phn WESTERN VICTORIA

An Australian Government Initiative

What role will Primary Health Networks play in disease and illness prevention?

A discussion paper prepared by the Western Victoria Primary Health Network in Collaboration with the Global Obesity Centre (GLOBE), WHO Collaborating Centre for Obesity Prevention, Deakin University.

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Acronyms

ACCHOs - Aboriginal Community Controlled Health Organisations

CQI - continuous quality improvement

FAQs- frequently asked questions

GP – general practitioners

LHNs - Local Hospital Networks

PDF – portable document format

PHC - primary health care

PHCOs - primary health care organisations

PHNs - Primary Health Networks

QES - qualitative evidence synthesis

QI - quality improvement

SDOH - social determinants of health

URL – uniform resource locator

WHO – World Health Organisation

Contents

Executive summary

Australia, is facing a looming epidemic of chronic disease that not only impacts on the health and wellbeing of individuals and families but also on the health care system with high demands for services and escalating health care costs. Our understanding of the preventable causes of chronic conditions and disease has become more sophisticated over time, including the development of models that unpack their complex proximal, medial and distal determinants. An understanding of these determinants offers opportunities for society, as a whole, to develop effective prevention strategies.

Primary health care (PHC) is considered the cornerstone of the health system and one that has the potential to reduce expensive hospital admissions with promises of corresponding gains for patients, populations and the health care budget. Primary Health Networks (PHNs) are relatively new meso-level organisations operating between government and front-line services to improve the effectiveness and efficiency of health service and coordination of care. As such, PHNs are well placed to support local health systems to maximise disease and illness prevention opportunities. At the time of initiating this study in 2016, PHNs were in the early stages of establishing and consolidating their roles. We found that whilst there was emerging evidence about their role in prevention, there also appeared to be some gaps and confusion about this role.

In response to this, we conducted a qualitative evidence synthesis of the publicly available Australian policy and peer-reviewed literature to examine the role of PHNs in disease and illness prevention. The findings show that PHNs have three key roles to play in disease and illness prevention. These included strengthening preventive care, leading suicide prevention and reorientating health services to comprehensive primary health care.

Firstly, our analysis of the peer-reviewed literature suggests that prevention could be positioned within quality improvement where PHNs support improved quality and reach of preventive care interventions like immunisation and a ‘screening and high-risk’ approach to chronic disease prevention. Our analysis also indicates PHNs have a responsibility to promote prevention so general practitioners can take more preventive action. For example, by identifying barriers and enablers and delivering a focussed quality improvement package, PHNs could enable general practitioners to take a more systematic and proactive approach to preventive care. Regarding commissioning, we found that the Government’s stepped care model for mental health clearly framed PHNs’ role in commissioning mental health services across primary, secondary and tertiary prevention. Unfortunately, this was not the case for other chronic diseases perhaps because commissioning is complex and the PHN commissioning role in Australia is in its early evolution. Expansion of commissioning to a range of initiatives across the prevention continuum such as primary prevention initiatives for other chronic diseases could be a focus for PHNs in the future. For example, PHNs could commission digital health literacy tools for use in general practice and community-based lifestyle modification programmes.

Secondly, we identified a lead role for PHNs in the prevention of suicide. This role is framed in Government mental health policy that seeks to shift the focus from crisis intervention to one that focusses on prevention and early intervention. Furthermore, the Government’s policy requires PHNs to take a ‘whole of community’ and systems approach to suicide prevention. In addition to strategies to improve health services for people at risk of suicide, the policy includes broader primary prevention strategies (and potentially primordial strategies) for schools and communities. In Victoria, this approach is supported through the

State Government's Suicide Prevention Framework and Place Based Suicide Prevention Trials, for which PHN are lead agencies.

Thirdly, we found that both Government policy and the peer-reviewed literature acknowledge the need to reorientate health services more broadly to comprehensive PHC to enable the health system to more effectively tackle the burden of chronic disease and illness. This includes a greater focus on prevention, an understanding of the social determinants of health and the attributes of patient-centred care (coordinated, accessible culturally safe and co-designed care). PHNs, as meso-level entities in the Australian health system, have clear roles to play in this reorientation. Commissioning and quality improvement should drive patient-centred care which ultimately should improve access to appropriate health services, a key social determinant of health. PHNs are well placed to act as 'change agents' for prevention by developing formal partnership agreements with other enabling organisations such as Local Hospital Networks and Aboriginal Community Controlled Organisations to help reorientate health services to comprehensive PHC.

Whilst Government policy clearly articulated and guided PHNs' role in suicide prevention this was not the case for their role in strengthening preventive care. Thus, PHNs must define their own role to become leaders in prevention. Without clear direction for prevention there is potential for uncertainty or confusion about PHNs' role in disease and illness prevention. Such uncertainty could lead to miscommunication, inefficiencies, diffusion or lost opportunities in disease prevention action at the meso-level. The recently released National Strategic Framework for Chronic Conditions goes some way towards addressing these issues; however, it is a high-level, aspirational policy and does not provide specific guidance nor actions for PHNs.

Drawing on the literature we have developed a tool to help PHNs strengthen their role in prevention and articulate it to stakeholders and partners. PHNs could develop integrated prevention strategies based on the themes found in this study and the new National Strategic Framework for Chronic Conditions. This would enable strategic allocation of resources across PHNs' core functions that in turn, will enable a strengthened disease prevention focus in frontline services. Additionally, through stakeholder engagement, PHNs will be able to trial innovative projects to strengthen 'healthy lifestyle medicine'. Such trials will value-add to PHNs' future work in supporting the implementation of new models of care such as the Health Care Home. In support of a stronger role for PHNs in prevention it is important that all three levels of government consider their respective roles in effective primordial prevention action to tackle the social determinants of health and reduce health inequities in populations.

Introduction

Australia faces a large and increasing burden of chronic disease and illness. This epidemic not only results in suffering and premature loss of life to individuals and families but also impacts on society more generally in relation to loss of productivity, high demand for health services and corresponding escalating health care costs (Australian Institute of Health and Welfare, 2012; Swerissen, Duckett, & Wright, 2016; Willcox, 2014). The growing numbers of Australians' living with chronic conditions (and an ageing population) has placed Australia's health care system and budget under increasing pressure and stress (Swerissen et al., 2016; Willcox, 2014).

While not all determinants driving the epidemic of chronic disease are preventable (e.g. genetics and population ageing) (Australian Institute of Health and Welfare, 2012; Swerissen et al., 2016) many chronic diseases share a number of modifiable behavioural and physiological risk factors that are targets for prevention (see Appendix 1). Modifiable risk factors include: smoking, physical inactivity, risky alcohol consumption (for long-term health), inadequate consumption of fruit and vegetables, excess body mass and high blood pressure (Australian Institute of Health and Welfare, 2012). In Australia, 99% of people aged 15 or over have at least one of these risk factors and almost two thirds (64%) have three or more risk factors (Australian Institute of Health and Welfare, 2012).

These risk factors and markers have upstream determinants and to account for these, Egger and Dixon have expanded the list of modifiable determinants of modern chronic diseases to a list of eleven 'anthropogens[1]'' (Egger & Dixon, 2014). In addition to nutrition, activity, smoking/alcohol, they include: inadequate sleep, over/underexposure (e.g. sunlight, radiation), stress/anxiety/depression, technology induced pathology (e.g. motor vehicle use, excessive screen use), environment, occupation, relationships and social disadvantage. The authors conceptualise these determinants and risk factors for chronic disease aetiology as proximal (individual factors), medial (social factors) and distal (environmental factors). (Refer to the chronic disease model in Appendix 2 for details). Furthermore, there is emerging evidence that these anthropogens "*have a common physiological link through chronic, systemic inflammatory (metaflammation) processes"*(Egger & Dixon, 2014). The authors contend that, the interactive nature of multiple determinants requires a more holistic approach to preventing and managing chronic disease rather than addressing single risk factors in isolation (e.g. physical activity). Additionally, they emphasise the need for action that addresses the medial and distal determinants of disease as well as the more obvious proximal (lifestyle/markers) determinants. This aligns with Rose's seminal work that demonstrated the need to ensure population strategies that address the determinants of prevalence of disease are prioritised in addition to the high-risk approach to prevention (Rose, 2001). This more evolved understanding of the nature of complex, interactive and multiple chronic disease determinants requires "a transformative model'' of primary health care that is patient-centred, co-ordinated and outcome focussed (Consumers Health Forum of Australia, Royal Australian College of General Practitioners, & Menzies Centre for Health Policy The George Institute, 2016; Swerissen et al., 2016).

Primary health care (PHC) is considered the cornerstone of the health system (World Health Organanisation, 1978) and one that has the potential to reduce expensive hospital admissions with promises of corresponding gains for patients, populations and the health

[1] Anthropogens are defined as: "man-made environments, their by-products and/or lifestyles encouraged by these, some of which may be detrimental to human health" (Egger & Dixon, 2014)

care budget (Foster, Henman, Gable, & Denton, 2016; Swerissen et al., 2016). Respective Australian Governments have responded to the chronic disease epidemic with a range of health care reform and policy measures that have had varying success (Australian Healthcare & Hospitals Association, 2015; Briggs, 2014; Swerissen et al., 2016). Reform of primary health care organisations (PHCOs) since the early 1990's is one example in the primary health care landscape (Foster et al., 2016; M. F. Harris & Zwar, 2014). PHCOs are supportive, meso-level organisations that operate between government policy (the macro-level) and local PHC providers (the micro-level) to implement government reform (Nicholson, Jackson, Marley, & Wells, 2012). Divisions of General Practice were the first iteration of PHCOs in Australia and were established in 1992 (Nicholson et al., 2012). They were controlled by general practitioners (GPs) and funded by the Australian Government with 110 Divisions registered in 2008 (McKinsey & Company). Divisions had a range of functions that linked to the broad objectives of improving access to and quality of care especially in general practice settings. Functions included improved integration of general practice into the wider health system, workforce education and training, assisting practices to meet accreditation requirements and better use of information and communication technology (Nicholson et al., 2012). In 2011, Medicare Locals replaced Divisions of General Practice. They built on the work of Divisions but had a stronger focus on population health, larger geographical boundaries, improved accountability and transparency and a skills-based rather than a representative (e.g. general practitioner) governance model (Foster et al., 2016; Robinson et al., 2015). In response to the findings of the incoming Government's Horvath Review, thirty-one Primary Health Networks (PHNs) replaced 61 Medicare Locals in 2015 (Horvath John, 2014). PHNs are charged with two key objectives: to increase the efficiency and effectiveness of medical services for patients, particularly those at risk of poor health outcomes, and to improve the coordination of care (Department of Health, 2016m). In addition to fewer PHCOs with larger geographical catchments, PHNs have a stronger focus on commissioning services than their predecessors. The PHN geographical boundaries have been designed to align with those of Local Hospital Networks (LHNs) or clusters of LHNs (Department of Health) to assist in joint population health planning and system integration (Department of Health, 2016m). The governance model for PHNs includes GP-led Clinical Councils and Community Advisory Committees reporting to a skills-based board of management. Reform of the primary health landscape in 2014 coincided with considerable disinvestment in disease and illness prevention infrastructure and resourcing by the Federal Government (Moodie, Tolhurst, & Martin, 2016; Smith, Crawford, & Signal, 2016). This included the dismantling of policy, organisations and funding that supported prevention such as the National Preventative Health Strategy, Australian National Preventive Health Agency (ANPHA) and the National Partnership Agreement on Preventive Health (Moodie et al., 2016; Willcox, 2014; Wutzke, Morrice, Benton, & Wilson, 2016).

Complicating efforts to strengthen prevention is a lack of clarity as to what it means. The language of prevention can be confusing with the term 'prevention' used in diverse ways and with different interpretations. Without a guiding framework for prevention there is potential for uncertainty or confusion about PHNs' role in disease and illness prevention.

Given the changing landscape of primary care and the potential for confusion, we saw the need for clarity on what prevention is and where prevention fits in the Australian health context. A growing commentary in the literature identifies several possible roles for PHNs regarding their contribution to disease and illness prevention (Booth et al., 2016; Mark Harris, 2016a). This contemporary commentary is supported by established concepts of primary health care, such as the Alma Ata Declaration, which clearly identify disease and illness prevention and health promotion as integral components of comprehensive primary health care (World Health Organanisation, 1978). Disease prevention strategies can be

applied at any stage of the natural history of disease (and before disease occurs) and are often conceptualised across a continuum of primordial, primary, secondary and tertiary prevention strategies (see Appendix 2). For example, government regulation and pricing of harmful products like tobacco and alcohol are effective primordial prevention strategies. Primordial prevention strategies generally act on distal social determinants of health in society to prevent exposure to risk of disease for populations. The provision of immunisation is a primary prevention strategy to reduce or eliminate certain infectious diseases and screening and early treatment for particular cancers are effective secondary prevention strategies. A rehabilitation program for chronic disease such as coronary heart disease is an example of a tertiary prevention intervention where the aim is to improve patient well-being, function and quality of life through reducing the consequences of established disease or progression of complications.

Aims

The purpose of this study was to compare and contrast recent peer-reviewed literature with Australian Government policy to define and describe the role of PHNs in disease and illness prevention. A secondary aim was to develop a framework or tool that could be used by PHNs to identify, communicate and strengthen their role in disease and illness prevention.

Methods overview

This study utilised qualitative evidence synthesis (QES) methodology (Grant & Booth, 2009) to explore answers to the following research question:

What role in disease and illness prevention has been articulated in the peer-reviewed and Australian Government policy literature for Primary Health Networks?

QES methodology is an approach often applied to health care policy because of its capacity to manage the range of study designs and reporting forms likely to be present in the peer-reviewed and Government policy documents (Grant & Booth, 2009).

Data collection

Systematic literature review methods (Moher, Liberati, Tetzlaff, Altman, & The, 2009) were applied to search the peer-reviewed literature published from 2014 to 2016. A tailored search strategy of the Commonwealth Governments' Health website (health.gov.au) was developed and deployed in April 2017 to manually search for publically available, Government policy documentation. Two auditors screened and reviewed the results of each search strategy to determine which records were eligible for inclusion into the data corpus.

Data analysis

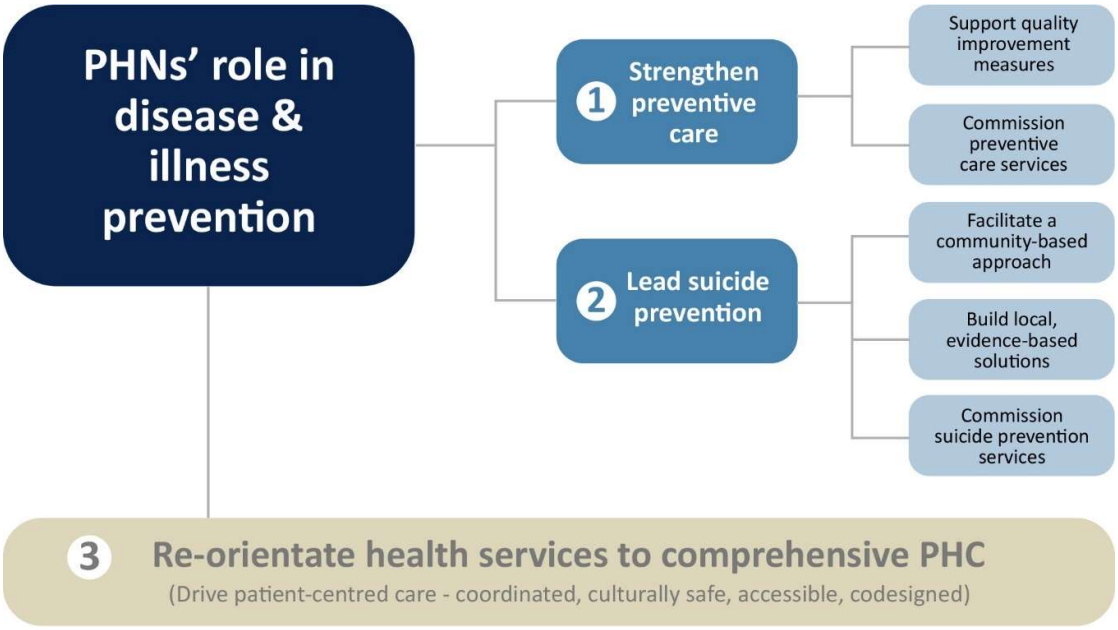
Themes in the source documents were identified using thematic analysis methodology (Braun & Clarke, 2006). The disease and illness prevention continuum outlined in Appendix 2 was used as a theoretical framework to guide the analysis and themes were identified at both semantic and latent levels. A detailed account of the methods used in this study is outlined in Appendix 3.

Literature review & thematic analysis

Forty-two documents were included in the final data corpus for thematic analysis; of these, fourteen were peer-reviewed articles and twenty-eight documents satisfied our definition of 'government policy document'. Of the fourteen peer-reviewed articles, nine were expert opinion, four were empirical studies and one was classified as a review. Of the twenty-eight policy documents, eight were strategies/plans; eight were programme guidelines & principles and twelve were legislated government reports such as budget papers and annual reports. Refer to Appendix 4 for a detailed account of the search and screening results including tables that list each document that was included in the data corpus for thematic analysis.

Two clear key themes were identified from the reviewed literature. The first theme identified a role for PHNs to strengthen preventive care in frontline services and the second, identified a role to lead in suicide prevention. Underlying these two key themes, and linked to PHNs' prevention role, was a third, latent theme to 're-orientate health services to comprehensive PHC'. Figure 1 displays the relationship of these themes and their associated sub-themes and they are described and analysed further in the following three sections.

Figure 1: Themes identified in the peer-reviewed and/or policy literature regarding PHN's role in disease and illness prevention



Theme 1: Strengthen preventive care

The peer-reviewed literature outlined key roles for PHNs to strengthen preventive care in frontline PHC service delivery (see Box 1). Authors linked this role to the Government's broader prescribed roles for PHNs to support quality improvement (QI) measures in general practice and to commission *"health and medical/clinical services for local groups most in need"* (Department of Health, 2016m). With the exception of Government policy relating to the reform of the mental health care system, the policy literature did not clearly describe a role for PHNs to strengthen preventive care. Rather, a role for PHNs was inferred in the policy literature through the broader prescribed roles of QI and commissioning, the PHN priority to improve population health and national headline indicators (e.g. improving immunisation and cancer screening rates) (Department of Health, 2016m). This contrasted with the peer-reviewed literature, which clearly articulated and described roles for PHNs to strengthen preventive care. These roles were linked to supporting primary, secondary and tertiary prevention interventions in PHC for individuals rather than primordial prevention strategies for populations (see Box 1).

Box 1: Strengthen preventive care

Peer-reviewed literature

*"In this PHNs will support general practice in a number of more traditional areas of **public health** such as systematic and opportunistic screening, health checks, smoking cessation, exercise, weight reduction and diet and interventions focused on specific chronic conditions such as diabetes and cardiovascular disease." (Booth et al., 2016)*

*"They can also commission new **preventive programs** and services to bridge gaps that are not currently being filled, in partnership with state health, local government, nongovernment and community organisations, and Aboriginal health organisations."* (Mark Harris, 2016a)

*"PHNs can be guided to adopt an Aboriginal and Torres Strait Islander-specific quality improvement framework, agree to local performance measures, review specialist and other outreach services to better integrate with primary health care, enhance the cultural competence of services, and measure and respond to progress in **reducing potentially preventable hospitalisations**." (Couzos et al., 2016)*

Policy literature

*"Targeting areas of need by commissioning evidence-based drug and alcohol treatment and support, undertaken by both the drug and alcohol specialist treatment sector and primary health services that align with the following service types: **Early intervention** targeting less problematic drug use, including brief intervention;" (Department of Health, 2016b)*

*"Develop and commission region-specific services, utilising existing providers, as necessary, to provide **early intervention** to support children and young people with, or at risk of, mental illness. This should include support for young people with mild to moderate forms of common mental illness and also **early intervention** support for young people with moderate to severe mental illness, including emerging psychosis and severe forms of other types of mental illness."* (Department of Health, 2016a)

Support quality improvement measures

The peer-reviewed literature positioned PHNs' prevention role in the broader quality improvement context. This was linked to the Government's requirements for PHNs to support "*general practices in attaining the highest standards in safety and quality*" (Department of Health, 2016m).

A range of primary, secondary and tertiary prevention interventions are delivered in primary health care settings and in particular, general practice. Booth described a role for PHNs to support general practice in the provision of immunisation, health checks, screening and the tertiary prevention of chronic disease such as diabetes (see Box 1). Harris promoted the use of the '5As' framework[2] in general practice. He argued that this framework has the potential to contribute to improving population health at the individual and population levels *"not only by better organising multidisciplinary preventive interventions within primary health care, but also by linking these interventions with more intensive community and population programs and services especially for patients with low health literacy*"(Mark Harris, 2016a).

A number of QI strategies were identified in the peer-reviewed literature and, to a lesser extent, in the policy literature and these are summarised in Box 2.

Box 2: A quality improvement package for PHNs to strengthen preventive care

- Identify barriers/enablers to preventive care in general practice (at the patient, practitioner, organisation and health system levels) (Mark Harris, 2016a)
- Link community-based life-style modification programs to general practice (Department of Health, 2016a; Mark Harris, 2016a; Hetherington, Borodzicz, & Shing, 2015)
- Promote the use of a suite of tools that support 'whole of practice' improvement measures (Upham, Janamian, Crossland, & Jackson, 2016)
- Understand and use clinical leadership to drive QI measures (Paresh Dawda, 2016; Department of Health, 2016m)
- Integrate chronic disease performance measures in general practice (Couzos, Delaney-Thiele, & Page, 2016; Oliver-Baxter, Brown, & Dawda, 2016)
- Collect and monitor performance measures for patient and population health outcomes (Couzos et al., 2016; Department of Health, 2015e, 2016m; Oliver-Baxter et al., 2016)

Expert opinion suggested that PHNs should consider barriers and enablers at the patient, practitioner and organisational levels to facilitate more systematic and proactive preventive care in general practice (Mark Harris, 2016a). For example, enablers that would improve utilisation of patient recall, decision support, and health literacy tools. The literature also indicated that PHNs are well placed to improve general practice linkages to locally available and evaluated community-based lifestyle modification programmes (the HEAL program[3] was one example of this) (Mark Harris, 2016a; Hetherington et al., 2015). Finally, PHNs should

[2] The '5As' framework (ask, assess, advise/agree, assist and arrange) "provides a way of understanding and organising the delivery of preventive care in primary health, including the role of different providers". It is used in a number of guidelines for GPs including the management of overweight and obesity and the Royal Australian College of General Practitioners' *Guidelines for preventive health activities in General Practice*. Mark Harris (2016a).

[3] Healthy Eating Activity and Lifestyle (HEAL) is an evidence-based and evaluated eight-week group-based lifestyle modification program delivered by PHC practitioners in New South Wales.

be aware of barriers and enablers in the broader health system, such as workforce and financing building blocks *"that support multidisciplinary and preventive care for a population, rather than simply reactive, episode-based care" (Mark Harris, 2016a).* This includes funding models that overcome time and cost barriers for general practitioners to invest in preventive care and to fully utilise a multi-disciplinary approach (including practice nurses).

Quality improvement initiatives that focus on a "whole of practice approach" to improve preventive care "*are more effective as they engage all practice staff to improve varying aspects of organisational and clinical practice, while recognising practice context and capacity*" (Upham et al., 2016). Upham and colleagues recommended a suite of tools for quality improvement. This suite included several that had a preventive care focus such as: the RACGP's *Putting prevention into practice (Green Book), Guidelines for preventive activities in general practice (Red Book)* and the use of the Pen Computer Systems Clinical Audit Tool for diabetes prevention and management (Upham et al., 2016).

Dawda described four levels of clinical leadership necessary to affect clinician behaviour to undertake QI measures and progress the goal of an ideal health system that is *"safe, provides the right care, in the right setting, at the right time, and supports prevention and early intervention"* (Paresh Dawda, 2016*)*. These levels include the individual clinician, microsystem (patient/clinician), organisational and macro-levels. Dawda proposed that PHNs consider *"a structured and systematic approach to engaging with clinicians"* through the development of an engagement plan and a consideration of the four levels of clinical leadership to maximise QI measures (Paresh Dawda, 2016). Government policy documents also reflected the importance of clinical leadership through the requirement of PHNs to establish GP-led Clinical Councils. However, this was not specifically linked to strengthening preventive care but to the broader objectives of PHNs to improve the efficiency and effectiveness of health services and coordination of care (Department of Health, 2016m).

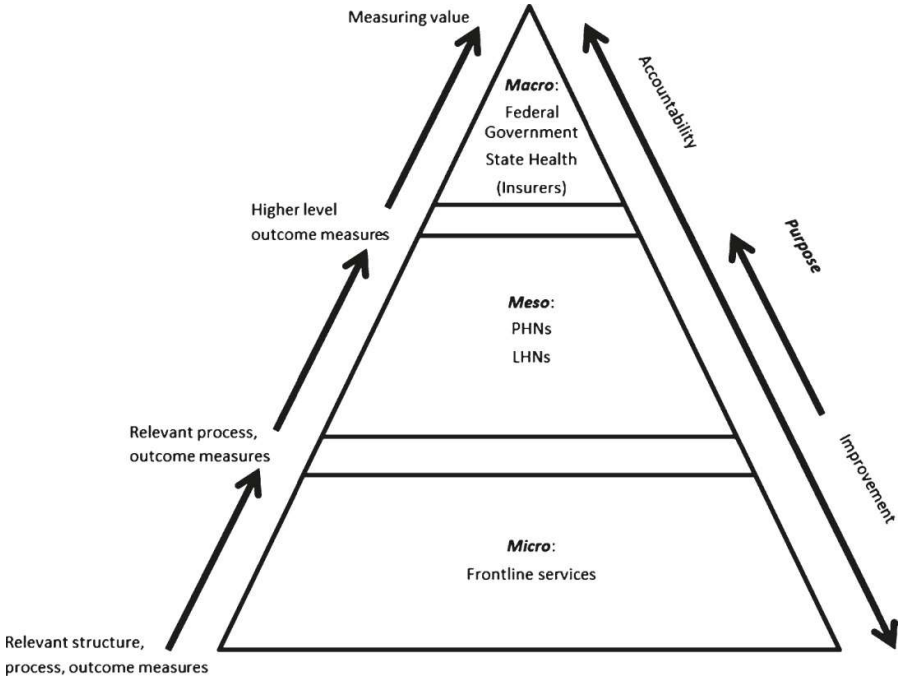
Finally, the integration of chronic disease performance measures in PHC services and PHNs' role to monitor and report performance measures was emphasised in both the peer-reviewed and policy literature. Several authors identified performance measures as a necessary strategy for improvement of health outcomes for populations and health outcomes for patient groups such Aboriginal and/or Torres Strait Islander (hereafter referred to as Aboriginal) peoples (Couzos et al., 2016; Oliver-Baxter et al., 2016). Couzos and colleagues emphasised the importance of quality improvement and performance reporting as a "*key strategy for disease prevention*" and advocated that a commitment to quality improvement and performance measures "*should be a universal feature of primary health care services providing care to Aboriginal and Torres Strait Islander peoples."* (Couzos et al., 2016). An expanded set of twenty indicators for Aboriginal and/or Torres Strait Islander peoples' health was also provided in Government policy to improve the *"effectiveness of the health system"* of which PHNs were identified as playing a key role (Department of Health, 2015e). These indicators measured disease and illness prevention outcomes for Aboriginal and/or Torres Strait Islander people across the five goal areas of: antenatal care, health checks, immunisation, smoking and diabetes (Department of Health, 2015e). The Government's performance framework for PHNs has been outlined and includes organisational, local and national indicators. The national indicators are still to be fully developed, but initially includes four national headline indicators for PHNs that measure improvements in population health. These indicators infer that PHNs will focus on supporting primary, secondary and tertiary preventive interventions in PHC (see Box 3).

Box 3: National headline indicators for PHNs (Department of Health, 2016m)

- Potentially preventable hospital admissions (*infers primary, secondary, tertiary prevention strategies*)
- Childhood Immunisation rates (*infers primary prevention strategies*)
- Cancer screening rates (*infers secondary prevention strategies*)
- Mental health treatment rates (*infers primary, secondary, tertiary prevention strategies*)

Oliver-Baxter and colleagues provided a useful framework that illustrates the linkage of performance measures at the micro-level for QI and how these cascade up to higher-level outcome measures at the macro or population level for accountability (see Figure 2). The framework shows how PHNs, which operate at the meso-level, support quality improvement in frontline services for patients and how QI measures aggregate up to the meso- and macro-levels for monitoring population outcomes and accountability.

Figure 2: Australian primary healthcare accountability and quality improvement measurement pyramid. PHNs, primary health networks; LHNs, local hospital networks.



Source: Oliver-Baxter, J., Brown, L., & Dawda, P. (2016). Should the healthcare compass in Australia point towards value-based primary healthcare? Australian Health Review. doi:10.1071/AH15104 (Oliver-Baxter et al., 2016)

Commission preventive care services

A key role for PHNs is as a commissioner of health services (Department of Health, 2016m). Through developing needs assessments and analysing health needs, PHNs plan programs of work and commission services to meet local needs and fill service gaps. Commissioning activities aim to improve patient outcomes, particularly for those at risk of poor health outcomes (Department of Health, 2016m). In the peer-reviewed literature, this role was linked to a population health approach that, in turn, is inclusive of disease and illness prevention strategies and interventions (see Box 4).

Box 4: PHN commissioning role

Peer reviewed literature

*"PHNs will also focus on the **health of the populations** within their regions, and whether some groups, when viewed as a whole, are more at risk of poor health outcomes than others, and what can be done at the regional level to address this. Regional needs assessments and commissioning roles of PHNs will be critical to this role."* (Booth et al., 2016)

*"Good commissioning depends on clear data about **population needs and priorities**, good information about service provider preferences and capabilities and good evidence about the effectiveness and efficiency of service models."*

Policy literature

"PHNs will achieve these objectives by:…commissioning health and medical/clinical services for local groups most in need, including, for example, patients with complex chronic conditions or mental illness" (Department of Health, 2016m)

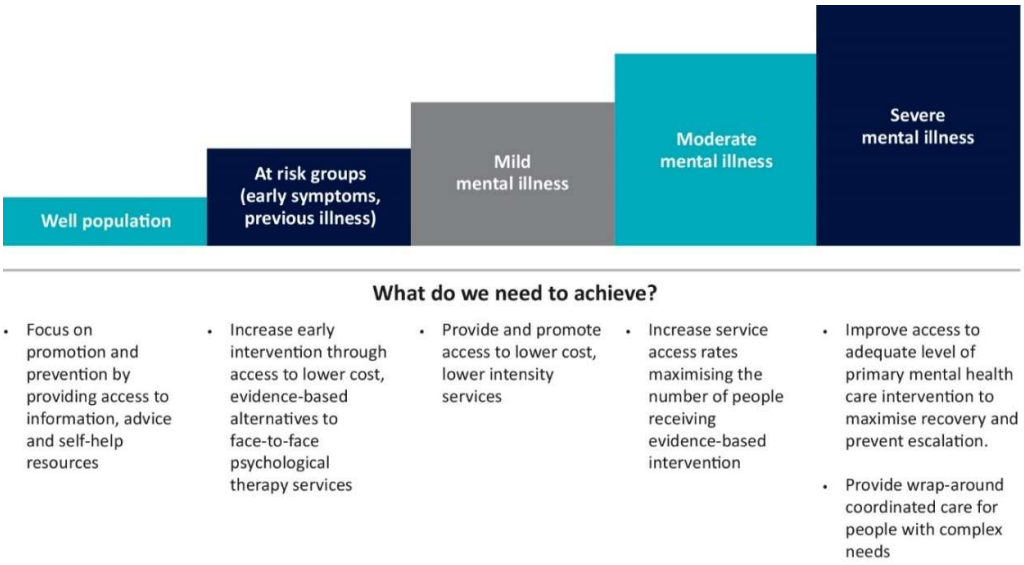
Both the peer-reviewed and policy literature emphasised that PHNs' commissioning role be directed to vulnerable groups (see Box 5) highlighting the importance of equity that, in turn, is critical for disease and illness prevention (refer to Appendix 2).

Box 5: Commissioning for vulnerable groups

- People living with complex/severe mental illness (including at risk of suicide) (Department of Health, 2015a, 2016a; McGorry & Hamilton, 2016)
- People living with a drug and alcohol addiction (Department of Health, 2016b)
- People living with chronic conditions (Department of Health, 2016m)
- People living in rural or remote areas (Department of Health, 2016m)
- Young people with mental illness (Department of Health, 2015a; McGorry & Hamilton, 2016)
- Children and young people in Out of Home Care (OOHC) (Webster, 2015)
- Aboriginal and/or Torres Strait Islander people (Couzos et al., 2016; Department of Health, 2015e)
- Disadvantaged groups (Mark Harris, 2016a)

Whilst the Commonwealth Government's programmatic guidelines for PHNs' made reference to commissioning early detection and treatment services for drug and alcohol abuse and mental illness (see Box 1) the guidelines did not explicitly frame PHNs' commissioning role through a prevention lens (Department of Health, 2016m). However, other Government policy, relating to the reform of the mental health system clearly outlined the Government's intention to *"shift the pendulum in Commonwealth expenditure away from acute illness and crises* ***towards primary prevention, early intervention*** *and a continuous pathway to recovery" (*Department *of Health, 2015a)*. PHNs' role linked to this broader reform through implementing the Government's stepped care model for primary mental health care service delivery (see Figure 3). The Government's intention that PHNs' *"embed a stepped care approach to providing a continuum of services at a regional level"* was clearly articulated in a number of policy documents (Department of Health, 2015a, 2016a). Over time, Government will provide an increased pool of programme funding to PHNs for the stepped care model. This will enable PHNs to commission services that target local needs including: *"integrated service delivery in rural areas, and for particular population groups, such as children and youth with or at risk of mental illness, people with severe and complex illness requiring clinical care coordination, women with perinatal depression, and people at risk of suicide"* (Department of Health, 2015a)

Figure 3: System changes to strengthen the stepped care model in primary mental health care clinical service delivery



Source: Department of Health (2015). Australian Government Response to Contributing Lives, Thriving Communities – Review of Mental Health Programmes and Services. Canberra, Commonwealth of Australia.(Department of Health, 2015a)

The stepped care model describes a continuum of interventions for well populations and at-risk groups through to those with mild, moderate and severe mental illness. Importantly, this model aligns with primary, secondary and tertiary prevention concepts of the disease and illness prevention continuum discussed previously and outlined in Appendix 2. Expert opinion cautioned Government reform in devolving commissioning to PHNs and implementation of the stepped care model to ensure that *"strong national functions"* are provided *"in areas such as data collection, evidence dissemination, model fidelity and*

workforce development". In particular, the authors emphasised the need to invest in programmes that work and that it "is *essential that all major aspects of program innovation are appropriately trialled and evaluated before being codified in frameworks and guidelines that shape the development of services throughout all PHNs."* (McGorry & Hamilton, 2016).

The peer-reviewed literature suggested that PHNs' commissioning role should operate through a preventive lens. For example PHNs could "*commission **new preventive programs** and services to bridge gaps that are not currently being filled*" (Mark Harris, 2016a) and commissioning *"usually involves securing activities or services that would not otherwise be provided such as allied health treatments, after-hours services, **health promotion or education**"* (Perkins, 2015). The peer-review literature did not expand on this prevention role for commissioning beyond noting that PHNs could commission prevention programs and services.

Theme 2: Lead suicide prevention

Government policy clearly articulated a role for PHNs' to lead suicide prevention; however, this theme was not present in the peer-reviewed literature. This most likely reflected the relative newness of PHNs as Commonwealth entities (and the Government's mental health reform policy) at the time of conducting the literature search in November 2016. The policy documentation inferred that PHN's would consider the full prevention continuum through applying a community and evidence-based approach in addition to commissioning suicide prevention services (see Box 6).

Box 6: Government policy for suicide prevention

*"People at risk of suicide will be better supported in their local community through a new **evidence based approach** to suicide prevention, including a **systematic** and planned, integrated and regional approach, replacing the current piecemeal approach." (Department of Health, 2015a)*

*"..a **systematic** and planned regional approach to **community based suicide prevention**, which recognises the take-up of local **evidence based strategies**. This approach will be led by PHNs who will **commission regionally appropriate activities**, in partnership with LHNs and other local organisations"* (Department of Health, 2015a)

Facilitate a community-based approach

Government policy emphasised an expanded role for PHNs' to lead a local, planned and community approach to suicide prevention (see Box 6). PHNs' role in suicide prevention was described as including a "*systematic and planned approach to community based suicide prevention"* (Department of Health, 2015a) and PHNs are required to work with LHNs and other providers to *"encourage and promote a regional approach to suicide prevention including community based activities"* (Department of Health, 2016a). The inference here is that PHNs take a multi-sectoral, primordial (social determinants) approach to suicide prevention at a local level along with performing other roles across the prevention continuum.

Build local, evidence-based solutions

Commonwealth policy commits to a population, evidence-based approach to suicide prevention with Government leading this approach at a national level (Department of Health, 2015a). In particular, the stepped care model in primary mental health care delivery is

underpinned by evidence at each level. PHNs are expected to reflect an evidence-based approach at a regional level through embedding the stepped care model in their planning and commissioning of mental health services (Department of Health, 2015a, 2016a).

Commission suicide prevention services

Through the Government's flexible primary health care funding pool, PHNs will commission suicide prevention services and mental health services to "*help ensure appropriate follow-up and support arrangements are in place at a regional level for individuals after a suicide attempt and for other people at high risk of suicide"* (Department of Health, 2016a). Services will be commissioned across the stepped care model which includes primary, secondary and tertiary prevention interventions as previously outlined (Department of Health, 2015a). Additionally, PHNs will focus on prevention of suicide in Aboriginal people through better integration of mental health services for Aboriginal people including *"social and emotional wellbeing, suicide prevention and alcohol and other drug services"* (Department of Health, 2016a).

Theme 3: Re-orientate health services to comprehensive primary health care

Re-orientating health services to comprehensive PHC was identified as a latent theme in the reviewed literature because the link to prevention was made through less overt references such as 'understanding the social determinants of health' and 'driving patient-centred care' (see Box 7). Both of these are integral components of comprehensive PHC as described in the Declaration of the Alma Ata (World Health Organanisation, 1978). As such, this theme

Box 7: Latent theme- reorientate health services to comprehensive PHC

Peer-reviewed literature

*"Even at Alma Ata, "the existing gross inequality in the health status of the people was recognised and emphasised with the goal of "providing promotive, preventive, curative and rehabilitative services". **Primary health care must be comprehensive** and incorporate an understanding of **social determinants of health**."* (Booth et al., 2016)

*"Health promotion and action on the **social determinants of health** are integral components of **comprehensive PHC**….PHNs do not appear to regard health promotion and disease prevention as being within their area of responsibility, but our study suggests that it is important that they do". (Javanparast et al., 2015)*

*"PHNs should aim for partnerships to reorient health services from reactionary care to **comprehensive primary health care**."*(Couzos et al., 2016)

Policy literature

*This Implementation Plan addresses the broad changes needed to make the health system more **comprehensive**, culturally safe and effective. It has a strong **focus on prevention**, as well as on improving the patient journey of Aboriginal and Torres Strait Islander peoples through the health system"*(Department of Health, 2015e)

*"The Government is committed to making the **comprehensive** system changes required to reform the mental health system and to improve outcomes for people with or at risk of mental illness." "..shift the pendulum in Commonwealth expenditure away from acute illness and crises towards primary prevention, early intervention and a continuous pathway to recovery"* (Department of Health, 2015a).

and sub-theme linked to the full prevention continuum through the need for PHNs to take into consideration the social determinants of health and to work to improve access to appropriate PHC, which is in itself, an underlying social determinant of health.

This theme was identified in the peer-reviewed literature, for the health system (and PHNs) generally (Booth et al., 2016; Javanparast et al., 2015) and also for PHNs' role in working with Aboriginal controlled health services to improve health outcomes for Aboriginal people (Couzos et al., 2016) (see Box 7).

Several authors emphasised the importance of comprehensive PHC that included an emphasis on disease prevention, health promotion and tackling the social determinants of health and the potential for PHNs to facilitate this (see Box 7). Javanaparast and colleagues extrapolated a number of lessons for PHNs from key informant interviews of staff from Medicare Locals (PHNs' precursors) and LHNs. This qualitative study provided evidence that Medicare Locals did develop some strategies in taking action on the social determinants of health but this was *"patchy and financially not well supported"* (Javanparast et al., 2015). The authors extrapolated their findings to lessons for PHNs. This included that PHNs work with LHNs to develop a joint understanding of one another's respective roles *"including their roles in health promotion and addressing social determinants of health as key elements of comprehensive primary health care"*. Couzos and colleagues provided a case vignette of how a partnership agreement between an Aboriginal Community Controlled Health Service and acute care services in Western Australia "*was associated with a reversal of the increasing trend in hospital emergency department attendances"* and reorientation to health promotion programs including *"healthy lifestyle programs designed around Aboriginal culture"*. The authors propose that PHNs play a key role in the establishment of partnership agreements between health service providers and that they *"should be formalised from non-binding memoranda of understanding to binding contracts ...to support a long term vision for core activity that is flexible to local priorities" (Couzos et al., 2016)*.

In the policy literature, this theme was found in Government strategies that aimed to improve Aboriginal peoples' health and in policy to improve mental health (see Box 7). For example, a number of policy documents reflected the Commonwealth Government's vision that the "*Australian health system is free of racism and inequality and all Aboriginal and Torres Strait Islander people have access to health services that are effective, high quality, appropriate and affordable" (Department of Health, 2015e)*. This vision was clearly linked to the role of PHNs (Department of Health, 2015e, 2016l). In relation to mental health, the Government's mental health reform agenda to *"shift the pendulum in Commonwealth expenditure away from acute illness and crisis towards primary prevention, early intervention and a continuous pathway to recovery"* was also linked to the role of PHNs (Department of Health, 2015a).

Drive patient-centred care

The role of PHNs in driving 'patient-centred care' was a latent theme linked to re-orientating health services to comprehensive PHC and this theme was identified in both the peer-reviewed and policy literature. Underlying this theme was the principle of improving access to appropriate care, a key social determinant of health, especially for those people who are more likely to experience poor health outcomes. Attributes of patient-centred care included improving coordinated, accessible, culturally safe, and co-designed care (see Box 8). These attributes were encompassed in the Commonwealth Government's catch phrase for PHNs of *"improving coordination of care to ensure patients receive the right care in the right place at the right time"* (Department of Health, 2016m) which was widely cited across the policy and peer-reviewed literature.

Box 8 Latent theme, 'drive patient-centred care'

Peer-reviewed literature

"PHCOs are well positioned to work with primary care practices of all sizes and capacity to develop competencies to provide ***comprehensive, coordinated, and accessible patient-centred*** *care that meets quality, safety, and efficiency outcomes—all attributes associated with high performing primary care or medical homes."* (Takach, 2016)

"Through existing and better targeted additional investments, PHNs can offer Aboriginal and Torres Strait Islander people some hope towards reforming ***access to and quality of primary health*** *care in their localities, but only if programs and systems can better fit in with* ***community needs****"* (Couzos et al., 2016)

"Efforts to reduce the high hospitalisation rates of Aboriginal and Torres Strait Islander (hereafter referred to as Aboriginal) people will require PHNs to build ***formal participatory structures*** *to support best practice service models. Comprehensive primary health care can then be shaped by the* ***needs of the community*** *rather than by ad hoc factors or reactions to financial incentives and health care funding arrangements".* (Couzos et al., 2016)

Policy literature

"The establishment of PHNs provides an opportunity to build connections across the health system to further improve ***access*** *for Aboriginal and Torres Strait Islander people to* ***appropriately targeted care that is effective and culturally appropriate****. And importantly, to ensure that there is full and* ***ongoing participation by Aboriginal and Torres Strait Islander people*** *and organisations in all levels of decision-making affecting their health needs."* (Department of Health, 2016l)

"When fully implemented, a comprehensive stepped care approach will ensure people ***get the right clinical service at the right level and at the right time****, linked to other non-health supports as required.* (Department of Health, 2015a)

The peer-reviewed literature identified the principles of culturally safe care and building participatory structures for Aboriginal people and organisations as critical for PHNs to improve access to appropriate PHC for Aboriginal people (Couzos et al., 2016). Takach associated the attributes of patient-centred care such as comprehensive, coordinated, and accessible care *"with high performing primary care or medical homes"* which PHCOs in Australia and the United States were well positioned to support (Takach, 2016).

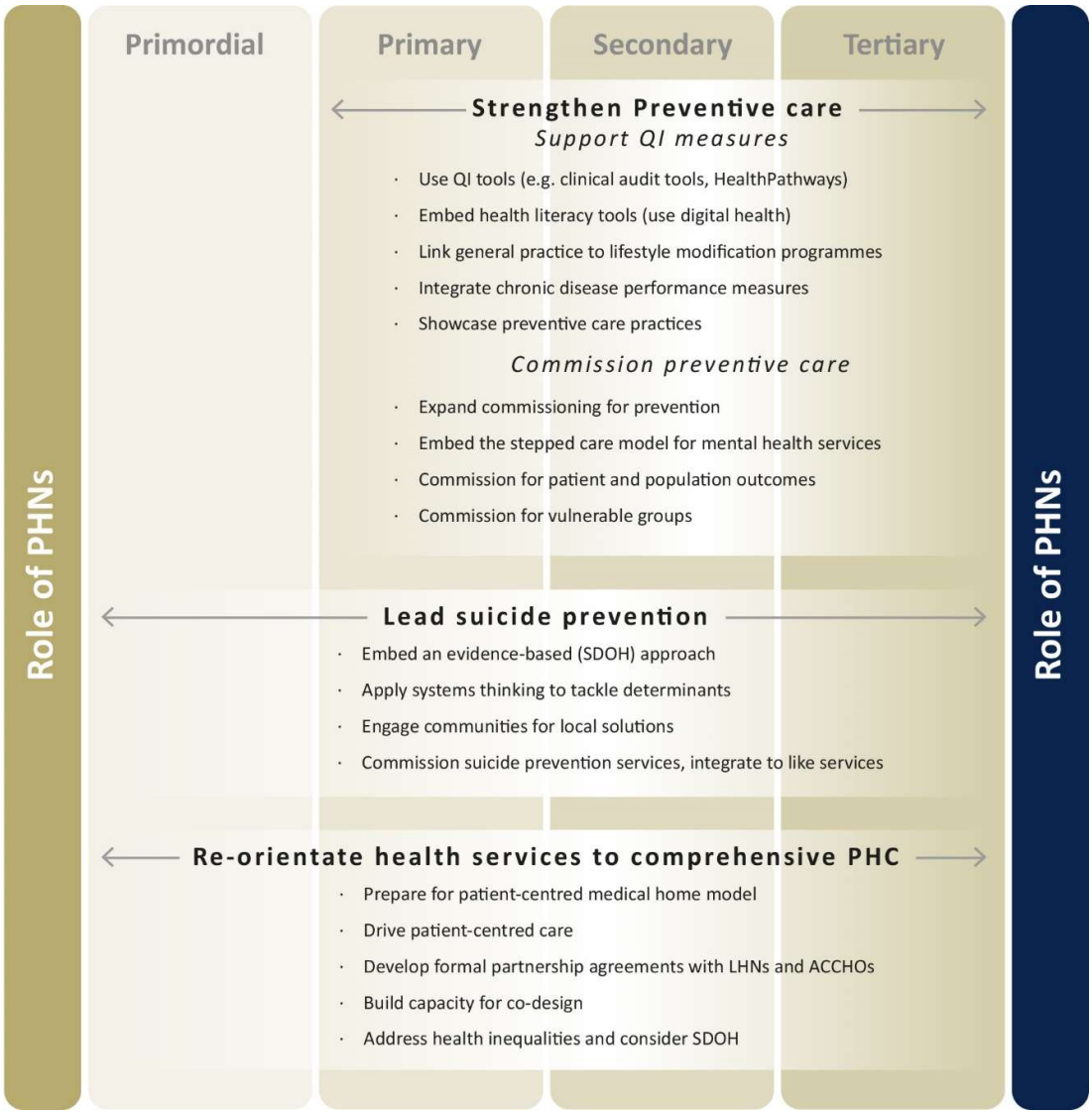
In the policy literature, PHNs commissioning role was most clearly linked to the goal of improving access to appropriate care, particularly in commissioning services for a range of vulnerable groups such as Aboriginal people and commissioning mental health services (Department of Health, 2015e, 2016a, 2016m). Several Government policy documents emphasised the importance of participation of Aboriginal people and organisations at all levels of decision making to improve access to culturally appropriate care and this was an important principal for PHNs (Department of Health, 2015e, 2016h, 2016l). Consumer participation (or co-design) was also emphasised as an important principle for PHNs when commissioning mental health services so that *"people with lived experience of different types of mental illness will have an opportunity to contribute to planning and service design"* (Department of Health, 2015a).

Discussion

Implications for PHNs

This qualitative evidence synthesis of the peer-reviewed and Australian policy literature has shown that PHNs have key roles to play in disease and illness prevention and that these roles operate at varying levels across the prevention continuum (see Figure 4). We found that PHNs' role in strengthening preventive care spans primary, secondary and tertiary prevention levels via their quality improvement and commissioning roles to support effective preventive care, especially in general practice. However, to strengthen this role an evidence-based and strategic approach is needed. PHNs' role in suicide prevention potentially includes activities across the full continuum of prevention through an evidence-based, 'whole of community' approach. Finally, underlying the reform of the health system towards comprehensive PHC, is the role that PHNs play in understanding the social determinants of health and to drive patient-centred care to enable individual's to access "*the right care, at the right time and right place*"; a key social determinant of health and thus primordial prevention activity.

Figure 4: A potential tool for PHNs to develop and communicate their role in prevention



Our analysis of the peer-reviewed literature suggests that prevention could be positioned within quality improvement activities such as improving the quality and reach of primary prevention interventions like immunisation and a 'screening and high-risk' approach to chronic disease prevention. Our analysis also suggests that PHNs have a responsibility to support general practice to incorporate more preventive action. For example, by identifying barriers and enablers and delivering a focussed QI package, PHNs could play a key role in enabling general practitioners to take a more systematic and proactive approach to preventive care. This package could include initiatives that:

- utilise a full understanding of clinical leadership to drive quality improvement measures;
- promote the use of quality improvement tools that take a 'whole of practice' approach to preventive care (e.g. RACGP guidelines, clinical audit tools, HealthPathways);
- embed evidence based health literacy tools (e.g. patient prevention summaries and reminder sheets) (Oliver-Baxter & Brown, 2014);
- localise prevention referral pathways to community-based lifestyle modification programmes (e.g. HealthPathways)

- showcase the attributes of a preventive care practice (e.g. PHN continuing professional development programme and communication strategies); and
- monitor and report chronic disease performance measures in general practice.

Proactive and systematic preventive care may involve improved identification and recall of patients at high risk of chronic disease, a multi-disciplinary team approach to care, and referral to a range of effective community-based lifestyle interventions (Mark Harris, 2009, 2016a). Although PHNs play an important facilitation role, this change will also require Government strategies to tackle broader health system barriers such as time, cost and workforce barriers to preventive care (Mark Harris, 2016a). The Government's current trial of the health care home model and subsequent funding reforms may prove to be important broader system enablers in the future (Consumers Health Forum of Australia et al., 2016; Paresh Dawda, 2015; Department of Health, 2016d). The development of a national primary care performance framework has been identified as a gap in the Australian health care system to enable monitoring and reporting of chronic disease outcomes (Swerissen et al., 2016). These frameworks are a feature of the primary care landscape in the United Kingdom and United States. Furthermore, in the United Kingdom *"funding been systematically tied to performance and outcomes for chronic disease for catchment populations"* through their Quality Outcomes Framework (Duckett & Griffiths, 2016).

The recently released National Strategic Framework for Chronic Conditions provides a high-level vision and guidance for a focus on preventive care (Australian Health Minister's Advisory Council, 2017). The Framework identifies the need for a *"suitably trained, resourced and distributed"* health workforce as a phase one outcome for all Australian Governments to develop a workforce that provides *"efficient, effective and appropriate care for people with chronic conditions"* (Australian Health Minister's Advisory Council, 2017). Workforce strategies to equip health professionals to more *"effectively deliver healthy life-style medicine"* in primordial, primary and secondary settings are being advocated for internationally (Arena et al., 2016). They call for a *"paradigm shift in academic training"* and propose the development of a new discipline, the *"Healthy Lifestyle Practitioner (HLP)"* as a means to train health professionals and then scale-up a competent workforce to deliver a range of prevention interventions. This has implications for PHNs given workforce is one of six priority areas for PHNs.

We found that the Government's stepped care model for mental health clearly framed PHNs' role in commissioning mental health services across primary, secondary and tertiary prevention but this was not the case for other chronic diseases. Commissioning is a complex function and the PHN commissioning role in Australia is in its early evolution (P. Dawda, True, & Wells, 2016). Expansion of commissioning to a range of initiatives across the prevention continuum such as primary prevention initiatives for other chronic diseases could be a focus for PHNs in the future but is subject to Government direction and further investment (Mark Harris et al., 2015). For example, PHNs could commission digital health literacy tools for use in general practice and community-based lifestyle modification programmes. However, commissioning will continue to be constrained by requirements and priorities set by funding bodies, Government policy and wider health system features (P. Dawda et al., 2016; Gardner et al., 2016).

This study found that Government policy clearly articulates a lead role for PHNs in the prevention of suicide and this is framed in Government mental health policy that seeks to shift the focus from crisis intervention to one that focusses on prevention and early intervention (Department of Health, 2015a). Furthermore, the Government's policy requires

PHNs to take a 'whole of community' and systems approach to suicide prevention. The Government has commissioned an evidence-based resource for PHNs and the resource outlines nine strategies for a systems approach to suicide prevention (Ridani et al., 2016). These strategies span the continuum of prevention. In addition to improving health services for people at risk of suicide, they include broader primary prevention strategies (and potentially primordial strategies) for schools and communities including restricting access to the means of suicide. In Victoria, this approach is supported through the State Government's Suicide Prevention Framework and Place Based Suicide Prevention Trials (Department of Health & Human services, 2016).

Finally, we found that both Government policy and the peer-reviewed literature acknowledge the need to reorientate health services to comprehensive PHC to enable the health system to more effectively tackle the burden of chronic disease and illness. This includes a greater focus on prevention, an understanding of the social determinants of health and patient-centred care. This is not a novel finding of this study and this objective has been espoused previously by the Alma Ata Declaration for primary health care in 1978 and the Ottawa Charter for Health Promotion in 1986 (First International Conference on Health Promotion, 1986; World Health Organanisation, 1978). What this study has found is that PHNs, as meso-level entities in the Australian health system, have clear roles to play in this reform. Their key roles in commissioning and improving quality in PHC have a strong focus on driving patient-centred care that ultimately seeks to improve access to appropriate health services, a key social determinant of health. PHNs are well placed to act as 'change agents' for prevention by working with other enabling organisations such as LHNs and ACCHOs to help reorientate health services to comprehensive PHC.

Conclusions

In order to tackle the large burden of chronic disease and illness, both current Australian Government policy and recently published peer-reviewed literature identify the need to reorientate health services to comprehensive PHC. This includes a greater focus on prevention, an understanding of the social determinants of health and need to drive patient-centred care. Our study found that PHNs, as meso-level entities in the health system, have key roles to play in this reform. Additionally, key roles for PHN's were identified to lead prevention initiatives in some project areas such as suicide prevention and to strengthen preventive care in PHC services through quality improvement activities. There is potential for PHNs to focus their efforts in prevention through the development of an integrated prevention strategy based on the themes found in this study and the new National Strategic Framework for Chronic Conditions. This would enable strategic allocation of resources across PHNs' core functions that in turn, will enable a strengthened disease prevention focus in frontline services. Additionally, through stakeholder engagement, PHNs will be able to identify key innovation projects that could be trialled that strengthen 'healthy lifestyle medicine'. This activity will value-add to PHNs' future work in supporting the implementation of new models of care such as the Health Care Home. We provide a potential tool that could assist PHNs in strengthening and communicating their prevention role (Figure 4).

The complexity of factors driving Australia's chronic disease epidemic requires strategies that focus on addressing both the causes of incidence of disease in populations and a high-risk approach to protect individuals (Rose, 2001). It is important that all three levels of government consider their respective roles in effective primordial prevention action that

tackles the social determinants of health and reduces health inequities in populations (Moodie et al., 2016). This will greatly enhance primary, secondary and tertiary prevention interventions delivered by frontline health services to individuals. It is promising that the recently released National Strategic Framework for Chronic Conditions provides a *"focus on prevention for a healthier Australia"* and acknowledges the role of the social and economic determinants of health. However, the Framework is light-on detail and makes only cursory reference to the role of government regulatory and legislative changes as important prevention strategies for populations. Clearly, more work will be needed across all levels of government to realise the vision that "*All Australians live healthier lives through effective prevention and management of chronic conditions"* (Australian Health Minister's Advisory Council, 2017).

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Appendices

Appendix 1: Chronic disease model and determinants

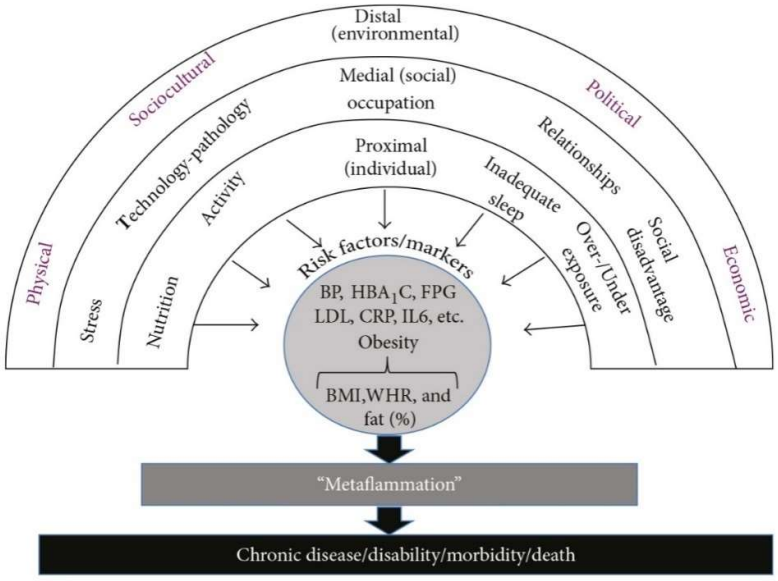
Table 1: Relationship between selected chronic conditions and determinants

	Behavioural				Biomedical		
Conditions	Tobacco smoking	Physical inactivity	Risky alcohol consumption	Poor diet	Obesity	Hypertension[a]	High blood fats
Ischaemic heart disease	✓	✓		✓	✓	✓	✓
Stroke	✓	✓	✓	✓	✓	✓	✓
Type 2 diabetes	✓	✓		✓	✓		
Kidney disease	✓	✓		✓	✓	✓	
Arthritis	✓[b]	✓[c]			✓[c]		
Osteoporosis	✓	✓	✓	✓			
Lung cancer	✓						
Colorectal cancer		✓	✓	✓	✓		
Chronic obstructive pulmonary disease	✓						
Asthma	✓						
Depression		✓	✓		✓		
Oral health	✓		✓	✓			

(a) High blood pressure.
(b) Relates to rheumatoid arthritis.
(c) Relates to osteoarthritis.
Note: The relationships shown above are between the causation (development) of the chronic diseases. They do not to reflect the determinant's role (affect) on management of the chronic disease.
Source: adapted from AIHW 2008a.

Source: Australian Institute of Health and Welfare, *Risk factors contributing to chronic disease*. 2012, AIHW: Canberra (Australian Institute of Health and Welfare, 2012)

Figure 5: The link between "anthropogens", obesity, metaflammation, and chronic disease. While obesity is often a correlate, this does not always imply causality in chronic disease aetiology.



Source: Egger, G. and J. Dixon (2014). "Beyond Obesity and Lifestyle: A Review of 21st Century Chronic Disease Determinants." BioMed Research International 2014: 12. (Egger & Dixon, 2014)

Appendix 2: Defining disease and illness prevention

The word 'prevention' is commonly used within the health sector and its use may mean different things to different people. The World Health Organisation (WHO) defines disease prevention as comprising *"… measures not only to prevent the occurrence of disease, such as risk factor reduction, but also to arrest its progress and reduce its consequences once established."* (World Health Organisation, 1998). Disease prevention strategies are often conceptualised across a continuum from primordial, primary, secondary and tertiary (see Table 2) and can be applied across the natural history of disease (or before disease occurs). (Association of Faculties of Medicine of Canada; Oliver-Baxter & Brown, 2014)

- ***Primordial prevention*** refers to societal and organisation change that improves population health through influencing the social determinants of health and reducing health inequities. The focus of primordial prevention is to inhibit the more distal social and environmental determinants of increased risk to disease/ill health. Primordial prevention strategies are often complex, requiring a wide range of government departments to develop healthy public policies. They are often more radical and far reaching but can be difficult and take time to achieve. Examples include housing, transport, economic and welfare policies that promote population health and the use of regulation and pricing to effect consumption of harmful products such as sugar, tobacco, gaming and alcohol.

- **Primary prevention** reduces the likelihood that a disease or disorder will develop in the first place through altering behaviours that can lead to disease or injury, increasing resistance to disease or injury should exposure occur and preventing exposures to hazards that cause disease or injury. Some examples include: community programs that promote physical activity, education programs that encourage mothers to breastfeed, vaccination programs to protect against infectious diseases, subsidising the cost of mouth guards to community sports groups, water fluoridation and legislation to ban or control hazardous products (e.g. asbestos, tobacco and use of seat belts in cars).

- **Secondary prevention** aims to reduce the impact of a disease or injury that has already occurred by interrupting, preventing or minimising the progression of a disease or disorder at an early stage. For example, a general practitioner (GP) refers a patient who is over the recommended weight and body mass index (BMI) and has been identified as pre-diabetic to a dietitian and an exercise physiologist for a diet and exercise regime. The GP suggests the patient involves other family members in the changed diet and exercise regime to increase motivation. Other examples of secondary prevention include the early detection and treatment of cancer (e.g. bowel, breast, cervical cancer screening programs) drug and alcohol addiction and mental illness.

- **Tertiary prevention** focuses on halting the progression of damage already done from an ongoing illness/injury to help patients improve their function, quality of life and life expectancy as much as possible. For example, a GP refers a patient with chronic morbid obesity for gastric band surgery and to a local dietitian and exercise physiologist for information and support to maintain health and maximise benefits. Other examples include rehabilitation programs for patients with chronic disease such as coronary heart disease, chronic obstructive pulmonary disease, and support groups that allow members to share strategies for healthy living.

Table 2: The Continuum of prevention

	Primordial	**Primary**	**Secondary**	**Tertiary**
What it is	Actions to minimise future hazards to health	Seeks to prevent the onset of specific diseases	Procedures that detect and treat pre-clinical pathological changes to control disease progression	Seeks to soften the impact caused by disease on individual's function, longevity and quality of life
Mechanism	Focuses on the social ecology of disease and the determinants of health to prevent exposure to risk for populations	Reduces incidence of disease by addressing risk factors or by enhancing resistance	Screening before disease symptoms appear	Actions once a disease has developed and been treated in its clinical phase
Example	• Improving the quality of roads to decrease accidents • Regulation and pricing of harmful products such as tobacco, alcohol, sugar and asbestos • Health in all policies- i.e. housing, transport, economic and welfare policies • Access to universal health care	• Systematic immunisation to reduce infectious diseases • Nutrition and exercise counselling • Mass media campaigns for transport safety • Water fluoridation • Seat belt legislation • Drink driving legislation • Reducing speed limits • Air quality legislation	• Bone mineral density testing to screen for osteoporosis • Assessment of risk of diabetes for over 40 year olds • Cancer screening (breast, cervix, bowel) • Mental health screening and referral • Testing for hearing loss and advice concerning protection against noise in industrial workers • Health checks	• Referral to a specialist diabetes clinic • Rehabilitation programs for chronic disease (e.g. coronary heart disease, stroke, chronic obstructive airways disease • Relapse prevention in mental health • Good glycaemic control in diabetics
Target	Whole population	Whole population Selected groups Healthy individuals	Asymptomatic individuals with early disease or established high risk factors	Patients with established disease

Source: Modified from Oliver-Baxter, J. and L. Brown. Primary health care and preventive care. Research Roundup, 2014. (Oliver-Baxter & Brown, 2014) and the National Public Health Partnership (2006). The Language of Prevention. Melbourne, NPHP (National Public Health Partnership, 2006)

Appendix 3: Methodology in detail

Peer-reviewed literature

We followed the four-phase PRISMA review process (Moher et al., 2009) and applied our search strategy to the following bibliographic databases in December 2016: Medline Complete, CINAHL Complete, PSychINFO, Health Policy Reference Centre, Health Source-nursing/Academic edition, Embase and Informit (40 databases from the following subjects were included: Health, Indigenous Peoples and Social Sciences). Repositories for systematic reviews and theses (& dissertations) were not searched on the basis that PHNs were relatively new organisations at the time of this study and not enough time had elapsed for these to be completed and published. The search terms and parameters are outlined in Table 3.

Table 3: Concepts, search terms and limits used to search the peer-reviewed literature.

Concept	Search terms	Limits:
1. Primary Health Networks	"primary health net?work*" OR "primary health network*" OR "primary health care network*" OR "primary health care net?work*" "primary care net?work*" OR "primary care network" OR "primary care organi?ation*" OR "primary health care organi?ation*"	01/01/2014 to 31/12/2016 English language
2. Australian context	Austral*	
3. Disease and illness prevention	prevent* OR "health promot*" OR "primary health care" OR "public health" OR "health improve*" OR "population health" OR "health protection" OR immuni* OR "cancer screen*" OR "determinant* of health" OR "health determinant*" OR "health outcome*"	

After duplicate records were deleted from the record set, two auditors independently screened and reviewed the identified records using the exclusion criteria outlined in Box 9. The final record set was uploaded into the NVivo Plus 11 software package for thematic analysis. A description of each paper can be found in Table 4, Appendix 4.

Box 9: Exclusion criteria used for the peer-reviewed literature

1. Study/article not set in the Australian health care context
2. Efficacy of prevention at the micro-level only and no meso-level (i.e. PHN) role articulated
3. PHN acronym refers to a different entity (i.e. not Primary Health Network)
4. PHN author only
5. Medicare Local or Division of General Practice, no reference to PHNs
6. Primary health care organisation generic, no reference to PHNs

7. PHN referenced as a research setting/partner only
8. No prevention role for PHNs articulated

Government policy documentation

We searched the Commonwealth Government's health website (health.gov.au) for government policy documentation in April 2017. The following two search strategies were conducted:

1. A manual search of the Commonwealth Government website for PHNs (http://www.health.gov.au/PHN). This search was limited to the "Tools and Resources" section (i.e. website tab) as upon examination, this section was deemed to contain higher-level documentation possibly pertaining to government policy. The other five tabs contained more operational information such as: "About", "Maps", "Data", "Links" and "Contacts"
2. Two 'Google advanced searches' of the Government's health website (health.gov.au) were conducted with the following terms:
   - "primary health networks" site:health.gov.au filetype:pdf
   - "primary health network" site:health.gov.au filetype:pdf

We limited this search to English language, Australia, and Portable Document Format (PDF) file types. Date parameters were not specified as the inclusion of the search terms "primary health network/s" provided the relevant time parameters. This strategy meant that documents were included from the date of the Commonwealth Government's review of Medicare Locals and intention to create Primary Health Networks in 2014 to the date of the search (April 2017).

Once duplicate records were excluded from the final record set, two independent auditors screened the records according to our definition of 'government policy documents'[4] (see Box 10). Word files, text on webpages and records with any broken Uniform Resource Locator (URL) links were excluded.

Box 10: Definition of 'government policy document

'Government policy documents' were defined as those which were clearly supported by Commonwealth legislation and governmental structures and with which government institutions and organisations (i.e. the Department of Health) can be held accountable for.

It included white papers, green papers, final policy statements/strategies and their implementation plans, national agreements, budget papers/statements, formal Government response to reviews and inquiries, annual reports, corporate plans and Government programme guidelines. It excluded commissions, inquiries, pre-election commitments, consultation/discussion papers, advisory reports, submissions to Government, resource documents, training and development, PowerPoint presentations, media releases and Ministerial speeches. Only current policy documents were included therefore any documents that had been clearly superseded by an updated policy document were excluded from review on the basis that they did not reflect current policy.

[4] Personal communication Rebecca Lindberg and Maria Duggan, Australian Health Policy Collaboration

Two auditors independently screened the eligible policy documents for inclusion into the thematic analysis. Documents were included into the thematic analysis if both auditors assessed that a disease and illness prevention role for PHNs was articulated or inferred in the document. The final record set was uploaded into the NVivo Plus 11 software package for thematic analysis. A description of each document can be found in Table 5, Appendix 4.

Thematic analysis

The final data corpus was loaded into the software program NVivo Plus 11 for coding and thematic analysis. The source classification for each record was assigned to one of the following two types:

1. peer-reviewed source, or
2. policy literature source

The thematic analysis was limited to that subset of data relating to the research question rather than a rich description of the entire data corpus (Braun & Clarke, 2006). A theoretical approach, which is analyst driven and 'top down', rather than an inductive approach was taken to identify themes (Braun & Clarke, 2006). This was deemed the most suitable given we aimed to identify themes relating to the specific research question and this question was conceptualised in an existing disease and illness prevention paradigm (refer to Appendix 2). Themes were identified at the latent (or interpretative) level rather than the semantic or explicit level which allowed us to identify broader assumptions and meaning in the data.

Ethics approval was not required given that the methodology did not involve human subjects but analysis of publicly available documents accessible via the internet.

Appendix 4: Supplementary results (summary list of papers reviewed)

Peer-reviewed literature

A total of 132 papers were identified in the peer-reviewed literature search and were imported into an EndNote database. The results of the four-phase process are outlined in the PRISMA flow diagram (Figure 6). Seventy-six papers remained for screening once 50 duplicates and 17 'grey' papers were removed. The title and abstract of these 76 papers were screened and 51 papers were excluded based on pre-determined eligibility criteria leaving 25 papers s for full-text review. A further 11 papers were excluded after this process, resulting in fourteen papers eligible for inclusion into the QES. All of these papers were classified as qualitative evidence: nine were expert opinion, four were empirical studies and one was classified as a review.

The 17 papers that were subsequently identified as originating from grey sources rather than peer-reviewed sources included three government reports, five news items and nine-opinion piece (see Box 11).

Box 11: Papers found from grey literature sources

- Australian Institute of Health and Welfare- government publication (2 records)
- Australian Medicine-national news publication from the Australian Medical Association (AMA) (5 records)
- Health Voices-journal of the Consumer Health Forum but it is not a peer-reviewed publication (6 records)
- Lamp- campaigning magazine of the New South Wales Nurses and Midwives' Association (NSWNMA) which is the registered union for all nurses and midwives in New South Wales (1 record)
- National Health Performance Authority- previous government authority (1 record)
- NSW Doctor- AMA (NSW)-news publication, not peer-reviewed (1 record)
- The QLD Nurse- publication of The Queensland Nurses' Union (1 record)

Figure 6: PRISMA Flow diagram

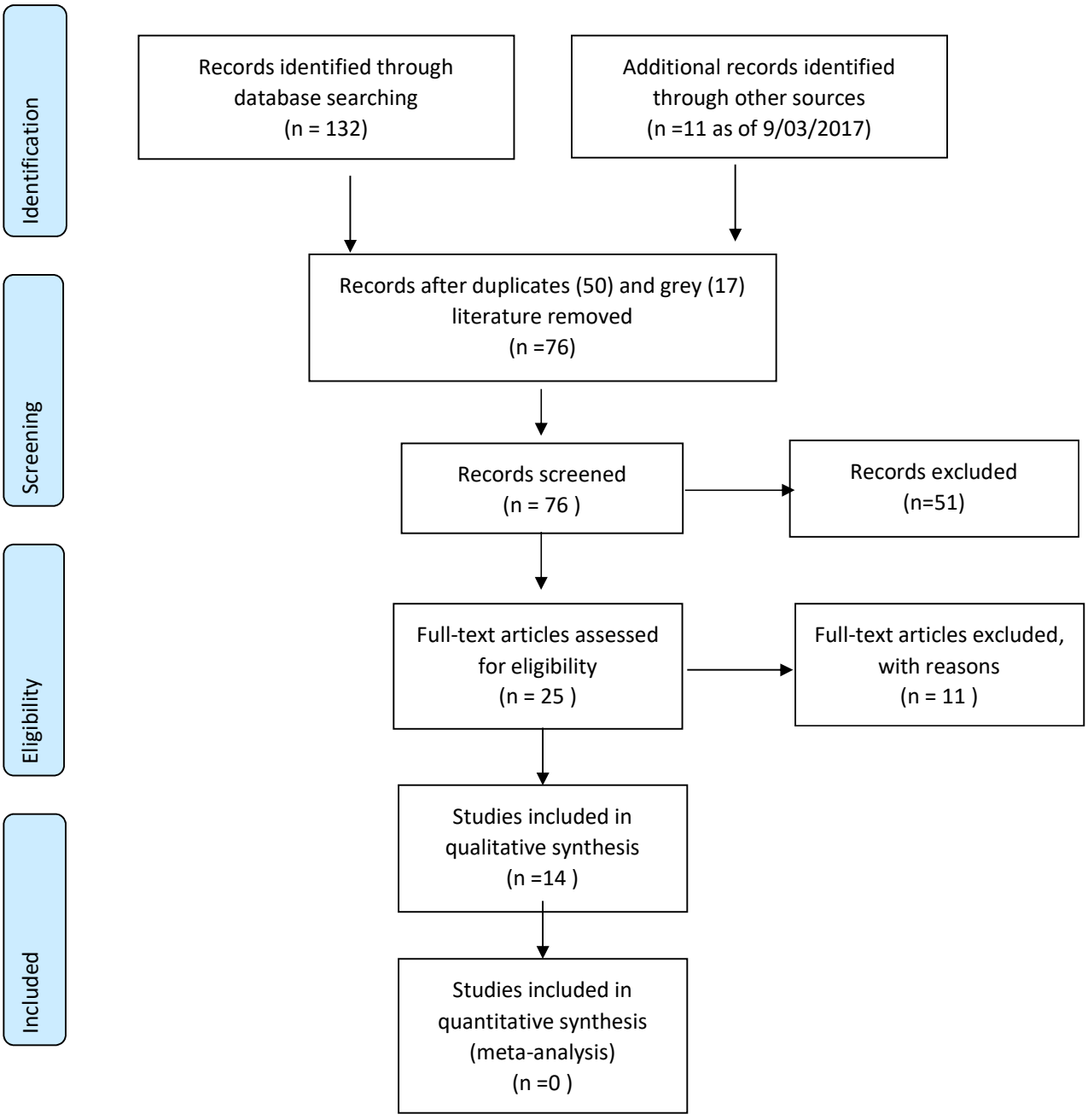


Table 4 provides an overview of the peer-reviewed articles included in the analysis.

Table 4: Summary of peer-reviewed papers included in the thematic analysis

Author (reference)	Type of paper (study design)	Themes (sub-themes): PHNs' role in disease & illness prevention	Explicit and/or implicit reference to prevention role?
1. Booth, M., et al. (Booth et al., 2016)	Expert opinion	• Strengthen preventive care in PHC (support quality improvement measures, commission preventive care services) • Reorientate health services to comprehensive PHC (drive patient-centred care)	Both
2. Briggs, D. S. (Briggs, 2014)	Expert opinion	• No clear themes	Implicit
3. Couzos, S., et al. (Couzos et al., 2016)	Expert opinion	• Reorientate health services to comprehensive PHC (drive patient-centred care) • Strengthen preventive care in PHC (support quality improvement measures)	Both
4. Dawda, P. (Paresh Dawda, 2016)	Expert opinion	• Strengthen preventive care in PHC (support quality improvement measures)	Implicit
5. Harris, M. (Mark Harris, 2016a)	Expert opinion	• Strengthen preventive care in PHC (support quality improvement measures, commission preventive care services)	Explicit
6. Harris, M.(Mark Harris, 2016b)	Expert opinion	• Strengthen preventive care in PHC	Explicit
7. Hetherington, S. A., et al. (Hetherington et al., 2015)	Empirical study (mixed methods programme evaluation)	• Strengthen preventive care in PHC	Both

Author (reference)	Type of paper (study design)	Themes (sub-themes): PHNs' role in disease & illness prevention	Explicit and/or implicit reference to prevention role?
8. Javanparast, S., et al. (Javanparast et al., 2015)	Empirical study (qualitative study design)	• Reorientate health services to comprehensive PHC	Both
9. McGorry, P. D. and M. P. Hamilton (McGorry & Hamilton, 2016)	Expert opinion	• Strengthen preventive care in PHC (commission preventive care services)	Implicit
10. Oliver-Baxter, J., et al. (Oliver-Baxter et al., 2016)	Expert opinion	• Strengthen preventive care in PHC (support quality improvement measures)	Implicit
11. Perkins, D. (Perkins, 2015)	Expert opinion	• Strengthen preventive care in PHC (commission preventive care services)	Both
12. Takach, M. (Takach, 2016)	Empirical study (qualitative study design)	• Reorientate health services to comprehensive PHC (drive patient-centred care)	Explicit
13. Upham, S. J., et al. (Upham et al., 2016)	Empirical study (mixed methods)	• Strengthen preventive care in PHC (support quality improvement measures)	Implicit
14. Webster, S. M. (Webster, 2015)	Review	• Strengthen preventive care in PHC (support quality improvement measures, commission preventive care services)	Both

Policy documentation

The screening and eligibility process of documents found from searching the Department of Health website (health.gov.au) yielded the following results:

- 231 records found
- 45 duplicate records excluded
- 186 records screened by two independent auditors
- 12 records excluded (5 broken URL links, 6 webpages, 1 Word document)
- 146 records excluded as they did not satisfy the definition of 'government policy documentation'
- 28 records remained and were included in the thematic analysis

A list of the types of documents that satisfied our definition of 'government policy documents' is shown in Box 12.

Box 12: Types of Commonwealth Government documents found from searching health.gov.au

Excluded document types	Included document types
Reviews (of legislation, programs, services)	Policy statements (none found)
Frameworks	White papers (none found)
Parliamentary inquiries	Green papers (none found)
Speeches (Ministers, Secretary of Departments)	Strategies
Position papers	Plans
Discussion papers	Programme guidelines (& principles)
Consultation papers	National agreements (none found)
Advisory reports to Government	Budget statements/papers
Submissions to Government	Annual reports
Communiques	Corporate plans
Media releases	Government response to reviews/inquiries
Resource documents (evidence, guides, FAQs, circulars, newsletters)	
Power Point presentations	
Media releases	
Maps	
Transcripts	
Terms of reference	
Health data/indicators	

Table 5 provides an overview of the themes and types of policy documents included in the analysis.

Table 5: Summary of policy documents included in the thematic analysis

Title (reference)	Type of policy document	Themes (sub-themes): PHNs' role in disease & illness prevention	Explicit and/or implicit reference to prevention role?
1. Department of Health National Bowel Cancer Screening Program Primary Health Care Engagement Strategy 2016-2020, Australian Government. (Department of Health)	Strategy/plan	• Strengthen preventive care in PHC (support QI measures: integrate population health outcomes)	Explicit
2. Department of Health Annual report 2013-2014. Outcome 5 primary care. Canberra, Australian Government. (Department of Health, 2014a)	Legislated government report	• No clear themes	Implicit
3. Portfolio Budget Statements 2014-15 Budget Related Paper No. 1.10 Health Portfolio. Section 2 – Department Outcomes – 5 Primary Health Care. Canberra, Australian Government. (Department of Health, 2014d)	Legislated government report	• Support preventive care in PHC (support QI measures: integrate population health outcomes)	Implicit
4. Health Portfolio Annual Deregulation Report 2014. Canberra, Australian Government. (Department of Health, 2014b)	Legislated government report	• No clear themes	Implicit
5. Implementation Plan under the National Framework for Action to Promote Eye Health and Prevent Avoidable Blindness and Vision Loss. Canberra, Australian Government. (Department of Health, 2014c)	Strategy/plan	• Strengthen preventive care in PHC	Explicit
6. Portfolio Budget Statements 2015-16 Budget Related Paper No. 1.10 Health Portfolio. Canberra, Australian Government. (Department of Health, 2015g)	Legislated government report	• Strengthen preventive care in PHC (support QI measures: integrate population health outcomes)	Implicit
7. Department of Health Corporate Plan 2015-16. Canberra, Australian Government. (Department of Health, 2015d)	Legislated government report	• Strengthen preventive care in PHC (support QI measures: integrate population health outcomes)	Implicit

Title (reference)	Type of policy document	Themes (sub-themes): PHNs' role in disease & illness prevention	Explicit and/or implicit reference to prevention role?
8. Indigenous Australians' Health Programme. Programme Guidelines. Canberra, Australian Government. (Department of Health, 2015f)	Guidelines & principles	• Reorientate health services to comprehensive PHC (drive patient-centred care)	Implicit
9. Department of Health Annual Report 2014-2015. Canberra, Australian Government. (Department of Health, 2015c)	Legislated government report	• Strengthen preventive care in PHC (support QI measures: integrate population health outcomes)	Implicit
10. Australian National Diabetes Strategy 2016–2020. Canberra, Australian Government. (Department of Health, 2015b)	Strategy/plan	• Strengthen preventive care in PHC	Implicit
11. Taking action to combat ice. Canberra, Australian Government. (Department of Health, 2015h)	Strategy/plan	• Strengthen preventive care in PHC (commission preventive care services)	Implicit
12. Implementation Plan for the National Aboriginal and Torres Strait Islander Health Plan 2013–2023. Canberra, Australian Government. (Department of Health, 2015e)	Strategy/plan	• Reorientate health services to comprehensive PHC (drive patient-centred care) • Strengthen preventive care in PHC (support QI measures: integrate population health outcomes)	Both
13. Australian Government Response to Contributing Lives, Thriving Communities – Review of Mental Health Programmes and Services. Canberra, Commonwealth of Australia. (Department of Health, 2015a)	Strategy/plan	• Strengthen preventive care in PHC (commission preventive care services, support QI measures: integrate population health outcomes) • Lead suicide prevention (facilitate a community-based approach, build local evidence-based solutions, commission suicide prevention services)	Both

Title (reference)	Type of policy document	Themes (sub-themes): PHNs' role in disease & illness prevention	Explicit and/or implicit reference to prevention role?
		• Reorientate health services to comprehensive PHC (drive patient-centred care)	
14. Primary Health Networks. Grant programme guidelines. Canberra, Australian Government. (Department of Health, 2016m)	Guidelines & principles	• Strengthen preventive care in PHC (support QI measures: integrate population health outcomes)	Implicit
15. Annexure A1 – Primary Mental Health Care Canberra, Australian Government. (Department of Health, 2016a)	Guidelines & principles	• Lead suicide prevention (facilitate a community-based approach, build local evidence-based solutions, commission suicide prevention services) • Strengthen preventive care in PHC (commission preventive care services)	Both
16. Annexure A2 – Drug and Alcohol Treatment Services. Canberra, Australian Government. (Department of Health, 2016b)	Guidelines & principles	• Strengthen preventive care in PHC (commission preventive care services)	Implicit
17. Budget 2016-17. Healthier Medicare – trial of Health Care Homes. Canberra, Australian Government. (Department of Health, 2016d)	Legislated government report	• No clear themes	Implicit
18. Portfolio Additional Estimates Statements 2015-2016 Health Portfolio. Canberra, Australian Government. (Department of Health, 2016j)	Legislated government report	• No clear themes	Implicit
19. Portfolio Budget Statements 2016-17 Budget Related Paper No. 1.10 Health Portfolio. Canberra, Australian Government. (Department of Health, 2016k)	Legislated government report	• Lead suicide prevention (facilitate a community-based approach) • Strengthen preventive care in PHC	Implicit

Title (reference)	Type of policy document	Themes (sub-themes): PHNs' role in disease & illness prevention	Explicit and/or implicit reference to prevention role?
20. Department of Health Corporate Plan 2016-17. Canberra, Australian Government. (Department of Health, 2016f)	Legislated government report	• Support preventive care in PHC (support QI measures: integrate population health outcomes)	Implicit
21. Department of Health Annual Report 2015-2016. Canberra, Australian Government. (Department of Health, 2016e)	Legislated government report	• Strengthen preventive care in PHC (commission preventive care services, integrate population health outcomes)	Implicit
22. Drug and Alcohol Programme Guidelines. Canberra, Australian Government. (Department of Health, 2016g)	Guidelines & principles	• Strengthen preventive care in PHC	Implicit
23. Mental Health Nurse Incentive Program Guidelines. Canberra, Australian Government. (Department of Health, 2016i)	Guidelines & principles	• Strengthen preventive care in PHC	Implicit
24. Budget 2016-17. Flexible Funds Transition. Canberra, Australian Government. (Department of Health, 2016c)	Legislated government report	• No clear themes	Implicit
25. Integrated Team Care activity Implementation Guidelines 2016-2017 to 2017-18. Canberra, Australian Government. (Department of Health, 2016h)	Guidelines & principles	• Reorientate health services to comprehensive PHC (drive patient-centred care)	Both
26. Primary Health Networks (PHNS) and Aboriginal Community Controlled Health Organisations (ACCHOs)-Guiding principles, Australian Government. (Department of Health, 2016l)	Guidelines & principles	• Reorientate health services to comprehensive PHC (drive patient-centred care) • Strengthen preventive care in PHC (support QI measures: integrate population health outcomes)	Both
27. Department of Health and Department of Agriculture (2015). Australia's First National	Strategy/plan	• Strengthen preventive care in PHC (support QI measures)	Implicit

Title (reference)	Type of policy document	Themes (sub-themes): PHNs' role in disease & illness prevention	Explicit and/or implicit reference to prevention role?
Antimicrobial Resistance Strategy 2015–2019. Canberra, Australian Government. (Department of Health & Department of Agriculture, 2015)			
28. Implementation Plan: Australia's First National Antimicrobial Resistance Strategy 2015–2019. Canberra, Australian Government. (Department of Health & Department of Agriculture and Water Resources, 2016)	Strategy/plan	• Strengthen preventive care in PHC (support QI measures)	Implicit

Appendix 5: Study strengths and weaknesses

A number of strengths and weakness of the study methodology warrant consideration when interpreting the results of this study. A key strength of the study was the employment of systematic search and screening techniques of both the peer-reviewed and policy literature. This ensured that the search strategy was thorough, transparent and robust. Internal selection bias was minimised by utilising two independent researchers (SB & CB) to screen and assess each document's eligibility for inclusion into the study. Each researcher used pre-determined exclusion/inclusion criteria to make this assessment and a consensus approach was used to resolve any discrepant results. Although only one researcher (SB) conducted the coding and thematic analysis, a second researcher (CB) reviewed the results and checked the initial themes against the theoretical framework resulting in refinement of the themes through this process. This process, thus, provided an element of quality control to minimise internal bias arising in the thematic analysis.

PHNs were established in July 2015, and therefore were relatively new entities at the time that this study was initiated in early 2016. This meant that only limited time had been available for studies to be developed, conducted and published which accounts for the small number of eligible empirical studies (four out of fourteen) included into this study. Furthermore, a search for theses and systematic reviews was not conducted for this same reason. Nine of the fourteen studies included in this study were expert opinion. The findings from this study thus reflect the policy environment and primarily, expert opinion, at this early stage of PHNs existence (i.e. the period of 2014-April 2017). It is anticipated that the role of PHNs in disease in illness prevention will evolve over time as Government policy changes and evolves, and PHNs themselves consolidate and mature as PHCOs. The exclusion of the grey literature also limits the comprehensiveness of views and potentially the themes identified in this study. Our findings reflect expert opinion and a small number of empirical studies and are therefore more likely to reflect 'middle-of-the-road opinion'. Inclusion of the grey literature would potentially provide more breadth and depth of views and evidence, resulting in additional themes identified, or a refinement of themes found in this study.

This study was limited to policy documents published on the Department of Health website (health.gov.au) and that were published in PDF or Word format. There is a small possibility that additional policy documents relating to the research question were available on other Government websites that were not searched and thus omitted from this study. In our opinion, this limitation had minimal impact on the findings of this study since no additional policy documents were identified by the research team, which included health managers from a Victorian PHN who were knowledgeable of the PHN policy context.

Finally, we did not search the 31 PHN websites for relevant publications to examine how PHNs' perceived and operationalised their role in disease and illness prevention. Further research is needed to examine this including the use of triangulation techniques such as key informant interviews and/or surveys.