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Meeting professional standards for CVD risk screening in the pharmacy

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Cardiovascular disease (CVD) is the second largest contributor to the burden of disease in Australia after cancer, and accounts for one-third of mortality. Prevention and control of CVD risk factors is a key component of reducing the CVD burden.

The benchmark INTERHEART study identified that 90% of population attributable risk for myocardial infarction (MI) in men, and 94% in women, are derived from modifiable risk factors and health behaviours (diabetes, abdominal obesity, hypertension, psychosocial conditions, lipid profile, smoking, physical activity levels, fruit and vegetable intake). Risk screening – the identification of at-risk individuals with elevated, modifiable risk factors who are undiagnosed and asymptomatic – is therefore quite important from a public health perspective.

Current screening rates in Australian primary care are unacceptably low, and recent estimates suggest that 21% of the Australian population aged 45–74 years (1.3 million people) are at moderate or high risk of CVD but not receiving recommended drug treatments. Pharmacy is increasingly being explored as a mechanism for increasing the screening capacity of primary care.

Background

The importance of assessing overall (absolute) risk of CVD hinges on the fact national guidelines recommend risk management based on whether a

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LEARNING OBJECTIVES

After reading this article, pharmacists should be able to:

- Recognise the health promotion role of a pharmacist for a cardiovascular disease (CVD) screening program
- Identify CVD screening tools for utilisation in pharmacy practice
- Discuss the applications and limitations of CVD screening in pharmacy

Competencies addressed: 1.2, 3.4, 6.1, 6.2, 6.3.

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patient is estimated to be at high risk (>15%), moderate risk (10–15%), or low risk (<10%) of a cardiovascular event in the next five years:6

- Adults at high absolute risk of CVD are recommended treatment with lipid- and blood pressure-lowering therapy, alongside lifestyle advice, unless contraindicated or otherwise inappropriate.
- Adults at moderate risk can initially attempt risk factor management via lifestyle modification. Lipid- or blood pressure-lowering therapy can be considered in addition if risk factor control is not achieved after 3–6 months, or if one of the following attributes is present: persistently elevated blood pressure (160/100 mmHg or higher), family history of CVD, Aboriginal or Torres Strait Islander (ATSI) or from another population where the risk calculator tends to underestimate risk (South Asians, Maori and Pacific Islanders, Middle Eastern).
- Pharmacotherapy is rarely used for individuals at low risk, but antihypertensive use can be considered alongside lifestyle modification for persistently elevated blood pressure (>160/100 mmHg).

Estimating CVD risk

The underpinning principles of national guidelines for CVD risk assessment should be understood by anybody providing general or heart health checks. At the heart of these guidelines is the concept of absolute risk, the numerical probability, expressed as a percentage, of a CVD event occurring within five years.6 Absolute risk screening is recommended for all adults aged 45 years or older (35 years or more if ATSI) without a history of CVD.6 This can be estimated numerically using the online risk calculator (at: www.cvdcheck.org.au), and requires input of the individual’s age, gender, diabetes status, smoking status, systolic blood pressure, total cholesterol and high-density lipoprotein cholesterol (HDL-C). The risk calculator is validated for use in those aged 45–74 years; for older patients, it is recommended to assume an age of 74 years but acknowledge that there might be an underestimation of true risk. There is uncertainty about the effects of some key attributes including obesity, depression, atrial fibrillation (AF), kidney disease, lower socioeconomic backgrounds, and certain ethnicities on the accuracy of estimated absolute risk. The potential for underestimating risk in such circumstances should be considered when communicating risk to patients.

Those with systolic blood pressure of 180 mmHg or higher, diastolic blood pressure of 110 mmHg or higher, or total cholesterol in excess of 7.5 mmol/L are considered automatically at high risk irrespective of other attributes.6 Patients with a prior history of CVD, those aged over 60 years who have diabetes, people with moderate or severe kidney disease, diabetes with microalbuminuria, or a previous diagnosis of familial hypercholesterolaemia are considered high risk on the basis of medical history.

Beyond absolute risk

‘Integrated health checks’ incorporating additional screening for a broader range of cardiovascular conditions – especially AF and kidney function – are being advocated for the future, acknowledging that the specific effects of some key conditions are not accounted for in the absolute risk score, and risk may be underestimated for some. Several relevant tests have been available in Australian pharmacy. For example:6–10:

- Diabetes risk assessment, including as part of the Know your numbers blood pressure and diabetes awareness program.
- The SEARCH-AF trial demonstrated the efficacy of pharmacist screening for AF for patients aged 65 years or more.
- Proteinuria checks, undertaken in some pharmacies, can form part of a kidney health check. This screening with urine dipstick testing has been found cost-effective in other countries if directed towards high-risk individuals and linked to treatments for those with a positive result.

While excessive protein excretion in the urine for periods exceeding three months is indicative of chronic kidney disease (CKD), the high false-positive and false-negative rates associated with standard urine dipsticks limit usefulness for detection of kidney disease in the absence of other diagnostic tests such as estimated glomerular filtration rate (GFR).

Pharmacist’s role in health promotion

Pharmacy-based screening has an important and expanding role to play in CVD screening. In perhaps the only trial to measure clinical outcomes of a pharmacy intervention, the Canadian CHAP study demonstrated a significant 9% reduction in hospital cardiac admissions as a result of a pharmacy-based hypertension awareness program.11 Several Australian studies suggest patient satisfaction and improved care and self-management as a result of pharmacy screening.12 The health promotion role of pharmacists in the prevention of CVD can be considered in terms of the ‘5As’13:

- Ask the patient about CVD risk. This requires pharmacists to adopt a proactive approach. Targeted screening of high-risk patients is more cost-effective and advisable if a pharmacist’s time or resources are scarce.
- Assess CVD risk and health behaviours using reliable methods, and readiness to act on results. Points to consider when attempting to ensure accurate assessment of risk factors and interpretation of results include6,9,15–12,18:
  - For patients using antihypertensive or lipid-lowering therapy, pre-treatment lipid and blood pressure values are considered a more accurate representation of risk.
  - If you don’t measure lipids, it is acceptable to use the latest pathology results (up to five years after measurement) for patients with low absolute risk.
  - When repeat blood pressure assessment is not feasible, patients
should be informed that readings from a single visit are not definitive. The MEPAPAR study suggested that four pharmacy visits over four weeks, with three measures per visit at 2–3 minute intervals, offers a reasonable approximation to home-based or ambulatory measurements.

- If measuring lipids without fasting – total and HDL cholesterol levels appear slightly reduced for about 3–5 hours post-prandial, but importantly, the ratio of these two measures which best determines CVR risk appears unchanged. Low-density lipoprotein cholesterol (LDL-C) measures are prone to inaccuracy when not fasting, and triglyceride levels may be elevated when compared with fasting levels.

- Considerable variation exists between different models in terms of sensitivity and specificity for finger-prick blood glucose testing, and also between settings. You should ensure rigorous protocols for testing to minimize unnecessary additional variation.

- Measurement of waist circumference seems easy but in fact requires a highly standardised approach (e.g. criteria such as removal of outer garments, emptying pockets, usually measuring at the halfway point between the lower rib margin and the iliac crest, two or more consistent measurements). This is particularly important if subsequently monitored over time to gauge the success of behavioural changes.

Advise/assist the patient of their results in an unambiguous fashion and support them to act – a professional level of service means providing written results, identifying clinical targets, stating whether or not individual risk factors and overall risk are above targets, and identifying further steps to take (including a timeframe). It also involves discussing the potential causes of any suboptimal risk factors (e.g. diet, physical inactivity) and facilitating them to address these.

The patient should also be informed about the limitations of the tests performed, the potential for over- or under-estimation of risk from any individual test, and the difference between pharmacy screening and medical diagnosis. Tests performed in pharmacy are acceptable for initial screening but are often not sufficiently accurate for diagnosis or for making treatment decisions (e.g. blood pressure assessment from a single appointment, finger-prick blood glucose and lipid testing). The need for further general practitioner (GP) testing should always be advised where appropriate.

Arrange – Screening is only ethical to conduct if effective treatments or diagnostic services are accessible afterwards. Following pharmacy screening, patients with a positive screening, or an incomplete absolute risk assessment, should have onward referral/GP involvement facilitated unless there is a compelling reason not to (e.g. inability to obtain patient consent, or evidence that a GP is already aware of risk). It should involve confirming a patient’s ability to access care and facilitating access where there are difficulties, and provision of written information to the GP as a default. A key concern from medical organisations has been the risk of care fragmentation following pharmacy screening. Rates of referral uptake are typically at 50–60% after pharmacy screening; where patients do not follow up, a written report may prompt GP-initiated action at the next medical appointment. Even for patients with no detected risk, conveying results to the patient’s nominated GP helps to avoid duplication of services. There may also be suitable lifestyle and monitoring programs within the pharmacy to which screened individuals can be referred.

Internationally, most CVD guidelines are written from a prescriber’s perspective and lack clear recommendations regarding referral criteria for pharmacists. Local context may be very important in defining appropriate criteria, and multidisciplinary collaboration may be best supported by negotiating with GPs. For example, some GPs may become frustrated by too many false-positive high blood pressure results, and may be happy for you to repeat and confirm mildly elevated measurements before referral.

Regardless, you should be confident that urgent or high-risk situations are managed appropriately by communicating with the patient’s GP immediately to determine an appropriate course of action. Examples of high-risk situations:

- severe hypertension (≥180/110 mmHg)
- positive AF screening
- highly elevated blood glucose levels (≥11.1 mmol/L random or ≥7.0 mmol/L fasting).

GPs should also be directly informed and appointments for patients facilitated for any elevated individual risk factors or elevated overall risk levels that might require GP intervention. For example:

- absolute risk score 10%
- BP 160 mmHg systolic or 100 mmHg diastolic
- AUSRISK score ≥12.

Regardless of risk, all individuals should be advised to have absolute risk re-assessed at least every two years (and more frequently if risk is high).

Quality Care Pharmacy Program (QCPP) accreditation requirements (Screening and Risk Assessment Checklist), and PSA Professional practice standards (Standard 13: Health promotion, and Standard 16: Screening and risk assessment) provide frameworks for screening service delivery, and expected competencies for pharmacists. These standards emphasise the importance of trained staff, private counselling services, quality control processes, documentation of activities, systematic processes for risk assessment, written reporting and appropriate referral – all in keeping with the expectations of consumers and other stakeholders.

PSA has a Cardiosvascular ACTION kit designed to guide implementation of high-quality CVD-related services in community pharmacy, which may be of use to pharmacies keen on expanding the provision of evidence-based cardiovascular services.
Conclusion

In conclusion, pharmacists can play an important role with CVD screening. To achieve this, we must deliver screening in the context of absolute risk rather than individual risk factors, and must ensure a coordinated approach with GPs and other stakeholders.

References


1. Which ONE of the following BEST describes the population that national guidelines recommend should be targeted for absolute risk assessment in Australia?
   a) All adults aged 18 years or over.
   b) Males aged 35 years or more, females aged 45 years or more.
   c) All adults aged 45 years or more (35 years or more if Aboriginal or Torres Strait Islander) without a prior diagnosis of CVD.
   d) All adults aged 45 years or more (35 years or more if Aboriginal or Torres Strait Islander), regardless of CVD history.
   e) Individuals from any ethnic group considered to have a higher risk than the general population.

2. Which proportion of Australian adults aged 45–74 years are estimated to be at moderate-to-high risk of CVD but not receiving recommended drug treatments?
   a) 2%.
   b) 7%.
   c) 21%.
   d) 33%.
   e) 40%.

3. Ahmed is estimated to have a 12% absolute risk score of 12%. This was attributed to elevated blood pressure (165 mmHg systolic BP). Under which of the following circumstances might drug therapy for hypertension or lipids be considered?
   a) If initial attempts with lifestyle modification for 3–6 months have shown no improvement in CVD.
   b) If systolic blood pressure remains at 165 mmHg for the subsequent six months.
   c) If Ahmed has a family history of CVD.
   d) If Ahmed was born in the Middle East.
   e) Any of the above.

4. Joanna, a 77-year-old female, has come to your pharmacy asking for a CVD risk screening. She has no history of diabetes or CVD but is aware that her increasing age is likely to increase her CVD risk. Is it appropriate to conduct an absolute risk assessment for Joanna (and why)?
   a) No – only adults aged 45–74 years should be screened.
   b) No – Joanna is automatically considered at high risk of CVD because of her age.
   c) Yes – her age should be considered 74 years if conducting an online assessment, and she should be made aware of a likely underestimate of risk.
   d) Yes – but you should use lipid pathology results from when she was 74 years of age and using current point-of-care tests would be invalid.
   e) No – at Joanna’s age it is more important to test for AF and kidney function as these are the most likely factors to cause CVD.

5. Which ONE of the following statements is BEST regarding the absolute risk screening process?
   a) For an accurate absolute risk score, fasting lipid levels must be used.
   b) Proteinuria testing is most likely to be cost-effective if directed towards high-risk individuals and linked to treatments.
   c) Proteinuria testing is the gold-standard process for diagnosis of CKD.
   d) It is a pointless and unnecessary to assess CVD risk factors such as kidney function during screening that are not necessary for estimation of absolute risk scores.
   e) Patients should have their absolute risk re-assessed every five years.