

# Chronic pain and cardiovascular disease prevention in primary care: a review of Australian primary health network needs assessments

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## Abstract.

**Objective.** Chronic pain and cardiovascular disease (CVD) have a high disease burden. This research aimed to understand whether Australian primary health networks (PHNs) are recognising the need for the prevention of these conditions by investigating what local health and service issues have been identified.

**Methods.** Separate sets of needs assessments were analysed for chronic pain and CVD for all 31 PHNs using a document analysis approach. Framework analysis was undertaken to ascertain the types of health and service issues, prevention-related issues and supporting data sources identified, as well as to quantify the number of PHNs identifying these issues.

**Results.** Fewer PHNs identified health issues for chronic pain ( $n = 13$ ) compared with CVD ( $n = 30$ ), with the most common being disease prevalence and burden supported by National Health Survey data. Service issues were identified by fewer than half the PHNs ( $n = 13$  for each disease), which were largely informed by stakeholder consultation and related to service integration, service accessibility and health professional training. Prevention-related issues were frequently identified for CVD ( $n = 26$ ), but not chronic pain ( $n = 3$ ).

**Conclusions.** This paper highlights the need for a greater focus on chronic pain- and CVD-related issues by PHNs. This could be supported nationally by recognising chronic pain and risk factors in national datasets and PHN performance frameworks, and locally via greater stakeholder consultation to inform PHN population health planning.

**What is known about the topic?** Chronic pain and CVD are the two leading causes of total disease burden in Australia. PHNs are well positioned to address prevention locally through population health planning, supporting primary healthcare providers, health care integration and coordination and commissioning necessary services.

**What does this paper add?** This paper highlights gaps in data availability, the proportion of PHNs identifying local service issues for both chronic pain and CVD and health- and prevention-related issues for chronic pain.

**What are the implications for practitioners?** Although PHNs are constrained by government priorities and funding, greater stakeholder consultation is one potentially promising strategy to overcome local data gaps to identifying and prioritising chronic pain and CVD prevention.

**Keywords:** cardiovascular diseases, chronic pain, preventive health services, primary health care, primary prevention, secondary prevention.

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## Introduction

Back pain and cardiovascular disease (CVD) are the two leading causes of total burden in Australia,<sup>1</sup> but differ in recognition at the health policy level. CVD prevention has been a long-standing national priority, with the Heart Foundation established in 1959 to improve the prevention, diagnosis and treatment of heart disease in Australia through targeting modifiable risk factors for primary prevention.<sup>2</sup> In contrast, Australia's first National Pain Strategy was not released until 2010.<sup>3</sup> When the Australian government established the National Health Priority Areas in 1996 ([https://www.aph.gov.au/About\\_Parliament/Parliamentary\\_Departments/Parliamentary\\_Library/Publications\\_Archive/CIB/cib9900/2000CIB18](https://www.aph.gov.au/About_Parliament/Parliamentary_Departments/Parliamentary_Library/Publications_Archive/CIB/cib9900/2000CIB18), accessed 14 September 2021) as key target areas for public and policy attention, cardiovascular health was one of the four original priority areas, with debate ongoing as to whether pain should qualify.<sup>4,5</sup>

The history of health policy recognition of chronic pain and CVD is reflected in research funding, where government research funding for pain over a 20-year period is reported to be A\$133 million, compared with A\$687 million for CVD between 2012 and 2017.<sup>6</sup> Regarding healthcare services funding, as part of the recent Medicare Benefit Schedule (MBS) review, key recommendations from the cardiac services clinical committee were to amend, restructure, consolidate or remove existing MBS items,<sup>7</sup> whereas the Pain Management Clinical Committee, with support from Painaustralia (the peak national consumer advocacy body for pain), highlighted the need for new MBS items to support access to evidence-based chronic pain management.<sup>8,9</sup>

To reduce disease burden and ensure a sustainable health system, the focus must expand from treatment of disease to include prevention.<sup>10,11</sup> This requires population health planning to identify and address health inequities.<sup>12</sup> Primary healthcare organisations are well positioned to identify and address inequities, with primary health care being 'the first contact a person has with Australia's health system'.<sup>13</sup> The Australian National Primary Health Care Strategy also includes reducing inequity and increasing the focus on prevention as key priorities.<sup>14</sup>

Despite Australian primary healthcare organisations undergoing significant reform over the past decade, there is evidence that progress towards achieving a balance of health promotion, prevention and management has been slow.<sup>15–18</sup> Since the inception of Medicare Locals (MLs) in 2011, a struggle between addressing local needs of Australian communities and meeting government regulatory frameworks has become apparent.<sup>16,19</sup> In 2015, MLs were replaced by 31 'primary health networks' (PHNs), providing an opportunity to learn from the experience of MLs and international primary care organisations to better address local community needs.<sup>20–23</sup> Anstey *et al.*<sup>24</sup> suggested that multisectoral collaborations will be key for PHNs to tackle broader health determinants, along with flexible funding and data necessary for population health planning.

To date, PHN activity to support the primary prevention of CVD and the secondary prevention of chronic pain is variable. Primary prevention focuses on preventing the occurrence or delaying the onset of chronic conditions, and secondary prevention aims to minimise or prevent disease progression in people with chronic conditions.<sup>25</sup> 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.<sup>26</sup> The Australian government recently introduced measures to support CVD risk assessment in the form of a temporary MBS item for heart health checks<sup>27</sup> and the National Practice Incentives Program Quality Improvement (PIPQI) financial incentives for practices to share clinical audit data, including the proportion of patients with the necessary risk factors assessed to enable CVD assessment.<sup>28</sup> It is currently unknown how PHNs are directly supporting practices to conduct CVD prevention activities. PHNs commission local projects and work with external stakeholders on various activities that can indirectly support CVD prevention.<sup>29</sup>

Secondary prevention of chronic pain (persistent or recurrent pain for  $\geq 3$  months) involves preventing the progression from acute to chronic pain by identifying and addressing a range of biopsychosocial factors that increase the risk of chronicity,<sup>30</sup> which is a goal of the National Strategic Action Plan for Pain Management.<sup>6</sup> Recent work has found a gap in PHN initiatives that target the secondary prevention of chronic pain.<sup>31</sup> Two key evidence-based initiatives identified that support the management of chronic pain are the commissioning of community-based pain programs ( $n = 9$  PHNs) and Project ECHO (Extension for Community Healthcare Outcomes) to support professional development of primary care providers ( $n = 1$  PHN).<sup>31</sup>

PHNs must identify chronic pain and 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 (Fig. 1).<sup>32</sup> Keleher<sup>33</sup> has highlighted that population health planning requires data from a range of sectors that influence the determinants of health. Although the level of collaboration for population health planning by PHNs has been investigated,<sup>34</sup> the content of PHN needs assessments, including the data sources being used, has not previously been examined.

The aim of this study was to understand whether PHNs are recognising the need for the prevention of chronic pain and CVD by identifying the types of health-, service- and prevention-related issues and data sources reported in PHN needs assessments. Understanding gaps in issues identified will highlight opportunities for PHNs to better address chronic pain and CVD prevention.

## Methods

### *Study design and sampling strategy*

This research followed the READ (Ready materials, Extract data, Analyse data, Distil) approach to document analysis<sup>35</sup> and was informed by the Standards for Reporting Qualitative Research guidelines.<sup>36</sup> Core needs assessment reports published online by each of the 31 Australian PHNs were reviewed.

Document analysis for chronic pain was conducted in September 2018, with most documents being for the 2017–18 financial year. Document analysis for CVD was conducted in April 2020, in needs assessments published most recently.

Health Needs Analysis	Service Needs Analysis			
<i>Patterns of overall health status, characteristics of specific populations, individuals or conditions, populations, individuals or conditions that are potential priorities</i>	<i>Patterns of workforce and service distribution across the region, characteristics of specific locations, service types &amp; locations or service types that are potential priorities</i>			
<ul style="list-style-type: none"><li>▪ Geography</li><li>▪ Demography</li><li>▪ Health determinants</li><li>▪ Health status &amp; behaviours</li><li>▪ Populations with special needs</li><li>▪ Individuals and populations at risk of poor health outcomes</li></ul>	<ul style="list-style-type: none"><li>▪ Geography</li><li>▪ Workforce mapping</li><li>▪ Service mapping</li><li>▪ Market analysis</li><li>▪ Efficiency and effectiveness</li><li>▪ Coordination and integration</li><li>▪ Opportunities for improvement</li></ul>			
<b>Report Structure</b>				
ANALYSIS of (1) Health and (2) Service needs:				
<b>Identified Need</b>	<b>Key Issue</b>	<b>Description of Evidence</b>		
Headings of identified areas of need for which issues have been grouped	Health or service issues identified	Data sources including stakeholder consultation findings to support identified health or service issues		
<i>Example: Chronic Disease</i>	<i>Limited access to community support services</i>	<i>Community consultation</i>		
ASSESSMENT of (3) Opportunities, priorities and options:				
<b>Priority</b>	<b>Possible Options</b>	<b>Expected Outcome</b>	<b>Possible Performance Measurement</b>	<b>Potential lead</b>
<i>Example: Increasing awareness of community-based support services</i>	<i>Continued development and promotion of integrated patient care pathways</i>	<i>Local information available to health care providers at point of care</i>	<i>Service provider feedback on self-reported use and satisfaction of care pathways</i>	<i>PHN</i>

Fig. 1. PHN needs assessment analysis and report structure (adapted from the Australian Government Department of Health<sup>32</sup>).

References to these reports are available as supplementary material (see Supplementary Material S1).

Data extraction

Document analysis for chronic pain used the search term ‘pain’ to identify information concerning either the secondary prevention or management of chronic non-cancer pain. Acute dental pain, chest pain and chronic cancer-related or palliative care pain was excluded.

Document analysis for CVD used the search terms ‘cardio-vascular’, ‘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. Data were extracted separately for chronic pain (by SDM) and CVD (by SC) and were both checked by a third author (PW) for accuracy and completeness.

Data analysis and reporting

Extracted data were analysed using framework analysis,<sup>37</sup> 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.<sup>35,37,38</sup> Framework analysis involves five steps: familiarisation, identifying a framework, indexing, charting and mapping and interpretation.<sup>37</sup>

Authors became familiar with the data during the extraction and checking step. Framework categories for sorting data were then established based on how PHNs are guided to conduct a needs assessment (Fig. 1), the aims of this research, understanding of the data gained in the familiarisation step and through testing out the categories on a proportion of the data.<sup>38</sup> For this study, health issues relate to the health status and needs of individuals, populations and communities, whereas service issues relate to each PHN region’s services and health infrastructure (Fig. 1).<sup>32</sup> After several iterations, this resulted in data being indexed as a health issue, service issue or prevention-related

**Table 1. Identification of health or service issues relating to chronic pain or CVD in PHN needs assessments by jurisdiction and for metropolitan versus regional PHNs**Data are presented as *n* (%). For definitions of health and service issues, see Fig. 1. ACT, Australian Capital Territory; NSW, New South Wales

	Identified health issues		Identified service issues	
	Chronic pain	CVD	Chronic pain	CVD
Total ( <i>n</i> = 31)	13 (42)	30 (97)	13 (42)	13 (42)
Jurisdiction				
NSW ( <i>n</i> = 10)	3 (30)	9 (90)	4 (40)	2 (20)
Victoria ( <i>n</i> = 6)	2 (33)	6 (100)	3 (50)	5 (83)
Queensland ( <i>n</i> = 7)	4 (57)	7 (100)	3 (43)	4 (57)
South Australia ( <i>n</i> = 2)	1 (50)	2 (100)	1 (50)	0 (0)
Western Australia ( <i>n</i> = 3)	2 (67)	3 (100)	0 (0)	0 (0)
Tasmania ( <i>n</i> = 1)	0 (0)	1 (100)	1 (100)	1 (100)
Northern Territory ( <i>n</i> = 1)	0 (0)	1 (100)	0 (0)	0 (0)
ACT ( <i>n</i> = 1)	1 (100)	1 (100)	1 (100)	1 (100)
Metropolitan PHNs <sup>A</sup> ( <i>n</i> = 15)	9 (60)	15 (100)	7 (47)	8 (53)
Regional PHNs ( <i>n</i> = 16)	4 (25)	15 (94)	6 (38)	5 (31)

<sup>A</sup>PHN areas with ≥85% of the population residing in major cities are classified as metropolitan.<sup>39</sup>**Table 2. Local issues identified by PHNs concerning chronic pain**Data are given as *n* (%), with the percentages calculated using the total number of PHNs (*n* = 31) as the denominator. GPs, general practitioners; MSK, musculoskeletal

	<i>n</i> (%)
Health issues (13/31 PHNs)	
Prevalence of pain, including MSK conditions	8 (26)
Burden of disease (MSK conditions, including arthritis and back pain)	6 (19)
Opioid prescribing or perceived overuse of opioids	5 (16)
Hospitalisation rates associated with pain (knee and hip replacements)	2 (6)
Costs (health system costs and productivity losses)	2 (6)
Service issues (13/31 PHNs)	
Integration of services and coordination of care	7 (23)
Education and training for primary healthcare providers	6 (19)
Access to GPs, specialists and mental health services	6 (19)
Access to community-based programs or services	4 (13)
Referral pathways (knowledge of, use of or access to)	3 (10)
Potential impact of codeine up-scheduling on service demand/access	2 (6)
Service use measures, including reasons for GP consultation and resulting treatment rates (e.g. medication, imaging, specialist referral)	2 (6)
Stakeholders broadly identifying pain as a condition not well managed	1 (3)

issue, which included any mention of risk factors or the need for risk factor assessment or management. Risk factor prevalence was indexed as a health issue, with prevention-related issues also capturing this and any other mention of risk factors for chronic pain or CVD. The types of health and service issues were described using Microsoft Word tables.

Qualitative and quantitative content analysis was 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

**Table 3. Local issues identified by PHNs concerning CVD**Data are given as *n* (%), with the percentages calculated using the total number of PHNs (*n* = 31) as the denominator

	<i>n</i> (%)
Health issues (30/31 PHNs)	
Mortality, including cause of and premature or potentially avoidable death	24 (77)
Potentially preventable hospitalisations	21 (68)
Prevalence of CVD	20 (65)
Prevalence of risk factors for CVD	20 (65)
Burden of CVD	16 (52)
Hospitalisations	15 (48)
Physical and mental comorbidities of CVD	10 (32)
Gap in life expectancy for:	
People with a mental illness	3 (10)
Aboriginal and Torres Strait Islander people	1 (3)
Service issues (13/31 PHNs)	
Integration of services and coordination of care	6 (19)
Access to specialists and other support services	5 (16)
Health professional training	3 (10)
Routine assessment and management of risk factors for CVD	3 (10)
Stakeholders broadly identifying CVD as a condition not well managed	1 (3)

prevention activity was identified. Data analysis and reporting was conducted by two authors (PW, SDM) and checked by a third author (SC).

## Results

### Identification of chronic pain and CVD in PHN needs assessments

The proportion of PHNs that identified issues related to pain or CVD are presented in Table 1.<sup>39</sup> Eleven PHNs did not identify any issues relating to pain, and only one PHN did not identify any issues related to CVD. The types of issues identified by PHNs for chronic pain are detailed in Table 2, and those identified for CVD are detailed in Table 3.



### *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 chronic pain and CVD. PHNs primarily referred to National Health Survey data to report on the prevalence of CVD, arthritis and other musculoskeletal conditions. For the prevalence of chronic pain, national general practice data and data from the New South Wales Health Survey were identified by two PHNs.

All PHNs that reported on the burden of CVD referred to at least one burden of disease study, primarily the Australian Burden of Disease Study<sup>40</sup> and the separate report on impact and causes of illness and death in Aboriginal and Torres Strait Islander people.<sup>41</sup> For chronic pain, two PHNs referred to the MBF Foundation estimates of both the physical and economic burden of chronic pain.<sup>42</sup> Alternatively, PHNs referred to the burden of musculoskeletal diseases (including back pain) from the same studies that estimated the CVD burden.<sup>43,44</sup>

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. A summary of all health and service issues and supporting data sources identified by PHNs is available as supplementary material (see Supplementary Material Table S1).

### *Risk factors and the need for prevention*

Only three PHNs mentioned prevention of chronic pain, covering the need for more awareness and support for prevention and self-management of chronic pain, and the risk factors associated with the onset and management of chronic musculoskeletal conditions that cause persistent pain, including social determinants of health.

Of 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**

CVD and back pain should be prioritised by PHNs as the two leading causes of total burden in Australia (6.9% and 4.1% of total burden respectively).<sup>1</sup> Our findings do not reflect this, with just under two-thirds of PHNs (20/31) identifying issues related to chronic pain, compared with almost all PHNs identifying issues concerning CVD. The historical global focus of addressing premature mortality has meant that the prevention of conditions with a high fatal burden, such as CVD, have been prioritised above conditions that have a high non-fatal burden, such as chronic pain.<sup>45</sup> In the present study, CVD mortality was the most frequently identified issue ( $n = 24$  PHNs).

Government priorities and incentives also impact on the health and service issues identified by PHNs. Anstey *et al.*<sup>24</sup> suggest 'What gets measured by funders is what gets done', referring to the National PHN Performance Framework indicators.<sup>20</sup> Potentially preventable hospitalisation indicators for CVD included in the National PHN Performance Framework were commonly identified in the present study ( $n = 21$  PHNs). The absence of chronic pain indicators in that Framework could explain the finding that fewer PHNs identified chronic pain-related issues.

The lack of data to appropriately monitor the primary care system has been acknowledged by others,<sup>18,24,33</sup> and has a flow-on effect on the National PHN Performance Framework Indicators, where the selection of indicators is based on available data.<sup>20</sup> The absence of indicators for important areas (e.g. health literacy) and the suitability of existing data sources to accurately assess progress against established indicators have been questioned,<sup>46</sup> with calls for a primary health care national minimum dataset to help address these gaps.<sup>47</sup>

This study found that the health and service issues identified by PHNs are reflective of the data available, where chronic pain is not recognised as a disease in national data sources. This includes the National Health Survey, which informs estimates in the Australian Burden of Disease Study.<sup>40</sup> The National Health Survey currently only measures bodily pain experienced in the last 4 weeks,<sup>48</sup> and there is no assessment of chronic pain in the Australian Aboriginal and Torres Strait Islander Health Survey.<sup>49</sup> Data availability for chronic pain could improve with the adoption of the International Classification of Diseases 11th Revision<sup>50</sup> for Australian health statistics, but this decision is still under review.<sup>51</sup>

From a prevention perspective, the historical focus on reducing premature mortality has also had an effect on the measurement of risk factors. For example, 22% of low back pain and neck pain disability burden is related to commonly measured risk factors, compared with 86% of all CVD disability.<sup>52</sup> Blyth and Huckel Schneider<sup>53</sup> have questioned the breadth of risk factors in this Global Burden of Disease Study, with Watts and Cairncross<sup>54</sup> suggesting that other important determinants may be left out due to data gaps. The findings of the present study reflect this data gap, with no PHNs reporting the prevalence of chronic pain risk factors, compared with 20 PHNs reporting the same for CVD.

Financial incentives in general practice may also affect the prevention-related issues identified by PHNs. Since the reviewed needs assessments were published, the MBS has established a rebate for heart health checks from general practitioners or other healthcare professionals.<sup>27</sup> There is also a quality improvement practice incentive payment to encourage measurement of the proportion of patients with the necessary risk factors assessed to enable CVD risk assessment.<sup>28</sup> Risk factors for poor pain recovery after surgery or injury are well documented and often modifiable,<sup>55</sup> but no comparable incentives to assess risk for the progression of subacute pain to chronic pain are available. In our study, only three (10%) and nine (29%) PHNs mentioned the prevention of chronic pain and the need for the assessment and management of CVD risk factors respectively.

Multisectoral collaboration offers opportunities to overcome contextual and data barriers to identifying local health needs.

A review of PHNs has identified the need for more engagement between PHNs and other stakeholders with scope to support prevention activity.<sup>56</sup> Although barriers concerning local capacity and government support to enable effective partnerships for collaborative population health planning have been identified,<sup>34</sup> here we discuss citizen science and social prescribing as emerging approaches that could be considered by PHNs and their funders.

Because stakeholder consultation is the primary data source used to identify service issues, 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. Rowbotham *et al.*<sup>57</sup> advocate for citizen science approaches in population health research as a method of engaging large numbers, identifying local needs, identifying and monitoring possible solutions and mobilising public demand for effective programs and policies. Involving citizens in the design and conduct of population health research also has the potential for broader benefits, including greater public awareness of health needs, behaviour change and reduced health inequity.<sup>58</sup>

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.<sup>59,60</sup> 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.<sup>59,61</sup> Social prescribing has been recommended for inclusion in Australia's 10-year primary health care plan and national preventive health strategy,<sup>62</sup> as the evidence for these interventions continues to emerge.<sup>61,63,64</sup>

### Limitations

Publicly available core needs assessments may not be a comprehensive summary of all health and service issues identified by PHNs. Some PHNs publish condition- or population-specific needs assessment reports (e.g. mental health), which were not reviewed.

In addition, there may be relevant issues identified by PHNs that relate to chronic disease but that did not specifically mention pain or CVD.

Lastly, it is important to clarify that this study did not examine whether health and service needs were prioritised. Although more PHNs identified issues concerning CVD, further research is required to understand whether this translates into activity focused on the prevention or management of CVD.

### Conclusion

If the need for prevention is not identified from the beginning of the population health planning cycle, it is unlikely to be prioritised. This paper identifies critical gaps concerning the identification of chronic pain and CVD prevention by PHNs and highlights the potential of cross-sectoral partnerships to enable community-level data generation and population health policy agenda setting in primary care.

### Data availability

The datasets generated and analysed during the present study are available from the corresponding author on reasonable request.

### Competing interests

The authors declare no competing interests.

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