (ophthalmoscopy)	There is some evidence that new generation (panoptic) ophthalmoscopes can detect macular degeneration, diabetic retinopathy and glaucomatous discs better **(B)**	125

Urinary incontinence 12

There is no evidence for screening in the general population. Case find in those at higher risk **(B)**.

Who is at higher risk of urinary incontinence?	What should be done?	How often?	Level of evidence and references
Average risk	There is no evidence to support screening	NA	IV B 42
Increased risk • Postmenopausal women • Men over 74 years of age	Case finding about the occurrence of urinary incontinence*	Every 12 months	IV B 335

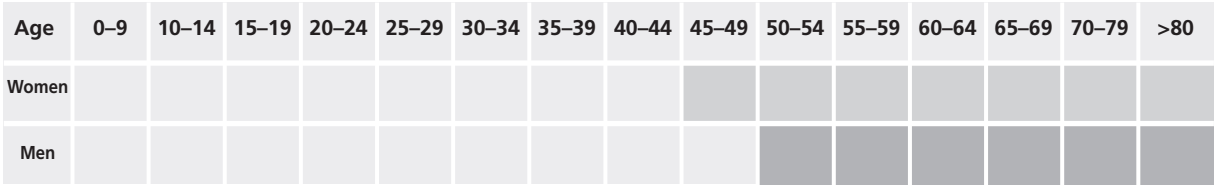
* Further information on urinary incontinence can be found in RACGP, *Managing incontinence in the general practice – clinical practice guidelines*

Intervention	Technique	References
Case finding	Question patients about the occurrence of urinary incontinence, eg. 'Do you have trouble with your bladder?' 'Do you ever lose your urine or get wet?'	336
Assessment	Patients with urinary incontinence should be assessed to determine the diagnostic category as well as underlying aetiology. This can usually be determined on the basis of history, physical examination and urinary culture and microscopy. There are four common types of incontinence: • stress incontinence which may occur during exercise, coughing, or sneezing. This is more common in women although it also occurs in men, especially after prostate surgery • urge incontinence is more common in older adults and is leakage occurring with an overwhelming desire to void • mixed incontinence is a combination of both stress and urge incontinence and is most common in older women • overflow incontinence as a result of bladder obstruction or injury, and often occurs in an atonic bladder with overfilling. It often masks stress incontinence	42

Epidemiology

Within the general population, up to 19% of children[337] and at least 20% of women and 10% of men[338] may be affected by some form of urinary incontinence. Only 30% of those with urinary incontinence seek out medical assistance.[339] Urinary incontinence is most common in women, and increases with age.

13 Osteoporosis



Women from 45 years of age and men from 50 years of age should be have their risk factors for osteoporosis and fracture assessed **(C)**. Screening bone mineral densitometry should only be conducted in patients over 45 years of age who sustain a low trauma fracture or in postmenopausal women with suspected vertebral fracture or major risk factors (**A** for women, **C** for men).

Who is at higher risk of osteoporosis?	What should be done?	How often?	Level of evidence and references
Average risk • 45 years of age or over for women • 50 years of age or over for men*	Assessment for risk factors Preventive advice	Every 12 months	I A (women) V C (men) 340–342
High risk • People over 45 years of age who sustain a low trauma fracture • Postmenopausal women with suspected vertebral fracture or major risk factors	Bone mineral densitometry Management of risk factors	At presentation and every 2 years	II B 340–350

* Risk factors which apply particularly to men are: hypogonadism, glucocorticoid use, excess alcohol, multiple myeloma, conditions associated with thyroxine excess and primary hyperparathyroidism

Intervention	Technique	References
Assessment of risk factors	Take a thorough history paying particular attention to: • previous low trauma fracture, osteopenia/vertebral deformity, loss of height (>0.5 cm per year), thoracic kyphosis • age (women 65 years of age or over), menopause (especially premature), family history of hip fracture, low body weight (BMI <20), immobilisation • poor self rated health and current use of caffeine • medical conditions: current or past history of glucocorticoid therapy >3 months, eating disorders associated with low body weight, chronic liver or renal disease, malabsorption, primary hypogonadism, amenorrhea >6 months before 45 years of age, inflammatory arthropathies, eg. rheumatoid arthritis, thyroxine excess • lifestyle factors: poor diet, limited sun exposure • falls risk (See Section 4.1. *Falls and physical activity*)	340–347
Preventive actions	Provide advice re risk factor modification especially good general diet high in calcium (1000–1500 mg/day) and vitamin D, adequate levels of physical activity, smoking cessation and limited alcohol and caffeine intake Counsel patients re falls prevention (involving family and community agencies may be appropriate) Offer calcium and vitamin D supplements to those with poor diet and limited sun exposure	340–346
Bone mineral densitometry (dual X-ray absorptiometry [DEXA])	Bone mineral density is usually measured at the hip (femoral neck) and lumbar spine. The measurement of BMD at these sites is sufficient to detect osteoporosis and provides an indication of potential risk of future fracture	351

* Medicare rebate is available for bone densitometry for these conditions

14 Screening tests of unproven benefit

The following are not recommended as screening tests in low risk populations in general practice. Some of the tests may have value as diagnostic tests or as tests to monitor disease progression.

Screening test	Condition	Reason not to use	References for further reading
Abdominal ultrasound	Abdominal aortic aneurysm	No evidence of improved outcome	352
Magnetic resonance angiography or digital subtraction angiography	Cerebrovascular abnormalities	Low prevalence, lack of sensitivity and evidence of improved outcome	353
Chest X-ray	Lung cancer	There is no evidence that screening for lung cancer with chest X-ray decreases mortality from lung cancer	354
Helical computerised tomography	Lung cancer	Lack of evidence of benefit. However a trial is currently underway with smokers	355
Prostate specific antigen (PSA) test	Prostate cancer	Lack of sensitivity, specificity and evidence of improved outcome	305
Exercise electrocardiograph	Coronary artery disease	Low sensitivity and specificity	356
Bone mineral density	Osteoporosis	Low specificity. Low predictive value for fracture	357

Thyroid function tests	Hyper- or hypo-thyroidism	Screening for congenital hypothyroidism in neonates is recommended. However it is not recommended in adults even if there is a family history because of low prevalence and lack of evidence of benefit	358
Respiratory function tests	Chronic obstructive pulmonary disease	Screening a practice population is possible but difficult. Insufficient evidence of improved outcomes	359
Screening for asymptomatic bacteuria in the elderly	Urinary tract infection	No evidence to support benefit	360

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Appendix 01

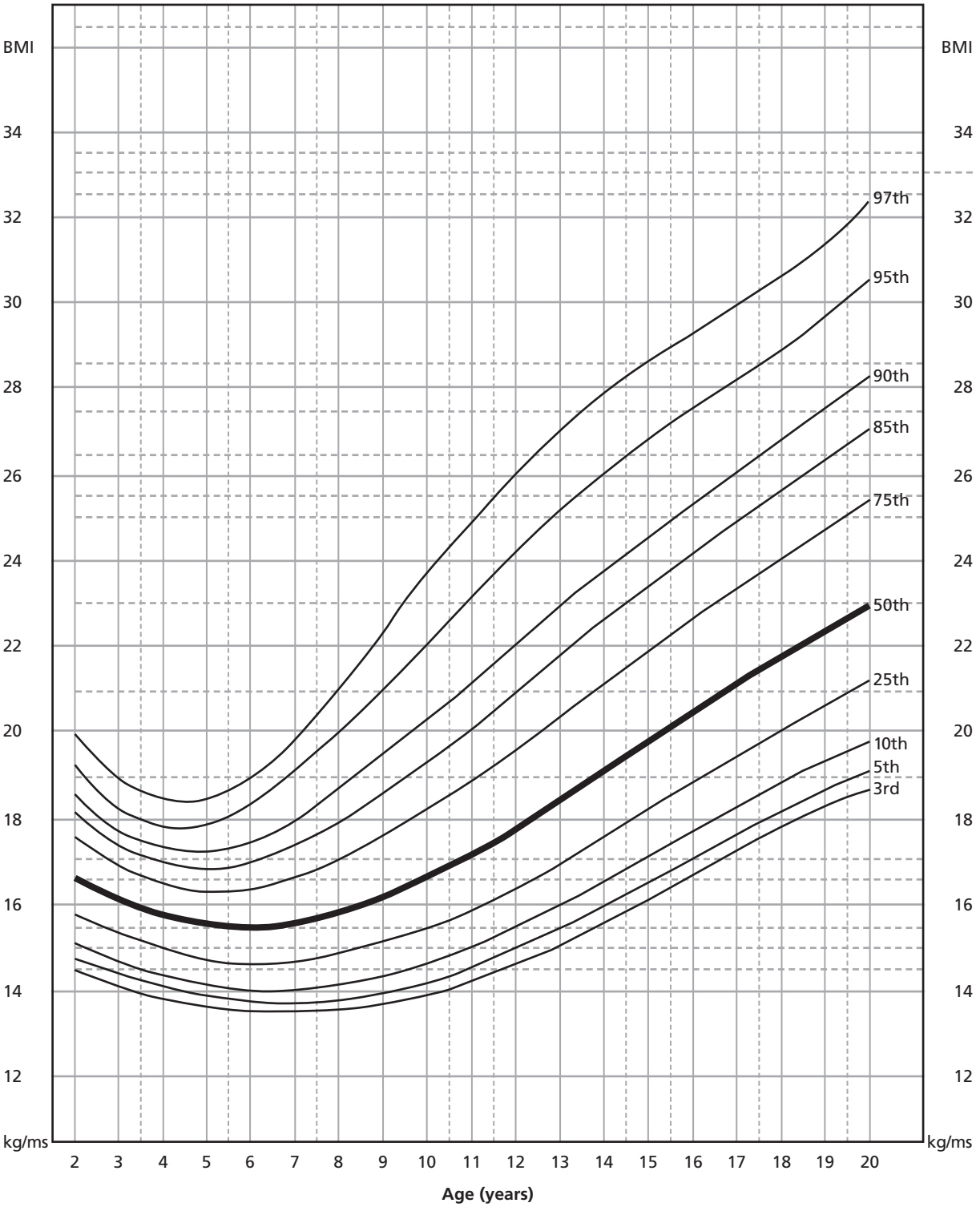
Common pedigree symbols, definitions and abbreviations

	Male	Female	Sex unknown
Individual	 b. 1925	 30 y	 4 mo
Affected individual (define shading in key/legend)			
Affected individual (more than one condition)			
Multiple individuals, number known			
Multiple individuals, number unknown			
Decreased individual	 d. 35 y	 d. 4 mo	
Stillbirth (SB)	 SB 28 wk	 SB 30 wk	 SB 34 wk
Pregnancy (P)	 LMP:7/1/94	 20 wk	
Spontaneous abortion (SAB)	 male	 female	 ECT
Affected (SAB)	 male	 female	 ECT
Termination of pregnancy (TOP)	 male	 female	 ECT
Affected (TOP)	 male	 female	

Bennett et al. American Journal of Human Genetics, 1995

02 Appendix

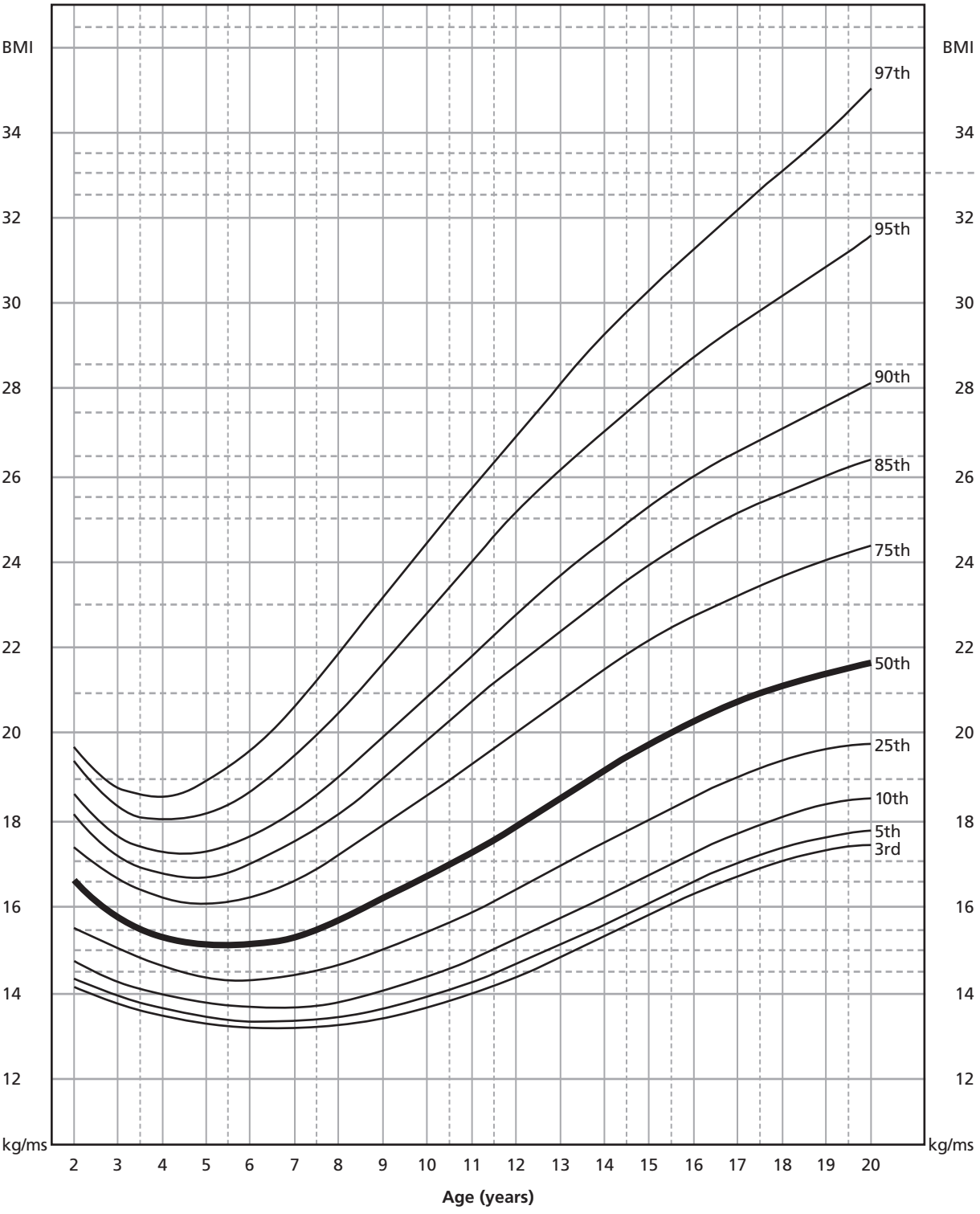
Body mass index tables for age and gender: boys, 2–20 years



Source: Developed by the National Centre for Health Statistics in collaboration with the National Centre for Chronic Disease Prevention and Health Promotion (2000). Reproduced with permission

Appendix 02

Body mass index tables for age and gender: girls, 2–20 years



Source: Developed by the National Centre for Health Statistics in collaboration with the National Centre for Chronic Disease Prevention and Health Promotion (2000). Reproduced with permission

Glossary

Screening

Screening: Detection of unrecognised disease or condition in the general population by using reliable tests, examinations or other procedures which can be applied rapidly

Opportunistic screening: Detection of, or case finding of specific diseases that can be controlled better when detected early in their natural history, particularly in individuals or groups who may be predisposed to that disease, eg. individuals with particular risk factors

High risk individuals: Those individuals who have risk factors which are likely to predispose them to impending disease

High index of suspicion: Level of awareness of clusters of risk factors such as lifestyle, socioeconomic, personal medical history and family medical history, which may predispose individuals to disease

Evidence

Good evidence: There is good quality evidence obtained from randomised clinical trials to support or reject a recommendation

Fair evidence: Evidence obtained from studies such as well designed pseudo randomised controlled trials (alternate allocation or some other method), comparative studies with concurrent controls and allocation not randomised (cohort studies), case control studies, or interrupted time series with a control group or comparative studies with historical control, two or more single arm studies, or interrupted time series without a parallel control group

Poor evidence: Evidence obtained from case series, either post- or pre-test and post-test, or opinions of respected authorities based on clinical experience, descriptive studies or reports of expert committees

No evidence: Exhaustive searches have revealed there are no studies that address recommendations in general practice for the target disease or condition

Prevention

Primary prevention: Prevention of diseases or disorders in the general population by encouraging community wide measures such as good nutritional status, physical fitness, immunisation, and making the environment safe. Primary prevention maintains good health and reduces the likelihood of disease occurring

Secondary prevention: Detection of the early stages of disease before symptoms occur, and the prompt and effective intervention to prevent disease progression

Tertiary prevention: Prevention or minimisation of complications or disability associated with established disease. Preventive measures are part of the treatment or management of the target disease or condition

Acronyms

23vPPV	Pneumococcal polysaccharide vaccine
7vPCV	Pneumococcal conjugate vaccine
ABCDE	Asymmetry, border, colour, diameter, elevation
ACE	Angiotensin converting enzyme
AF	Atrial fibrillation
APC	Adenomatous polyposis coli
BMI	Body mass index
BP	Blood pressure
BSE	Breast self examination
CBE	Clinical breast examination
CF	Cystic fibrosis
CHD	Coronary heart disease
CIN	Cervical intraepithelial neoplasia
COPD	Chronic obstructive pulmonary disease
CRC	Colorectal cancer
CT	Computed tomography
CV	Cardiovascular
CVD	Cardiovascular disease
DBP	Diastolic blood pressure
DRE	Digital rectal examination
dT	Diphtheria tetanus
DTPa	Diphtheria, tetanus and acellular pertussis
EFG	Elevated, firm, growing for more than 1 month
ESRD	End stage renal disease
FAP	Familial adenomatous polyposis
FOBT	Faecal occult blood test
GFR	Glomerular filtration rate
GPCOG	General Practitioner Assessment of Cognition
HBIG	Hepatitis B immunoglobulin
HbsAg+ve	Hepatitis B surface antigen positive
HCG	Human chorionic gonadotrophin
HDL	High density protein

hepB	Hepatitis B
Hib	Haemophilus influenzae type b
HNPCC	Hereditary nonpolyposis colon cancer
HPV	Human papillomavirus
IADL	Instrumental Activities of Daily Living
IFG	Impaired fasting glucose
IGT	Impaired glucose tolerance test
IPV	Inactivated poliomyelitis
LCR	Long control region
LDL	Low density protein
LSIL	Low grade squamous intra-epithelial lesion
LUTS	Lower urinary tract symptoms
MCV	Mean corpuscular volume
MDRD	Modification of diet in renal disease
MenCCV	Meningococcal C
MMR	Measles, mumps and rubella
MMR	Mismatch repair
MMSE	Mini-Mental State Examination
NBCC	National Breast Cancer Centre
NIP	National Immunisation Program
NMSC	Nonmelanoma skin cancer
NRT	Nicotine replacement therapy
NTD	Neural tube defect
OPV	Oral poliomyelitis
PCR	Polymerase chain reaction
PSA	Prostate specific antigen
RUDAS	Rowland Universal Dementia Assessment Scale
SBP	Systolic blood pressure
SES	Socioeconomic status
SIDS	Sudden infant death syndrome
STI	Sexually transmitted infection
TC	Total cholesterol
TIA	Transient ischaemic attack
TSE	Testicular self examination
VZV	Varicella

Notes

Notes