Adult Health Checks: Introduction, background and principles

[Editor: The main reference for this section is the recent edition of the RACGP 'Red Book' guidelines for preventative activities in general practice. These recommendations have been reviewed in light of local patterns of disease, local experience at the clinic level and recent new evidence. The second edition of Aboriginal Primary Health Care: An evidence-based approach, to be published by Oxford University Press, will contain a detailed review of the evidence for the various components of the Well Person Health Check (WPHC, as they call it). An extension of this literature review work was undertaken by a consortium of chronic disease NGOs (the Chronic Disease Alliance). This plans to produce a stand-alone publication that reviews the evidence behind the WPHC.

There are few variations between the overall recommendations to come out in these documents and those presented in the CARPA STM. Where the recommendations do vary, it is in those largely based on expert opinion and the difference is likely to be due to regional variations in disease patterns or health service policy or capability.]

The Adult Health Check (AHC) has roles in both primary and secondary prevention of diseases.

Primary prevention reduces the likelihood of disease occurring, e.g. assessing risk factors and providing appropriate health education.

Secondary prevention aims to detect disease before it becomes symptomatic, e.g. screening, BP checks, pap smears. There are some further components that seek to identify late stages of disease that can still benefit from health care interventions (e.g. trichiasis surgery).

The AHC involves questioning, examining or testing people who feel well to see whether they are likely to have particular health problems.

The purpose is to:

- Identify health problems that may lead to disease, e.g. smoking
- Detect diseases early to improve chances of a cure
- Prevent complications in people who have diseases
- Provide people with information about their health, about health risks, and assist people in changing unhealthy behaviours (brief interventions)
- Provide a non-threatening way for people to engage with the health service about health concerns

The following criteria for screening are recommended before embarking on an AHC program:[1,2]

1. The disease must be a substantial health problem in the population to be screened.
2. The screening test should accurately identify a high proportion of persons with the condition of interest.
3. The detection and management of the condition should result in an improved outcome.

4. The screening should be safe, acceptable to the population, easy to use and of relatively low cost.
5. There must be sufficient planning and resources to adequately follow up the screening program.
6. In Aboriginal communities, Aboriginal people must be sure that the benefits of the program outweigh the intrusion into and surveillance of their lives.
7. There should be an evaluation process and monitoring of effectiveness, which includes effective feedback to the community and community-based health staff.

Screening may have adverse effects such as invasion of privacy, inappropriate or wasteful use of health resources, and distress due to false positive results. With planning, the impact of these possibilities can be minimised.

The organisation of the screening process depends on the clinic and community preferences and resources. The options are:

- Community-wide (mass) screening: large numbers of people over a short period of time
- Targeted screening: directed at a particular segment of the community at high risk (e.g. 15–25 year olds for sexually transmitted diseases)
- Individual opportunistic: when the person presents to the clinic for some other reason
- Self-initiated: by a well person
- Clinic initiated: inviting people to the clinic for a check up

The AHC as described in the CARPA STM is based on the above screening criteria and is specific for remote Aboriginal communities. In many instances there is no good evidence to support what, when or how we should screen in this population. The recommendations are based on existing evidence-based guidelines, prevalence of certain diseases in these communities and opinions from experts in the field.

In general terms, because of the prevalence of certain conditions, the recommended screening for risk factors and problems fall into three main categories:

1. Chronic diseases
2. Sexually transmitted infections (STIs)
3. Women’s cancers

Chronic diseases

Australian Aboriginal and Torres Strait Islander people die of cardiovascular disease at twice the rate of other Australians. This difference is even greater among those aged 25–64, where the death rate is seven times those of other Australian men and ten times those of other Australian women.[3] When risk factors for cardiovascular disease are considered in general terms, Aboriginal and Torres Strait Islander people are more likely than other Australians to smoke tobacco, not participate in leisure-time physical activity and be obese. There is no national data with respect to hypertension, however data from the Kimberley region suggest that hypertension is two to three times more common amongst Indigenous people. In the Northern Territory, hospital admissions for hypertension are greater for Aboriginal people compared with non-Aboriginal people.[4] There is no definitive national data available regarding blood cholesterol levels

among Aboriginal and Torres Strait Islander people compared with non-Aboriginal Australians.[3] However, some observational data exist that show high rates of dyslipidaemia exist in central and northern Australian Aboriginal people, in particular elevated cholesterol and triglycerides and low HDLs.[9,10,16] Indigenous Australians have one of the highest rates of type 2 diabetes in the world, with prevalence in 25–55 year olds being seven to eight times higher than their non-Indigenous counterparts. The overall prevalence is two to four times greater. As a cause of death, Aboriginal and Torres Strait Islanders die from diabetes at almost three times the rate of other Australians. Rates of renal disease are also higher. In 1997 the incidence rate for Indigenous Australians beginning end-stage renal disease treatment was nearly nine times that of non-Indigenous Australians.[21]

Body measurements

Obesity and excess abdominal fat are risk factors for diabetes, cardiovascular disease and renal disease. Weight and height for body mass index (BMI) and waist circumference are the recommended measurements.

The RACGP recommend routine screening for BMI and waist circumference (Level III evidence) every two years (Level V evidence).[22]

Because of the high rates of obesity and associated morbidity in Indigenous Australians **the CARPA STM recommends BMI and waist circumference measurements be included in all yearly Adult Health Checks**.

Blood pressure

The risk of myocardial infarction, stroke and renal disease increases with elevated blood pressure.

The RACGP recommend screening for hypertension should commence at age 18 and continue every two years in the general population.[22] This is based on Level I evidence. However, because Indigenous Australians are more likely to die of the complications of hypertension, **the CARPA STM recommends blood pressure checks are done at every yearly Adult Health Check as well as opportunistically as appropriate.**

Lifestyle issues

Tobacco use

In 1998 it was estimated that 10% of the total burden of disease (including cardiovascular disease and respiratory tract disease and cancers) in Australia was attributable to tobacco smoking.[5] The prevalence of tobacco use among Indigenous Australians is much higher than among other Australians. Nationally, approximately 54% of Indigenous Australians smoke compared with 22% of all Australians.[12]

Based on Level I evidence, the RACGP recommends screening everyone from age 10 years at every opportunity.[22] As Indigenous people die younger from tobacco-related illness than non-Indigenous people, and the prevalence of smoking-related diseases are higher amongst Aboriginal Australians[6], this approach is very important. **The CARPA STM therefore recommends screening for tobacco use at every Adult Health Check as well as incorporating inquiring about tobacco use as part of routine history-taking at any presentation.** In order to keep the protocol as simple as possible the STM advocates starting at 15 years old along with the other components of the Adult Health Check.

Alcohol use

Excessive alcohol consumption can lead to increased risk of trauma/accidents, hypertension, cardiovascular disease and liver disease. Less Aboriginal people consume alcohol than in the general Australian population, but those who do are more likely to do so at hazardous or harmful levels.[7]

Based on Level II evidence the RACGP recommend screening to detect problem drinking three-yearly from age 14 years.[22] In those at higher risk for drinking and its complications it is suggested that screening should occur at every presentation.

The CARPA STM therefore recommends including questioning about quantity and frequency of alcohol consumption at yearly Adult Health Checks. In higher risk individuals screening should occur whenever they present to the health centre.

Other substance misuse

Substance misuse may include use of marijuana, kava, petrol and solvent sniffing, pituri use, analgesic abuse and other substances such as heroin and amphetamines. The use of kava, petrol and marijuana is particularly prevalent in some communities in the Northern Territory, and this can have associated significant health and social problems.[6] There is good evidence to include verbal questioning (US preventive task force) about substance use and advice on harm reduction. **The CARPA STM therefore recommends questioning at the Adult Health Check. This recommendation depends on the prevalence of each substance misuse in the community e.g. where petrol sniffing is common.** A positive finding should be followed up with appropriate counselling or referral.

Physical activity

Regular moderate exercise reduces all causes of mortality, incidence of cardiovascular disease, diabetes, hypertension, obesity, osteoporosis, colon cancer, falls, anxiety and depression. Based on Level III evidence the RACGP recommends counselling all adults and children to participate in physical activity on most days of the week, for an accumulated time of 30 minutes per day.[22]

The CARPA STM recommends asking about physical activity at the Adult Health Check yearly. Physical activity can include walking, playing sport, heavy housework, and hunting. Activity totalling at least 30 minutes on most days per week is should be advised. Any increase in activity up to this amount should be encouraged.

Nutrition

Although there is insufficient evidence to recommend for or against a routine search for malnutrition there is evidence that nutritional counselling is effective in changing diet.[13] Based on the effectiveness of dietary advice and the association between poor diet and nutrition-related diseases — such as cardiovascular disease, diabetes, hypertension and anaemia which are important causes of morbidity and mortality for Aboriginal people — it is reasonable to provide general dietary advice. **The CARPA STM therefore recommends asking about nutrition and dietary intake at the Adult Health Check and use the opportunity for brief intervention advising on healthy nutrition as per Dietary Guidelines for Australians.**[14]

Type 2 diabetes

The NHMRC, based on Level III evidence, recommend assessing all Aboriginal and Torres Strait Islanders aged 35 years and over for diabetes.[8] Plasma glucose performed by a laboratory is most accurate. A fasting sample is preferable, however, a random sample can be used. If the screening test is negative then three-yearly testing is recommended. The NHMRC do not recommend screening using a blood glucose meter.

There is evidence from cross-sectional studies that the prevalence of impaired glucose tolerance in Aboriginal populations is high and is apparent at early ages.[9,10] The American Diabetes Association (ADA), also recognises recent reports of the emerging problem of type 2 diabetes in children and adolescents in many countries.[15] There is an association between type 2 diabetes in children and obesity, decreased physical activity and a family history. As such the ADA Consensus Panel recommend testing children from age 10 every two years if they are overweight and have two other risk factors (family history, race/ethnic group with high incidence, signs of insulin resistance). They also recommend using clinical judgement to test for high-risk patients who do not meet these criteria.

As our population has such high rates of diabetes this suggests that screening should start at an earlier age than the NHMRC recommendation of 35 years. **CARPA therefore recommends yearly screening from age 15 years with the well person's check,** which fits in with much of remote clinic current practice.

[Editor: There are reports from mass screening e.g. from the Torres Strait (with incomplete coverage) of about half of the female population over 35 years old having diabetes, and half the male population over 45 years old having diabetes in some communities. This supports screening from an age younger than 35 years.]

The preferred test is fasting plasma glucose. However, choosing the test that is best and cheapest to diagnose and screen for diabetes will depend on the individual's willingness to return for repeat testing. Random finger prick blood sugar levels using a glucometer are useful in that they provide immediate feedback to the individual. However, they lack sufficient accuracy for screening for undiagnosed type 2 diabetes (Level I-A evidence).[22] If a random BGL is 5.0 mmol/L or more then a venous blood sample should be sent to the laboratory. This is because capillary whole blood glucose of 5 mmol/L is the equivalent of venous plasma glucose of 5.5 mmol/L.[8]

Fasting plasma glucose has the highest sensitivity and specificity for screening for type 2 diabetes, but if someone will not come back for testing then random plasma glucose can be substituted (Level I-A evidence).[22]

Furthermore, if a BGL is markedly elevated (e.g. 12 mmol/L), and the person is unlikely to return for further testing, then glycated haemoglobin could be measured.[11] However, concerns regarding its use for screening and diagnosis refer to the cost, the inability to define impaired glucose tolerance and the precision required with the test. On the other hand, laboratory, personnel and logistic costs being less than those of obtaining a fasting blood or oral glucose tolerance test (Level III evidence)[22] make the HbA1c a reasonable option in these circumstances.

CARPA therefore recommends a fasting venous sample. If this is not possible then a random venous sample is acceptable. A glucometer is useful for immediate feedback but is not accurate for screening. If a BGL is 5.0 or more then a venous sample is warranted.

Lipids

Mass screening for lipid levels in the general population, regardless of age, is not currently recommended. However, the RACGP, Heart Foundation and The Cardiac Society of Australia and New Zealand recommend five-yearly testing for hyperlipidaemia at age 45 for men (I-A evidence), women (III-C evidence) and those aged less than 45 years of age but at higher risk for coronary artery disease (V-A evidence).[22,17] Aboriginal and Torres Strait Islanders as a group are considered to have a higher absolute risk of coronary artery disease.[17] The age at which testing lipids should commence in this high risk group is not known but the earlier onset of CHD and contribution of cardiovascular disease to mortality in Aboriginal men and women suggests it should be at an earlier age. Data from O'Dea shows that dyslipidaemia is already present in young adults and that it would be appropriate for intervention programs to target young people.[16] There are no randomised prospective trials that have assessed lifestyle interventions or long-term lipid-lowering therapy in those aged less than 35. The benefits and risks of testing at an early age and instituting treatment must be considered. In view of this lack of evidence **the CARPA STM recommends commencing testing lipids from age 25 in the general Aboriginal population and, if normal, to repeat five-yearly. If an individual has any other risk factors for CHD then we suggests doing lipid measurements five-yearly from age 15.** Other risk factors would be a significant family history of CHD, familial hyperlipidaemia, overweight or obesity and possibly smoking. Of course, if a person has other confirmed diseases such as diabetes or impaired glucose tolerance, renal disease, hypertension or known ischaemic heart or cerebrovascular disease, then testing would be according to the corresponding care plans.

Based on guidelines from the RACGP, Heart Foundation and the Cardiac Society of Australia and New Zealand **the CARPA STM recommends measuring total cholesterol, triglycerides, HDL-C and LDL-C (calculated) levels on a fasting blood sample** (III-B evidence).[22] If a fasting sample cannot be collected then a random levels are still worth doing.

Renal disease

Major expert bodies show little support for screening the general population for proteinuria.[22,13,18] However, with an incidence rate for Indigenous Australians beginning end-stage renal disease treatment at nine times that of non-Indigenous Australians[21], and success in improving the clinical profiles and mortality after implementation of a community-based renal protective program[19], attempts at early detection of renal disease by screening appear justified. The program suggested a marked treatment benefit in those with overt albuminuria or hypertension, including in non-diabetic people. The benefit was not clear in those with microalbuminuria alone. There is no evidence to suggest the optimal age to implement screening nor the screening frequency.[20]

In view of the burden of renal disease, the evidence for the prevention of renal disease and the low cost of screening using dipstick urinalysis the **CARPA STM recommends yearly urinalysis commencing from age 15.** A Norwegian study[26] found that subjects with a positive urinary dipstick analysis for leucocyte esterase, nitrites, haemoglobin or glucose had a higher urinary albumin excretion rate. Although this finding was statistically significant the numerical difference was small. Despite this, at this stage experts in the field still suggest a reading of 'one +' or

more (indicative of macroalbuminuria) needs to be followed by exclusion of other causes — such as contamination, renal tract abnormalities or a genitourinary tract infection — by sending the urine for ACR, MC&S and PCR.

Brief interventions

There is good evidence from other populations that brief advice from health professionals (doctors, nurses and others) can help about 6% additional smokers to quit.[12] Systematic reviews and two subsequent randomised controlled trials have found that antismoking advice improves smoking cessation in people at high risk of smoking related disease.[23] Based on this and other Level 1-A evidence,[22] **CARPA recommends brief advice regarding quitting smoking at the Adult Health check.**

There is weak evidence from systematic reviews and RCTs that sedentary people can be encouraged to increase their physical activity. Interventions that encourage moderate rather than vigorous exercise, and do not require attendance at a special facility, may be more successful.[23] Based on this evidence the RACGP[22] recommends, as **does CARPA, that all adults and children are advised to participate in physical activity on most days of the week, for an accumulated time of 30 minutes per day.** This amount is based on the National Guidelines for Physical Activity for all Australians.[24]

There are few studies that have evaluated brief interventions for reducing alcohol consumption in the Aboriginal group. However, a meta-analysis of RCTs addressing brief interventions in heavy alcohol drinkers[25] found that heavy drinkers receiving brief intervention were twice as likely to moderate their drinking six to 12 months after an intervention compared with those who received no intervention. Similar to the RACGP guidelines,[22] **CARPA recommends that brief intervention techniques to reduce alcohol consumption should be used with all potential problem drinkers.**

Although not in the primary health care setting, systematic reviews have found that advice on eating a cholesterol-lowering diet (i.e. advice to reduce fat intake or increase the polyunsaturated to saturated fatty acid ratio in the diet) leads to a small reduction in blood cholesterol concentrations in the long term.[23] Based on the effectiveness of dietary advice[13] and the association between poor diet and nutrition-related diseases — such as cardiovascular disease, diabetes, hypertension and anaemia which are an important causes of morbidity and mortality for Aboriginal people — it is reasonable to provide general dietary advice. **CARPA recommends using the opportunity of the Adult Health Check to provide brief intervention advising on healthy nutrition as per Dietary Guidelines for Australians.**[14]

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