

Improving communication about heart disease risk assessment in general practice using translational research strategies

Final project report

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Improving communication about heart disease risk assessment in general practice using translational research strategies: Final project report

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Contents

SUMMARY	4
BACKGROUND.....	5
STUDY 1 – PHN NEEDS ASSESSMENTS	6
INTRODUCTION.....	6
METHODS.....	6
RESULTS.....	7
DISCUSSION	8
STUDY 2 – PHN STAFF INTERVIEWS.....	9
METHODS.....	9
RESULTS.....	9
DISCUSSION	11
STUDY 3 – PHN IMPLEMENTATION STRATEGIES	12
METHODS.....	12
RESULTS.....	12
DISCUSSION	15
STUDY 4 – FEASIBILITY STUDY USING PHN SOFTWARE.....	17
METHODS.....	17
RESULTS.....	17
DISCUSSION	18
STUDY 5 – GP SUPPORT NEEDS	22
METHODS.....	22
RESULTS.....	22
DISCUSSION	24
PROJECT CONCLUSION	25
REFERENCES.....	26

Summary

Cardiovascular disease (CVD) is the leading cause of chronic disease burden in Australia, and the cause of 27% of deaths in Australia. CVD prevention guidelines advocate absolute risk (AR) assessment to guide the use of preventive medication for high-risk patients. However, implementation has been poor, with 75% of high-risk patients not receiving recommended medication, and 25% of low-risk patients taking medication they are unlikely to benefit from. This implementation failure has been estimated to cost the Australian health system \$5.4 billion over the lifetime of the target population for CVD risk assessment.

With revised guidelines out for consultation and due to be finalised in 2023, we have an opportunity to address this by understanding and planning implementation strategies in advance with all stakeholders. The role of Primary Health Networks (PHNs) in supporting CVD prevention guidelines is not clearly documented.

We conducted five studies to explore the role of PHNs in implementing CVD prevention in general practice:

- Study 1, involved analysing needs assessment documents to identify opportunities for prevention activities within broader priorities.
- Study 2, involved interviews with PHN staff involved in supporting general practice in 2020, to identify specific implementation strategies for CVD risk assessment.
- Study 3, documented a series of opportunistic case studies from 2019 to 2021, to test the feasibility of PHN supported implementation strategies including general practitioner (GP) education and integration with clinical software.
- Study 4, conducted in 2021, was a more structured feasibility study to test the integration of CVD risk assessment and management tools with PHN funded general practice software.
- Study 5, was a qualitative interview study with GPs to identify current support needs for CVD prevention guidelines from an end user perspective.

What we found

We found support for integrating prevention activities within existing PHN needs assessments, programs and roles, including GP liaison activities, education events, quality improvement reports, and clinical decision support software.

Our feasibility study demonstrated that technological barriers to uptake in some practices would require additional support from PHN staff, while others showed high maintenance over time with little ongoing support.

GP interviews indicated that little has changed in terms of the usability of the guidelines over the last 10 years, with inadequate financial drivers and inconsistent risk calculators continuing to be an issue.

Awareness of such tools was no longer an identified issue, in contrast to when the guidelines were first released in 2009 but confusion over inconsistent clinical decision support tools and the role of additional risk factors remained.

The Australian Chronic Disease Prevention Alliance are expected to release the revised CVD prevention guidelines in mid-2023. If we are to improve the uptake of evidence-based CVD risk assessment and management, we need to plan for implementation of the guidelines.

Our project highlights the important role of Primary Health Networks in supporting implementation, particularly in GP education and providing clinical decision support software.

Our team have collaborated with stakeholders such as the Heart Foundation, the Royal Australian College of General Practitioners (RACGP) and software providers to disseminate these findings and connect stakeholders in support of the new guidelines.

Background

Australian cardiovascular disease (CVD) prevention guidelines recommend assessing a person's absolute risk of a heart attack or stroke in the next five years of a person's life. This is intended to guide the use of medication, including blood pressure lowering and cholesterol reducing prescriptions, for those at high-risk of a CVD event^{1,2}. Previous research has illustrated that the use of absolute CVD risk assessment can improve clinical management of CVD risk as well as patient risk perception and preventive intentions, when compared to treating hypertension and hyperlipidaemia as individual risk factors³. Treatment based on high absolute risk may prevent over-treatment of low-risk patients and under-treatment of high-risk patients⁴.

Despite the availability of CVD risk assessment guidelines, absolute risk is often not assessed and not used to guide management decisions.^{5,6,7} Poor implementation of CVD prevention guidelines has led to over-treatment of 25% of low-risk patients and under-treatment of 75% of high-risk patients.⁸ Previous trials to address this failed to target key behavioural barriers, including limited GP capability to use, understand and communicate CVD risk models.⁵

This project aimed to explore implementation strategies for CVD risk assessment tools, and the unique role that Primary Health Networks (PHNs) can play in supporting CVD prevention.

A previous investigation, The Healthy Heart Study, aimed to elucidate the behavioural barriers GPs face using CVD prevention and management guidelines. The project identified barriers not addressed in previous trials including; psychological capability (lack of knowledge about how risk factors relate to medication and lifestyle guidelines and also difficulty understanding or explaining absolute CVD risk), physical opportunity (lack of access to updated evidence and risk communication tools that match Australian guidelines), and reflective motivation (concerns about how to apply guidelines to challenging patient scenarios).^{9,10,11}

Two strategies have been revealed to address these behavioural barriers: audit and feedback activities (to improve knowledge and motivation) and patient decision aids (to improve risk perception and communication).^{12,13} The aim of the CHAT-GP project was to address GP behavioural barriers to the use of CVD prevention guidelines using evidence-based strategies. This included free access to calculators that use best practice risk communication, audit and feedback for GPs using behaviour change techniques, and patient decision aids built into Clinical Decision Support Software (CDSS) to improve communication and facilitate shared decision making about CVD management.

This project implemented the first publicly accessible, non-commercial CVD risk calculator that was built with the current (2010¹, 2012²) Australian guidelines, best practice risk communication and International Patient Decision Aids Standards, co-designed with GPs to address behavioural barriers to CVD prevention guidelines. Throughout the project, we tested the feasibility of different ways to link the intervention with PHN software (such as POLAR GP and PENCAT) and quality improvement activities to inform national implementation strategies for CVD prevention guidelines. Furthermore, we created an application to pull data from the absolute CVD risk assessment tool and amalgamate it with GP patient databases such as Best Practice or Medical Director through the use of Topbar.

Study 1 – PHN needs assessments

In collaboration with another Prevention Centre project team, who were researching the issue of chronic pain funding and prevention, we undertook a joint analysis of PHN needs assessments to expound upon the priorities that PHNs place on chronic pain and CVD prevention activities in primary care.

The following publication is an output from Study 1:

Walker P, Cornell S, Morgan SD, Bonner C, Fiona B. Chronic pain and cardiovascular disease prevention in primary care: a review of Australian Primary Health Network needs assessments. 2021. Australian Health Review. <https://doi.org/10.1071/AH21058>

Introduction

To date, PHN activity to support the primary prevention of CVD is variable. Primary prevention focuses on preventing the occurrence or delaying the onset of chronic conditions. Primary prevention of CVD involves conducting risk assessments and aims to decrease the influence of risk factors on the likelihood of a cardiac event taking place. Risk factor reduction often entails changing patient behaviour and includes providing advice on stopping smoking, dietary modification, exercise, and weight reduction.¹⁴ The Australian Government recently introduced measures to support CVD risk assessment in the form of a temporary Medicare Benefits Schedule (MBS) item for heart health checks¹⁵ and the National Practice Incentives Program Quality Improvement (PIPQI) financial incentives for general practices to share clinical audit data, including the proportion of patients with the necessary risk factors assessed to enable CVD assessment.¹⁶ In 2020 it was not clear how PHNs were directly supporting general practices to conduct CVD prevention activities, but PHNs commission local projects and work with external stakeholders on various activities that can indirectly support CVD prevention.¹⁷

PHNs must identify CVD prevention in their local needs assessments to prioritise relevant initiatives in their work plans. PHN population health planning involves the analysis and assessment of local health and service needs, identifying opportunities, weighing up priorities and considering options (Figure 3). Keleher has highlighted that population health planning requires data from a range of sectors that influence the determinants of health.¹⁸ Although the level of collaboration for population health planning by PHNs has been investigated, the content of PHN needs assessments, including the data sources being used, has not previously been examined.

The aims of this study were to assess to what extent PHNs determine absolute CVD risk to be a priority. In collaboration with two researchers working on another Prevention Centre project, we undertook an analysis of published PHN needs assessments and activity plans. Understanding gaps in issues identified could highlight opportunities for PHNs to better address chronic pain and CVD prevention.

Methods

We followed the READ (Ready materials, Extract data, Analyse data, Distil) approach to document analysis¹⁹, informed by the Standards for Reporting Qualitative Research Guidelines.²⁰ Core needs assessment reports published online by each of the 31 Australian PHNs were reviewed. Document analysis for CVD was conducted in April 2020, in the most recently published needs assessments. Document analysis for CVD used the search terms 'cardiovascular', 'CVD' and 'heart'. Information relevant to the prevention or management of cardiovascular, heart, circulatory or valvular disease was identified. Information related to congenital or rheumatic heart disease was excluded. The relevant text around identified keywords was extracted into a Microsoft Word document for analysis.

Extracted data were analysed using framework analysis²¹, chosen for its alignment with document analysis, term-based research, contextual research questions and the flexibility it provides to apply *a priori* knowledge and emergent findings to establish an analysis framework.^{22,23} Framework analysis involves five steps: familiarisation, identifying a framework, indexing, charting and mapping and interpretation.²⁴

Qualitative and quantitative content analysis were used to report: (1) the distribution of PHNs that identified health or service issues relating to chronic pain or CVD; (2) the types of issues that were identified; (3) the evidence sources used to support these findings; and (4) whether risk factors or a need for prevention activity was identified.

Results

Identification of CVD in PHN needs assessments

The proportion of PHNs that identified issues related to CVD are presented in Table 1. Only one PHN did not identify any issues related to CVD.

Table 1. Identification of health or service issues relating to chronic pain or cardiovascular disease in PHN needs assessments including by jurisdiction, metropolitan and regional PHNs

	Identified health issues n (%)	Identified service issues n (%)
	Cardiovascular disease	Cardiovascular disease
Total (n=31)	30 (97%)	13 (42%)
New South Wales (n=10)	9 (90%)	2 (20%)
Victoria (n=6)	6 (100%)	5 (83%)
Queensland (n=7)	7 (100%)	4 (57%)
South Australia (n=2)	2 (100%)	0 (0)
Western Australia (n=3)	3 (100%)	0 (0)
Tasmania (n=1)	1 (100%)	1 (100%)
Northern Territory (n=1)	1 (100%)	0 (0)
Australian Capital Territory (n=1)	1 (100%)	1 (100%)
Metropolitan PHNs (n=15)	15 (100%)	8 (53%)
Regional PHNs (n=16)	15 (94%)	5 (31%)

Evidence sources used to identify local health and service issues relating to chronic pain and CVD

Prevalence and burden of disease were health issues frequently identified by PHNs for CVD. PHNs primarily referred to National Health Survey data²⁵ to report on the prevalence of CVD. All PHNs that reported on the burden of CVD referred to at least one burden of disease study, primarily the Australian Burden of Disease Study²⁶ and the separate report on impact and causes of illness and death in Aboriginal and Torres Strait Islander peoples²⁷.

Service issues were primarily identified through stakeholder consultation. Information reported by some PHNs included the method of engagement (e.g. surveys, interviews and facilitated forums), when the consultation occurred and the types of stakeholders engaged (e.g. clinical and community councils, practice staff, healthcare providers and healthcare committees). The number of stakeholders consulted was less frequently reported, and no information on the questions asked was identified.

Risk factors and the need for prevention

Of the PHNs that highlighted the prevention of CVD (n=26), most identified risk factors for CVD (n=24), predominantly behavioural (n=21) or physiological (n=17) factors. Few PHNs identified social determinants of health as risk factors of CVD (n=5). PHNs mentioned the need for risk factor assessment (e.g. access to screening and early identification; n=1), risk factor management (e.g. prevention activities to promote healthy lifestyles; n=3) or both (n=5).

Discussion

Our study revealed widespread inclusion of CVD mortality and hospitalisation as frequently identified issues, but there was less focus on prevention and risk assessment. Government priorities and incentives impact on the health and service issues identified by PHNs, as *'What gets measured by funders is what gets done'*.¹⁹

The lack of data to appropriately monitor the primary care system has been acknowledged by others^{18,28,29}, and has a flow-on effect on the National PHN Performance Framework Indicators, where the selection of indicators is based on available data. The absence of indicators for important areas (e.g. CVD risk assessment) and the suitability of existing data sources to accurately assess progress against established indicators were questioned, with calls for a primary healthcare national minimum dataset to help address these gaps (30). Financial incentives in general practice may also affect the prevention-related issues identified by PHNs, such as MBS reimbursement for heart health checks¹⁵ and practice incentive payments for quality improvement in complete CVD risk factor data.¹⁶

Needs assessment documents show that stakeholder consultation is a primary data source used to identify service issues, so expanding stakeholder engagement may lead to an improved understanding of prevention needs. The limited information provided by PHNs suggests that the breadth of stakeholders consulted is narrow. Involving consumers may identify different needs and also has the potential for broader benefits, including greater public awareness of CVD prevention.³¹

To help improve the identification of social risk factors for disease, PHNs could benefit from establishing partnerships with local non-clinical services, such as those established by Aboriginal Community Controlled Health Organisations.^{32,33} Social prescribing is a way for primary care providers to refer to a range of non-clinical services to address mental, psychosocial, or socioeconomic issues, and is an emerging strategy to address health inequities and improve the prevention and management of disease.^{34,35} Social prescribing has been recommended for inclusion in Australia's 10-year Primary Healthcare Plan and national preventive health strategy³⁵, as the evidence for these interventions continues to emerge.

Study 2 – PHN staff interviews

Following on from our analysis of published PHN needs assessments, we aimed to explore PHN staff experiences of support CVD prevention in general practice to identify potential implementation strategies within existing roles and programs.

The following publication is an output from Study 2:

Cornell S, Pickles K, Crosland P, de Wet C, Trevena L, Bonner C. The role of Primary Health Networks in cardiovascular disease prevention: A qualitative interview study. 2021. Health Promotion of Australia. <https://doi.org/10.1002/hpja.552>

Methods

We developed an interview schedule based on the findings from the above content analysis of PHN needs assessments. In total, 29 semi-structured interviews were conducted with 32 PHN staff across 18 PHNs in all Australian states and territories between June and December 2020. PHN contacts were initially identified from the study team's professional networks using a snowballing methodology. Interview participants were also identified at a Pen CS user summit (Pen CS Pty Ltd develops clinical audit software licenced to general practices via PHNs). Several PHN staff approached the researchers after this presentation about their interest in CVD prevention interventions. Additional participants were identified through interviewees' networks, using purposive sampling to obtain a diverse interviewee group by location (metropolitan, regional) and role (frontline practice liaison, program managers). The transcribed audio recordings were thematically coded using the Framework Analysis method.

After 29 interviews covering diverse roles and regions, themes around the role of prevention were consistent so no further interviews were conducted. A Framework Analysis method was used to analyse interview transcripts and interpretation of the results discussed with the study team. This method is an iterative (as opposed to linear) process of thematic analysis following the principles prescribed by Richie et al (24). Interpretation of results was discussed with all authors, not just those involved in the initial analysis, including experts in qualitative methods, public health and general practice and a health economist with an interest in valuing prevention.

Ethics approval was obtained from the University of Sydney Human Research Ethics Committee project number 2020/255.

Results

Our interviews revealed three key themes: (a) **Informal prevention:** All respondents agreed the role of PHNs in prevention was indirect and, for the most part, outside the formal remit of PHN Key Performance Indicators (KPIs.) Prevention activities were conducted in partnership with external stakeholders, professional development and quality improvement programs, and PHN-funded data extraction and analysis software for general practice. (b) **Constrained by financial incentives:** Most interviewees felt the role of PHNs in prevention was contingent on the financial drivers provided by the Commonwealth Government, such as Medicare funding and national quality improvement programs. (c) **Shaped through competing priorities:** The role of PHNs in prevention is a function of competing priorities. There was strong agreement amongst participants that the myriad competing priorities from government and local needs assessments impeded prevention activities.

Overall, the role of prevention in PHN activities was described by PHN staff as being often informal, and they acknowledged that prevention was outside of the remit of most PHN activities. The interviewees explained that most PHNs do a lot of work around chronic disease management and acute care but not prevention:

"We don't do enough health prevention, preventative medicine. We do a lot of chronic disease management...but we just don't do enough prevention."

Interviewees acknowledged that PHNs are not specifically funded to undertake prevention activities: *"PHNs also are not really funded to undertake preventative health activities. And that, that's another significant deficit."*

Staff described numerous priorities that were deemed to be of a higher importance than working on prevention. At the time of interviews, COVID-19 prevention and emergency response measures were viewed as a higher priority than other activities, including CVD prevention: *"I think everywhere's got appalling mental health now but there's a million schedules come down from the Commonwealth to...implement services for particular groups of people. And there's lots of aged care stuff coming down as well at the moment."*

Table 2. Interview participant characteristics

Characteristic	Interviews (n)(%)	PHNs interviewed (n)(%)
State or Territory		
New South Wales	9 (31%)	4 (40%)
Western Australia	7 (24%)	3 (100%)
Queensland	4 (14%)	4 (57%)
Victoria	3 (10%)	3 (50%)
South Australia	2 (7%)	2 (100%)
Northern Territory	2 (7%)	1 (100%)
Tasmania	1 (3%)	1 (100%)
Australian Capital Territory	1 (3%)	1 (100%)
Area	Interviews (n)(%)	
Regional	11 (38%)	
Metropolitan	8 (28%)	
Mixed (WA, NT, Tas)*	10 (34%)	
Professional roles	Interviews (n)(%)	
Managers	21 (72%)	
Frontline staff	8 (28%)	

Discussion

Our interviews revealed three predominant themes involved in PHN prevention activities. These three themes were (a) Informal prevention, (b) Constrained by financial incentives and (c) Shaped through competing priorities. From our interviews with PHN staff, it was apparent that PHNs play a role in CVD prevention promotion, but this role is often informal. PHN priorities were reported to be primarily driven by funding from the government of the day and the PHNs must work on schedules set out by the Commonwealth Government, which compete with CVD prevention. This often did not translate into conducting practical prevention activities for their region, and we observed a mismatch between the issues identified in local needs assessments and the priority areas of the Commonwealth Government. Therefore, advocates for CVD prevention need to frame their goals as addressing one or more key priorities enabling PHNs to allocate resources to this issue.

Interviewees explained the tensions present within the PHN workforce to conduct prevention activities that would best support general practices and their patient population while still meeting key government criteria and performance indicators, which do not specifically mention prevention. We found many PHN staff members recognised the value of conducting prevention activities, and they placed high personal importance on such activities, but acknowledged the primary objectives of their organisations did not include CVD prevention. Many interviewees expressed opinions that their PHN should place a greater emphasis on conducting prevention.

Nonetheless, it was apparent that PHNs did work on prevention activities, sometimes without the explicit acknowledgement that they were conducting prevention. However, without the clear focus on specific prevention activities, prevention often seemed to present itself through activities and programs as an afterthought or co-benefit of other aims.

PHNs are well placed to be champions of prevention activity within general practice, as the organisations created to support the work of general practice.³⁶ The World Health Organization has determined one of the main goals of primary care is to provide prevention services; therefore our interviews indicate a mismatch between the purpose of primary healthcare and the priorities of PHNs.³⁷ A report by the Productivity Commission determined PHNs have a pivotal role to play in prevention and that funds should be allocated when directly related to prevention activities or management of chronic conditions.³⁸ Prevention should be a formal role and funded accordingly, but it is not.

The PIP QI program is a priority for PHNs to support in general practice.¹⁶ PIP QI has been designed to support quality improvement in general practice and is associated with 10 key data improvement measures; accredited practices can receive a payment for sharing their data. Undertaking this work could be seen as engaging in prevention activity, yet our interviewees often seemed to view quality improvement of data to be distinct from prevention activity programs. Including CVD risk assessment and management as a defined priority area for federally funded continuous quality improvement programs will be an important driver for PHNs to allocate resources to CVD prevention.

Our findings suggest the role of PHNs in prevention is indirect because of financial constraints and competing priorities. If a PHN seeks to focus on CVD prevention as a formal program of work to address this issue in their needs assessment, this may reduce capacity for other priority areas set by the Commonwealth Government. However, if CVD prevention is funded as a priority such as through the PIP QI program, it will become a direct area of activity for PHNs. There is some flexibility in the use of funds within PHNs that can be directed to CVD prevention to address local needs, although our findings indicate this is not systematic under the current funding drivers.

Study 3 – PHN implementation strategies

After exploring the role of PHNs in supporting CVD prevention, we next aimed to test strategies for implementing CVD risk assessment tools in General Practice via existing PHN supported programs.

The following publication is an output from Study 3:

Bonner C, Cornell S, Pickles K, Batcup C, Trevena L, de Wet C, Morgan M, Greaves K, O'Connor D, Hawkes A, McGeechan K, Crosland P, Doust J. How can we implement decision support for cardiovascular disease prevention? Using mixed methods to identify and test implementation strategies in Australian primary care. In preparation for submission to MJA.

Methods

Ethics approval was obtained from the University of Sydney Human Research Ethics Committee project number 2019/1047.

Stage 1: Stakeholder discussions to map implementation strategies

In our earlier research, both GPs and consumers flagged the need to integrate risk assessment and communication tools into general practice. To progress this, a stakeholder partnership was formed with representatives of the Heart Foundation, RACGP and PHNs. Through monthly stakeholder meetings over 2018-2020, we mapped current implementation strategies and opportunities. This developed into a funded research partnership aiming to improve the Communication of Heart disease risk Assessment using Translational strategies in General Practice (CHAT-GP).

Stage 2: PHN staff interviews to identify new opportunities

As reported in Study 2, we conducted interviews with PHN staff to identify opportunities to support CVD prevention and risk assessment in general practice within existing programs.

Stage 3: Testing the feasibility of PHN level implementation strategies

Selected implementation strategies were tested in a series of case studies from 2019-21, aiming for a range of low to high resource options. This involved demonstrating our publicly available resources to Heart Foundation and PHN staff, who independently integrated this into their planned programs and activities. User time trends were explored using Google analytics for the base intervention website, to which all strategies were linked. Given the changing context over this time, including the Heart Foundation promotion of heart health checks, the implementation of the national PIP QI program, and COVID-19 burden on general practice, this was done as an opportunistic series of case studies in interested PHNs. A more structured feasibility study for auto-populated software was conducted separately, as Study 4.

Results

Through stakeholder consultation over regular monthly meetings in 2018-2020, we mapped out a wide range of feasible implementation strategies that can be used in Australian primary care. Table 4 summarises key stakeholders, potential implementation strategies, and feasibility issues.

Stakeholder discussions identified a key role for PHNs in implementing CVD risk assessment and management guidelines, as one of their key roles is to support general practices in their local region. This included education, quality improvement initiatives and commissioned services that sometimes included a CVD prevention angle. For example, the Heart Foundation had set up a Community of Practice across the

seven PHNs in Queensland to support the rollout of a state-wide CVD and diabetes prevention program, My Health for Life. The eligibility criteria for referring patients to this program includes a CVD risk assessment, so although it was not the direct aim of the program it could indirectly support the implementation of the CVD guidelines. In exploring the drivers of decision support use in general practice, relevant industry organisations were identified including two types of software providers: general practice management software where patient data are stored, and clinical audit tools that can produce reports from this patient data. Both types of software can be used to integrate CVD risk assessment tools with patient records so they can be auto-populated. This software also enables practices to share data with PHNs for quality improvement projects. Finally, stakeholders identified various ways that decision support tools could be used to engage consumers directly. For example, the Heart Foundation promoted a national heart age calculator to raise awareness of heart health checks, which led to millions of users.

Table 3: Strategies, cost, and feasibility issues for each stakeholder group

Target group	Strategies	Cost issues	Feasibility issues
Primary Health Networks	GP liaison roles GP education QI programs Practice software	PHN staff time PIP QI payments Ongoing licences	CVD prevention is not a specific priority area Software licences not consistent
General Practices	Online calculators Linked calculators MBS items Recall methods Toolkits	Practice staff time for training MBS reimbursement models Costs of CPD review Software licences	Business models don't match funding models Fragmented market for software solutions New processes must fit with workflow
Consumers	Online tools Awareness campaigns Community programs Waiting room tools Electronic health records (EHR)	Cost of media advertising Short-term funding for programs Printing/equipment costs for waiting rooms	How to develop a sustained approach Competition for waiting room space Privacy/access issues with EHR
Industry	Medical record software Clinical audit software Recall software Decision support software Pathology centres	Software development Ongoing licences Printing/equipment costs for waiting rooms	Fragmented markets for software requiring duplicate development Competition for waiting room space

General practice support

PHNs fund positions that specifically liaise with general practices, but the model for this is varied. Some PHNs focus on the most engaged practices who indicate interest in specific programs or quality improvement issues. Others described a rolling six-month engagement plan where staff would aim to contact many individual practices. This was often tied to the current priorities of the PHN but also available funding. Frontline PHN staff highlighted the importance of considering the business model of the practice when implementing new initiatives: *"When PHNs go to practices to introduce new programs – they need to be able to show to the practice the return on investment they would have, the health benefit and health outcome for patients."*

Professional development

Professional development activities ranged from remote online modules that could be completed individually, to education conferences where GPs from the whole region would get together either in person or remotely. The incentive for this was generally to receive continuous professional development (CPD) points so the support of RACGP was important:

"I think education and creating more awareness for the GPs. In terms of these tools getting for them to, you know, have, it's very difficult, for GPs. It's not that easy...it goes through word of mouth as well. Of course. If anything is coming from our RACGP and then it actually helps the GPs to get on top of it. Not straightaway I would say. But sooner"

Quality improvement

The main QI program involving CVD risk assessment was the Commonwealth funded PIP QI, with financial incentives for practices to share anonymised, aggregated, selected performance data each quarter and audit performance. This program identifies a range of key health areas including CVD risk assessment, but practices may choose other areas to focus on for quality improvement. At the time of the study there was no requirement for practices to show a set level of improvement on those issues. QI goals were often vague with inconsistent timeframes. For example, some practices might start with very small achievable goals and build up over time: *"Because of PIPQI there is now a financial incentive for GPs to work in areas they wouldn't have previously considered."*

Practice software

There were two main software licences provided to practices via PHNs: HealthPathways provides information about CVD risk assessment and management with local referral pathways, and clinical audit software can be used by practices to run their own reports, share data with PHNs, and access integrated decision support tools: *"HealthPathways is always a good thing. I don't think it's necessarily a prevention thing but it's an avenue for general practices to learn a little bit more about cardiovascular disease and how they can manage it and how they can sort of refer the patients onwards...CAT is a nice easy one, which all the PHNs are fairly familiar with and so we can go in and say, ok, let's filter for these particular patients, is there, a specific group of patients that you want to look at?"*

Feasibility testing for implementation strategies

Study 3 tested the feasibility of implementing our existing decision support tools via PHNs using a range of strategies identified in studies 1 and 2. We aimed to implement our decision support tools within business-as-usual processes to minimise additional costs to implementing the intervention. Low resource strategies included adding passive software links to the website within existing clinical information resources, which was done within existing processes.

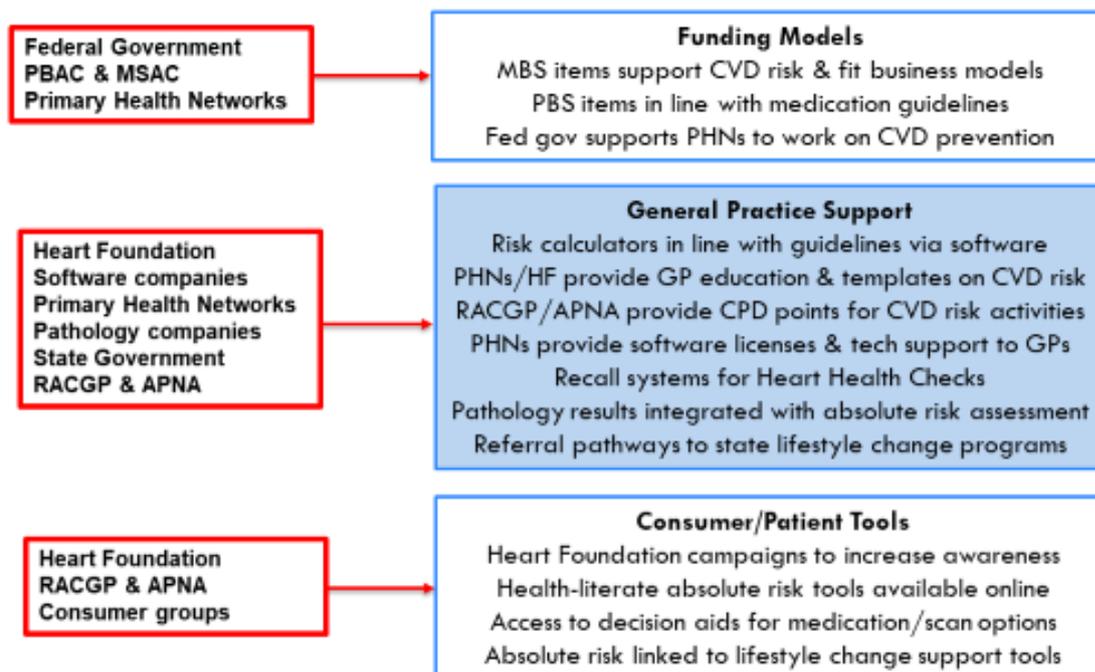
Medium resource strategies included participating in regional GP education events and providing tailored feedback to PHNs and practices from clinical audits, which required additional staff time to usual processes. High resource strategies included developing integrated software to auto-populate decision support tools using different software systems, which required substantial staff time and IT costs, including development and additional licencing costs to usual processes. Further results of the feasibility study are reported in Study 4.

Discussion

In Study 3 we outlined a variety of ways that PHNs and other stakeholders can be involved in the implementation of decision support tools for CVD risk assessment and management guidelines. Many strategies have been shown to be feasible in the Australian primary care context, but the strategies have been isolated and sporadic since the Guidelines for the Management of Absolute Cardiovascular Disease Risk (the management guidelines) were released so the impact of each one has been limited. If a coordinated approach was used for the new guidelines, we may achieve better implementation. This requires planning now in anticipation of the new guidelines in 2023, so that PHNs, general practices, consumers and industry partners can be prepared with consistent messaging and tools. Figure 1 summarises relevant stakeholders for Australian primary care.

To support the new CVD prevention guidelines due in 2023, integrated clinical decision tools are required to help GPs quickly assess, communicate, and manage risk together with patients who have varying health literacy needs. These could be implemented via health literacy-sensitive risk calculators and decision aids, lifestyle change support tools such as action plans, and training for GPs and practice nurses provided by professional organisations. To implement such tools, our study shows we can use existing software to integrate both GP/nurse and consumer/patient tools into general practice. This involves working with industry to integrate decision support tools with patient records. The unique role of Aboriginal and Torres Strait Islander health workers and practitioners must also be included in future guidelines.

Figure 1. The role of different stakeholders in implementation strategies.



Study 4 – Feasibility study using PHN software

Following on from Study 3 which explored different PHN supported implementation strategies, we conducted a more formal feasibility study over five months in 2021. We previously developed a Pen CS Topbar app to auto-populate our CHAT-GP risk calculator and decision aid from general practice medical records, using two different software systems supported by PHNs (CAT4 and POLAR). This feasibility study used mixed methods to assess feasibility of integration in practice.

The following publication is an output from Study 4:

Cornell S, de Wet C, Morgan M, Greaves K, O'Connor D, Doust J, Bonner C. The feasibility of implementing absolute cardiovascular disease risk assessment patient decision aids into general practice clinical decision support systems. In preparation for submission to Medical Decision Making.

Methods

Topbar is a clinical decision support system (CDSS), produced by Pen CS, which is designed to aid clinicians such as GPs when deciding on a course of action with their patient. Topbar is compatible with two clinical audit systems provided to general practices by PHNs: CAT4 and POLAR. The feasibility study involved rolling out the intervention to practices over a five-month period, to explore acceptability of the intervention and processes in general practice and generate pilot data for a future implementation trial. Each month culminated in a Pen CS data extraction from the practice which was transferred electronically to the University of Sydney via Cloudstor. The research team disseminated an audit and feedback report to each practice involved in the trial which detailed areas to specifically target to increase the quality of CVD risk assessment data. App use was monitored for an additional five months.

For the pilot trial data, we collected Pen CS data and Google Analytics every month to track app uptake and maintenance over time. The monthly practice data extraction was analysed and returned to the participating practice in an audit and feedback report, based on current templates used by PHNs for PIP QI activities. Descriptive statistics were analysed as means, medians, and percentages. To pilot the process evaluation, we interviewed the practice nurse with the highest use of the app to gain insight into specific features that appealed to engaged users, and explore mechanisms and processes to facilitate high engagement. We collected informal feedback from less engaged practices via email and telephone conversations. All participants provided written consent.

Results

CVD risk assessment data was extracted from four Pen CS practices monthly for five months (Figure 2). The data showed the percentage of complete CVD risk assessment data that the practice held on their population remained stable throughout the feasibility study. However, the practices varied in the percentage of complete CVD risk assessment from a low of 58.1% to a high of 93.5%.

Data provided by Pen CS on the CHAT-GP Topbar app use by practices showed over the period of the feasibility study, ¹³ unique users used the app a total of 865 times, across two POLAR and four Pen CS practices. Most app session users came from a single practice with the largest number from a single user who was the champion of the CHAT-GP program at that practice. See Table 4. Practices with high initial engagement maintained use of the app for an additional five months even after monthly reports for the pilot trial ceased. See Table 5.

Observation and practice staff feedback identified a variety of factors that promoted or prevented the implementation of CVD risk assessment tools in general practice:

Technology: Our study was dependent upon the functioning of a PEN CS Topbar app which linked into our website auscvdrisk.com.au via an application programming interface (API). Apps functioned differently in Topbar depending on the computer the clinic was using.

Staff capacity: Conducting research in general practices competes with patient priorities, making it difficult to recruit³⁹, retain^{40,41} and implement research plans due to low staff capacity⁴². This was particularly evident during COVID-19 outbreaks and vaccination/telehealth rollouts.

Demand: PHNs identified 11 practices in the lead up to the feasibility trial that were eligible to participate and were willing to partake in the research study. However, due to the COVID-19 burden on general practice, half of the practices dropped out.

Acceptability: Practice staff who had capacity to engage in the app generally had positive feedback about the decision aid itself, as long as there were no technology issues which depended on familiarity with Topbar in the practice.

Limited efficacy testing: We were able to show use of the app in clinical practice with varying engagement in CVD risk assessment, despite the burden of COVID-19 at this time. Some high users maintained this over a period of 10 months even after monthly reports ceased. We were not able to detect any effect on complete CVD risk assessment data with the small sample but demonstrated the feasibility of the data extraction method.

Discussion

This study demonstrated the feasibility of integrating patient decision aids with CDSS in Australian general practice to enable them to be auto-populated from patient records, identified as a key implementation issue in our previous research. We were able to show uptake of the app in practices with varying engagement in CVD prevention, and that this could be maintained over 10 months even when monthly practice reports ceased after five months.

The study also identified numerous implementation barriers during a complex and changing context including COVID-19 outbreaks and vaccination programs, the rollout of telehealth to general practice, ehealth software market changes and new regulations on clinical algorithms. A major issue for Australian general practice is the fragmented health system and software market. We do not have a single system in which to implement new ehealth tools, so developers must review the current market leaders to determine the best options for integration, duplication development and changes over time. A centralised CDSS and general practice data management system could improve this in future.

As a pilot trial, we identified numerous recommendations for future implementation work to overcome the contextual issues above, including to:

1. Use a cluster or patient-level trial design rather than stepped wedge design when unpredictable context changes are anticipated (i.e. during a pandemic).
2. Partner with stakeholders to ensure current knowledge of context changes and mitigate contamination issues.
3. Work with a single region and software system rather than trying to manage multiple organisations over time with changing priorities.
4. Include incentives for practice recruitment and staff champions.

These findings will inform the implementation plans for new national CVD prevention guidelines due in 2023.

Figure 2. Complete CVD risk assessment data during pilot trial

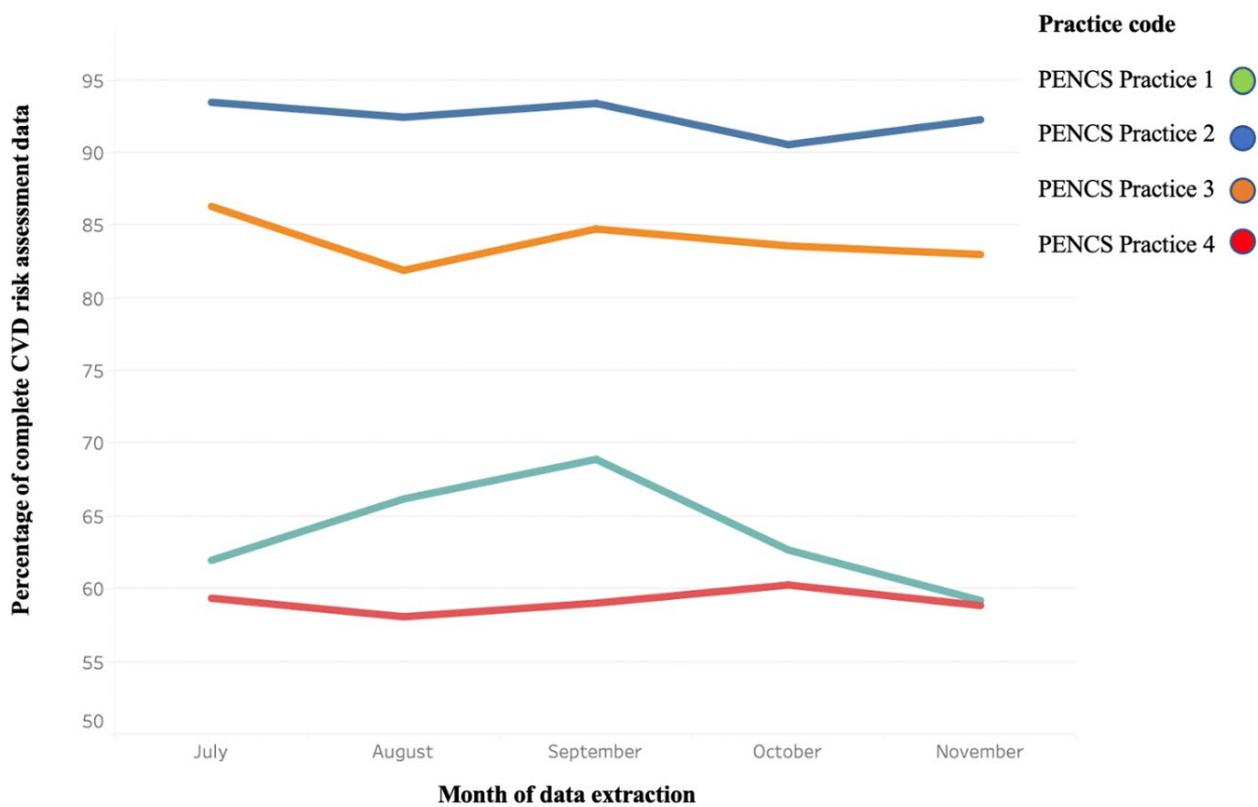


Table 4: App uptake by user during trial period with monthly reports, Aug–Nov 2021

User (practice)	Jul 2021	Aug 2021	Sep 2021	Oct 2021	Nov 2021	Total sessions
User 1 (PENCS practice 1)	0	3	75	89	97	264
User 2 (PENCS practice 1)	0	0	0	34	39	73
User 3 (PENCS practice 1)	0	0	9	9	40	58
User 4 (PENCS practice 3)	0	0	0	2	63	65
User 5 (PENCS practice 1)	0	0	0	25	21	46
User 6 (POLAR practice 2)	0	0	11	8	11	30
User 7 (PENCS practice 1)	0	5	19	9	0	33
User 8 (PENCS practice 3)	0	0	0	4	11	15
User 9 (PENCS practice 1)	0	2	1	14	0	17
User 10 (PENCS Practice 4)	0	0	0	0	3	3
User 11 (PENCS practice 1)	0	0	2	0	0	2
User 12 (PENCS practice 3)	0	0	0	2	0	2
User 13 (PENCS practice 3)	0	0	0	1	0	1
Total	0	10	117	197	285	865

Table 5: App uptake by practice during trial period with monthly reports (Aug-Nov 2021) and maintenance period (Dec 2021 – May 2022)

Month/year	Aug 2021	Sep 2021	Oct 2021	Nov 2021	Dec 2021	Jan 2022	Feb 2022	Mar 2022	Apr 2022	May 2022	Total
PEN CS practice 1	10	106	180	197	88	141	125	146	90	116	1,199
POLAR practice 1	-	-	-	-	-	-	-	-	5	2	7
PEN CS practice 4	-	-	-	3	-	-	-	-	-	-	3
PEN CS Practice 3	-	-	9	74	14	6	56	76	36	35	306
POLAR practice 2	-	11	8	11	3	-	-	-	-	-	33
Total	10	117	197	285	105	147	181	222	131	153	1,548

Study 5 – GP support needs

Our final study explored the views of GPs as end users of the PHN supported strategies we tested in Study 3 and Study 4. We aimed to identify additional support needs for current CVD prevention guidelines, to inform implementation plans for the revised guidelines due in 2023. We also compared the results to our GP interviews from 2012 that identified five CVD risk assessment strategies GPs used at that time: absolute risk focused, absolute risk adjusted, clinical judgment, passive disregard and active disregard.

Bonner C, Chapman N, McKinn S, Cornell S, Nelson MR, Doust J, Sharman JE. GP support needs for the revised CVD risk assessment and management guidelines: 10 year update. In preparation for submission to MJA.

Methods

This study was conducted in 2021, when the COVID-19 pandemic was affecting general practice through changes to telehealth, vaccination rollout, and managing COVID cases during local outbreaks. We recruited GPs in metropolitan and regional areas of Tasmania, a state that was relatively unaffected by COVID-19 at the time due to travel restrictions. Some 18 GPs were recruited as part of a baseline process evaluation for the state-wide IDEAL trial, before implementation of a new CVD risk assessment intervention. The data were audio-recorded and transcribed, and imported into NVivo for thematic analysis. We used the Framework Analysis approach, a structured method of thematic analysis.

Note: IDEAL is an acronym for the Identification of the Determinants of the Efficacy of Arterial Blood Pressure Lowering Drugs.

Results

CVD risk assessment issues

Examples of all five risk assessment strategies were identified in the transcripts.

For absolute risk focused and adjusted strategies, a range of models were used instead of the Australian tools if they were perceived to be more comprehensive. An active disregard strategy was used when there was no perceived credible model, and GPs described the calculators as less useful for management decision making even when used for communication:

"I take it with a pinch of salt... it's useful if I'm trying to really emphasise to a patient their risk factors and show them some scary numbers and some things flashing in red. But I'm not particularly confident in the numbers that it turns out. And I think there's too many other risks or factors that it doesn't compensate for: family history and lifestyle factors and exercise. So it can be useful as a bit of a tool to scare patients into action or emphasise my concerns, but I really don't trust the numbers all that much."

New themes included a preference for more personalised risk assessment methods (e.g. CAC: coronary artery calcium scoring):

"I prefer to go on people's personalised risk. And I think that the CAC score really lends itself to that. It looks at plaque load, hard plaque load, so looking at the calcium deposition in the coronary arteries. And so, I think that's far more indicative of what that patient's risk is in regard to having a heart attack or an adverse cardiac event." (ID17).

Adjusted and clinical judgment was used to account for additional risk factors that were not in the assessment strategies, such as body mass index (BMI), family history and ethnicity, leading to variable management decisions (see Table 3):

"We have to look at the area they live in, and we take into account their weight, which it doesn't seem to take into account in the one on Best Practice."

There were also concerns about the accuracy of self-reporting risk factors like family history and alcohol, and a preference for more factors to be included (e.g. mental health):

"It's (QRISK) got a broader range of ethnicities than the Australian one, so I like that. But it will also correct for long-term anti-psychotic use, for steroids use. But it's got a few other ones that aren't in the Australian calculator."

Passive disregard of absolute risk was no longer attributed to lack of access to risk calculators with greater familiarity with tools (particularly those within clinical practice software), but time issues and a habitual focus on individual risk factors remained. This was often attributed to patient factors:

"The immediacy of why a patient needs to have their healthcare on the day often overrides a lot of health promotion screening initiatives that take time. And it's expensive to see the doctor, so they're less likely to come back."

CVD risk management issues

Management issues included lack of knowledge about evidence-based diet changes, no funded referral pathways for prevention (e.g. to dietitians), lack of local access to allied health services for lifestyle change in regional areas, and the need for multiple appointments to move from initial high risk assessment to multiple medications. These issues led to variable management approaches. Table 3 shows how the same hypothetical cases are managed in different ways: addressing lifestyle change in practice or through specialist referral, and prescribing medication or not independent of absolute risk guideline recommendations.

For lifestyle change challenges there was a particular focus on diet, with many GPs preferring to refer to a specialist to manage the complex issue. This was a problem in regional areas where access was limited:

"In some places, you still have to pay out of pocket for the dietitian even if you go on a care plan, and an exercise physiologist. So there's that practicality access thing as well. I reckon if we had more in our practice, if we had a dietitian in our practice I think we'd have more success, because we could just say, 'Oh, why don't you see them on the way out and book in and then it's done.'"

Lifestyle referral was also a problem for prevention, as funding models were more focused on providing referrals for those with chronic conditions:

"Well, the thing is, access is difficult because it'll be private. Unless I can wrangle a care plan by saying, 'This patient has some chronic medical conditions that require complex interdisciplinary care from at least three health professionals'. Now most of the time when you're screening people, you're getting them before they've got the diabetes, before they're on the blood pressure medication. So it's really hard. Most of them wouldn't fit the criteria for a care plan. And so they've got to pay out of pocket to see a dietitian."

For medication there were variable responses to specific cases (see Table 3), including a mix of risk factors to focus on for lifestyle and variable decisions about whether to avoid medication, based on patient responses, or prescribe straight away even for low absolute risk cases. This reflects a continued focus on individual risk factor management rather than an absolute risk approach. It also reflects GPs' preference to account for additional risk factors than just those included in risk calculators:

"I kind of anecdotally see that people of Indian and Pakistani descent and South East Asian descent tend to be quite prone to diabetes and heart disease at quite a relatively young age. And yet, on the risk calculator they would come up as low risk...their BMI might be up but that's not relevant to the cardiovascular risk calculator."

Discussion

The reasons for not using a guidelines-based approach to CVD risk assessment and management in 2021 were very similar to the issues identified in 2012, indicating that very little has changed in terms of the usability of the guidelines for GPs. However, there were some differences. Firstly, the passive disregard strategy was more driven by lack of time or patient factors in this study, with high awareness and experience of using risk calculators compared to our previous study where many GPs lacked access. Secondly, the emergence of what is perceived as more 'personalised' risk assessment methods such as Coronary Artery Calcium Scoring led some GPs to use this instead of absolute risk, although the evidence for using this test for primary prevention is still limited. Thirdly, new funding models have emerged that could potentially drive absolute risk (e.g. MBS item for heart health checks) but these were seen as insufficient to support the full risk assessment and management process, which requires many appointments.

Many GPs described integrating additional risk factors into their decision making and the perception that the current risk algorithm is too limited. However, many of these risk factors were either included in the model and found to add no predictive value (e.g. obesity), or are included in management rather than assessment guidelines (e.g. family history). This reflects the lack of integration of the management guidelines with CVD risk assessment tools, which has been identified as a key issue for missing clinically determined high risk patients.¹⁰

The implementation of new guidelines must address the practical needs of GPs if they are to be translated into practice more effectively than the 2009/2012 guidelines. GPs still need a single consistent tool that integrates patient records with both assessment and management guidelines within clinical workflows, supported by funding that covers multiple appointments for assessment and management in prevention.

Project conclusion

Our five studies show the unique and important role of Primary Health Networks in supporting CVD prevention in general, and CVD risk assessment in general practice more specifically.

We found support for integrating prevention activities within existing PHN needs assessments, programs and roles, including GP liaison activities, education events, quality improvement reports, and clinical decision support software. However, the focus on prevention was indirect and driven by financial drivers and competing needs.

We demonstrated the feasibility of linking our web-based CVD risk assessment and management tool with PHN clinical HealthPathways on CVD risk assessment and management, PIP QI reports generated in Pen CS and POLAR clinical audit software, a Topbar app to auto-populate the tool for patient records, and a PHN-wide education event.

Our more formal feasibility study showed that 13 unique users used the app a total of 865 times over five months, in five practices across two clinical audit software systems (two POLAR and three Pen CS practices). It demonstrated technological barriers to uptake in some practices that would require additional support from PHN staff, while others showed high maintenance over time with little ongoing support.

GP interviews indicated that little has changed in terms of the usability of the guidelines over the last 10 years, with inadequate financial drivers and inconsistent risk calculators continuing to be an issue. Awareness of such tools was no longer an identified issue, in contrast to when the guidelines were newly released, but confusion over inconsistent clinical decision support tools and the role of additional risk factors remained.

CVD prevention guidelines are due to be released by the Australian Chronic Disease Prevention Alliance in 2023. The implementation of the new guidelines must be planned now if we are to improve the uptake of evidence-based CVD risk assessment and management. Our project highlights the important role of PHNs in supporting this, particularly in GP education and providing clinical decision support software. Our team is working with broader stakeholders including the Heart Foundation, the RACGP and software providers to disseminate these findings and bring stakeholders together to support the new guidelines in a more coordinated and evidence-based way.

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