

Primary care initiatives focused on the secondary prevention and management of chronic pain: a scoping review of the Australian literature

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Abstract. The aim of this scoping review was to identify initiatives focused on the secondary prevention and management of chronic pain in Australian primary care to understand options available to Primary Health Networks and to identify evidence gaps. The Medline, EMBASE, Cumulative Index to Nursing and Allied Health Literature and Cochrane databases, as well as relevant websites, were searched for eligible records published from 2007 to 2018. Initiative characteristics and outcomes evaluated were extracted and synthesised. In all, 84 initiatives from 167 published and grey literature records were identified, including: (1) consumer initiatives that aimed to improve access to multidisciplinary care, health literacy and care navigation ($n = 56$); (2) health professional capacity building initiatives that aimed to ensure health professionals are skilled and provide best-practice evidence-based care ($n = 21$); and (3) quality improvement and health system support initiatives ($n = 7$). Evidence gaps were found relating to initiatives addressing the secondary prevention of chronic pain, those targeting vulnerable and regional populations, health professional capacity building initiatives for all primary health care providers and quality improvement and system support initiatives. Addressing evidence gaps related to effectiveness, cost-effectiveness and implementation should be the focus for future chronic pain initiatives in primary care settings.

Additional keywords: early intervention, healthy people programs, primary health care.

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Introduction

The social and economic burden of chronic pain is significant and worsening (Henderson *et al.* 2013; Gonzalez-Chica *et al.* 2018). It is estimated that 15.4% of Australians aged ≥ 15 years report living with chronic pain, with 3.24 million Australians living with chronic pain in 2018 (Deloitte Access Economics 2019). This has been estimated to cost A\$73.2 billion annually, including A\$48.3 billion lost in productivity, A\$12.2 billion in health system costs and A\$12.7 billion in other financial costs, such as informal care, aids and modifications (Deloitte Access Economics 2019). For individuals, this equates to significant effects on social, mental, physical and financial well-being, because chronic pain is associated with poorer health, earning potential and quality of life, as well as disability (Kirby *et al.* 2013; Mathew *et al.* 2013; McNamee and Mendolia 2014).

Given the increasing and forecast future burden (annual cost of A\$215.6 billion by 2050), health system issues contributing to this burden warrant urgent attention (March *et al.* 2014; Deloitte Access Economics 2019). Issues surrounding access to timely and appropriate care are largely contributing to the burden of chronic pain, with evidence of care being provided that is inconsistent with guidelines (Holliday *et al.* 2013; Ramanathan *et al.* 2017), long waiting periods for patients to be seen in pain clinics (Hogg *et al.* 2012) and increased opioid use for chronic pain (Karanges *et al.* 2016).

The 2010 National Pain Strategy to come out of the National Pain Summit, held in Canberra (ACT, Australia) in 2010, identified six key priority areas for action to address these health system issues (PainAustralia 2010). Although there has been steady progress towards most of these priority areas, there has

been less success in primary care compared with tertiary-level services, with ongoing limited access to interdisciplinary care in this setting (PainAustralia 2014; HealthConsult 2017). This is more evident in some jurisdictions, with geographical variation in access to care, perceived access barriers to care and the use of opioids (Peacock *et al.* 2015, 2016).

Primary Health Networks (PHNs) are well positioned to address local population health needs and act as change agents in the Australian healthcare system (Anstey *et al.* 2018). The objectives of the PHN program are to: (1) increase the efficiency and effectiveness of medical services; and (2) improve coordination of care to ensure patients receive the right care in the right place at the right time (Australian Government Department of Health 2018). PHNs achieve these objectives by commissioning health services to meet local patient service needs, delivering sector support activities for the primary care workforce and supporting the integration of health services through referral pathways and secure sharing of patient information (Australian Government Department of Health 2018).

Building on the previous Medicare Local reform, the PHN program has seen the introduction of commissioning, which involves a cycle of undertaking strategic planning, procuring services, monitoring and evaluation (Australian Government Department of Health 2015). A review of the learnings from international experiences with commissioning has emphasised the importance of having ‘a strong evidence base that can help support planners and decision makers in their quest to allocate resources efficiently and effectively’ (Robinson *et al.* 2016).

The Medical Research Future Fund provides the opportunity to link academics with PHNs to support the use of evidence in the conduct of their strategic planning, procurement and evaluation activities (Anstey *et al.* 2018). In line with the research objective of the National Pain Strategy to identify information gaps related to the Strategy’s objectives (PainAustralia 2010), the present review was conducted to map the evidence base for initiatives focused on the secondary prevention and management of chronic pain in primary care.

The strategic actions for pain-related research outlined in the National Pain Strategy highlight the need for a comprehensive evaluation of community interventions for chronic pain management, including whether they improve patient outcomes and are cost-effective (PainAustralia 2010). In alignment with this, PHNs consider the Quadruple Aim framework (Bodenheimer and Sinsky 2014) to guide decision making (Australian Government Department of Health 2018), which concerns the effectiveness, cost-effectiveness and acceptability (including patient and clinician experience) of activities to optimise health system performance. There is also a need to understand the feasibility of implementing initiatives, including the barriers and enablers to implementation, given the complex contexts of health service delivery systems (Australian Government Department of Health 2016).

Given that, to the best of our knowledge, a comprehensive review of initiatives focused on improving the secondary prevention and management of chronic pain does not exist, a scoping literature review is the most appropriate approach as a first step to understanding the size, variety and characteristics of the available evidence, as well as to identify gaps (Tricco *et al.* 2018).

The methods for this scoping review have followed the reporting requirements of the Preferred Reporting Items for

Systematic Reviews and Meta-Analysis: extension for Scoping Reviews (PRISMA-ScR; Tricco *et al.* 2018) and the methodological framework for scoping reviews provided by the Joanna Briggs Institute (Peters *et al.* 2015).

The aim of this scoping review was to map the evidence related to initiatives focused on the secondary prevention and management of chronic pain in the primary health care (PHC) setting. The objectives were to identify: (1) the types of initiatives that have been implemented to improve the secondary prevention and management of chronic pain in primary care in Australia; (2) the extent to which initiatives have been evaluated; and (3) gaps in the evidence.

Methods

Search strategy

This review included searches of both peer-reviewed and the grey literature. The Medline, EMBASE, Cumulative Index to Nursing and Allied Health Literature (CINAHL) and Cochrane bibliographic databases were searched using Medical Subject Heading (MeSH) terms related to ‘pain’, ‘primary healthcare’ and ‘Australia’ to identify records published in English from January 2007 to April 2018. A public health academic liaison librarian was consulted in the development of this search strategy, and the search was limited to the past decade to ensure the initiatives identified were relevant to the current Australian primary healthcare context.

Grey literature sources included published records identified on websites of relevant key organisations and networks related to the prevention and management of pain and relevant pain-related conditions, which were searched in September 2018. Additional records were identified throughout the remainder of 2018 from reviewing the reference lists of the included papers, searching for additional literature on identified initiatives and consulting an expert project steering committee that was provided with a list of identified initiatives and corresponding literature sources to review for accuracy and completeness. The complete search strategy, including a list of websites and experts consulted is provided in Appendices S1–S3, available as Supplementary Material to this paper.

Inclusion and exclusion criteria

The inclusion criteria relate to the primary objective of this review, namely identifying health system-level initiatives focused on the secondary prevention and management of chronic pain in primary care.

Participants with acute, subacute or chronic non-cancer pain were included in the review. The context of this review is the primary healthcare setting; that is, health care provided in the community for people making an initial approach to a medical practitioner or clinic for advice or treatment. The settings include general practice, allied health providers, workplaces, community health centres or any other setting where patients may make initial contact in relation to the prevention, assessment or management of pain. Typical presentations with pain to primary care, as outlined by Henderson *et al.* (2013), include for osteoarthritis, back problems, other musculoskeletal conditions (e.g. bursitis, tendonitis, fibromyalgia, osteoporosis) and neurological conditions (e.g. migraine, peripheral neuropathy and

neuralgia). This review excludes evidence concerning initiatives that are solely implemented in the hospital (inpatient and outpatient), specialist or residential aged care settings.

The concept examined in this review was health system-level initiatives that had been implemented in a real-world setting, with the exclusion of clinical studies relating to individual PHC provider clinical decision making. The focus of this review was to provide evidence about initiatives that could be implemented by PHNs, including consumer, health professional capacity building and health system support initiatives (Australian Government Department of Health 2018).

There was no limit placed on the type of study design included in the review, provided the initiative described met the inclusion criteria. One author (PW) conducted the title and abstract screening, with a second author (SDM) screening a random 5% sample ($n = 202$) to discuss and resolve any discrepancies; however, no discrepancies were found. A full-text review of included papers was then conducted to confirm the records met the inclusion criteria, before categorising initiatives and extracting data. The questions used to screen the literature are provided in Appendix S4. All papers finally included in the review were checked for appropriateness of inclusion by two authors (PW, SDM).

Data extraction and synthesis

Included records exported into an Excel (Microsoft, Redmond, WA, USA) spreadsheet were reviewed to record the name and a description of the health system initiative identified so that initiatives could be categorised and multiple records concerning the same initiative could be grouped together.

Data extracted included Australian jurisdiction of implementation, remoteness (metropolitan or regional), target age group, involvement of Aboriginal or Torres Strait Islander or culturally and linguistically diverse (CALD) communities, specified pain-related conditions (e.g. arthritis), target phase of the pain continuum (acute pain, subacute pain or chronic pain), health-care providers involved and modes of delivery.

Evaluation information was also extracted, including whether initiatives had experimental or observational evidence and whether measures of initiative effectiveness, costs, acceptability (provider and/or consumer experience and satisfaction) and/or feasibility of implementation were assessed. One author (PW) extracted data into an Excel spreadsheet, with a second author (DS) checking data extracted for a random 50% sample ($n = 42$) of included initiatives to discuss and resolve any discrepancies in data extraction; however, no discrepancies were found. This review did not include any critical appraisal of included records because the aim was to map the available literature, regardless of quality, as has been acknowledged as appropriate for scoping reviews (Peters *et al.* 2015).

The authors adapted the six goals of the National Pain Strategy (Painaustralia 2010) to develop three broad categories of initiatives including: (1) consumer initiatives that aimed to improve access to multidisciplinary care, consumer health literacy and care navigation; (2) health professional capacity building initiatives that aimed to ensure health professionals are skilled and provide best-practice evidence-based care; and (3) health system support initiatives that aimed to improve quality improvement processes and support health systems.

Data were synthesised under each of these three categories to describe the landscape of chronic pain initiatives in Australian primary care and to identify gaps concerning initiative characteristics, study type and outcomes evaluated.

Results

Selection of sources of evidence

This review identified a total of 85 initiatives from 168 literature sources after screening a total of 4156 records, as summarised in Fig. 1.

Characteristics of results of individual sources of evidence

Due to the large number of initiatives identified, characteristics have not been reported here for each individual initiative. A descriptive summary of each initiative, with citations and the outcomes evaluated, is provided in Appendix S5.

Synthesis of results

Table 1 outlines the main features of the initiatives identified. Approximately two-thirds were consumer initiatives that aimed to improve access to multidisciplinary care, consumer health literacy and care navigation ($n = 56$; 66%), one-quarter were health professional capacity building initiatives that aimed to ensure health professionals provide best-practice evidence-based care ($n = 21$; 25%) and seven (8%) were quality improvement and health system support initiatives. Table 2 outlines the number and proportion of initiatives for which evaluation information was identified, including the type of study conducted and the outcomes of interest that were evaluated.

Discussion

Chronic pain initiatives

Most of the consumer initiatives identified in this review aligned with best-practice chronic pain management (Kamper *et al.* 2015), involving a multidisciplinary group of healthcare providers. The most common pain-related conditions targeted were arthritis (primarily osteoarthritis) and low back pain, reflecting the current Australian disease burden (March *et al.* 2014). A reasonably even spread of metropolitan and regionally implemented initiatives was identified, but more research is needed that examines initiatives to improve access to care through the use of telehealth and digitally delivered care, such as online pain management programs to increase access in rural areas where there is a shortage of primary care health professionals trained in pain management (Slater *et al.* 2014) and for patients with low mobility who are unable to get to programs (Ackerman *et al.* 2013). Although the evidence supporting the effectiveness of online pain management programs is strong (Bennell *et al.* 2017; Dear *et al.* 2018), there is a need for more implementation research to understand how these programs can be implemented in routine care. As a result of the COVID-19 pandemic, programs and services are being reconfigured to online modes, providing an opportunity to understand implementation considerations of these modes (Eccleston *et al.* 2020).

Other areas for improvement include the need for more research about consumer initiatives that specifically address

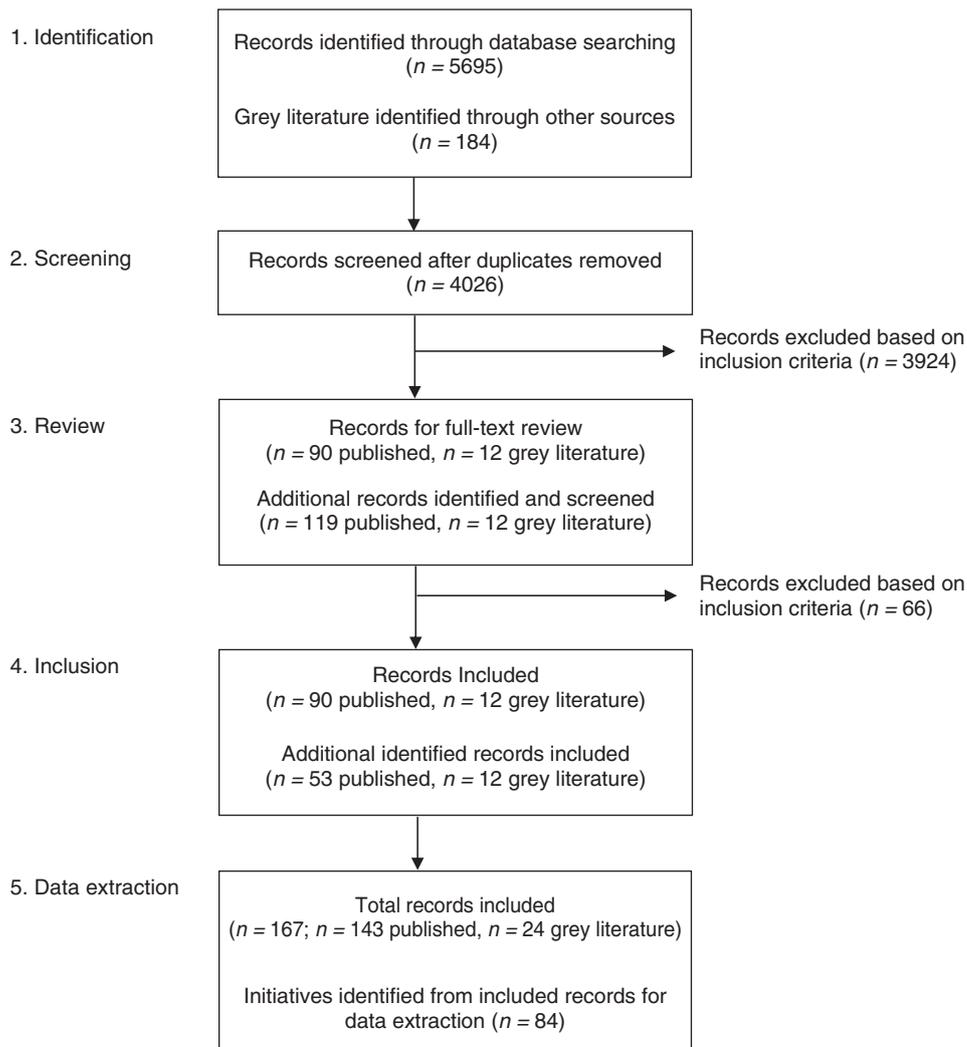


Fig. 1. Flow chart outlining the identification, screening and inclusion of records and identified initiatives.

the care needs of CALD and Aboriginal and Torres Strait Islander communities. With only nine initiatives being identified that consider these groups, addressing the cultural appropriateness of all programs should be a priority to address the burden of pain (Lin *et al.* 2017).

The review also highlighted a paucity of evidence to support health professional capacity building initiatives. Furthermore, most of the health professional capacity building initiatives identified targeted GPs only. There is a need for further research targeting a broader range of primary care providers across Australia (such as GPs, physiotherapists, psychologists, practice nurses, community pharmacists, occupational therapists and other allied health practitioners), as supported by the goals of Australia's National Pain Strategy (PainAustralia 2010) and the National Strategic Action Plan for Pain Management (Australian Government Department of Health 2019).

Overall, most papers focused on the management of chronic pain rather than the secondary prevention of chronic pain. It is widely established that modifiable social and psychological factors increase the risk of acute pain progressing to chronic

pain (Glare *et al.* 2019; Nicholas *et al.* 2019a). To date, most trials of the clinical use of risk factor measures have used self-report screening scales aimed at identifying primarily psychological risk factors. In the UK, the nine-item StartBack scale (Hill *et al.* 2008) has been found to identify patients with back pain (64% with pain >3 months) attending primary care who are likely to have long-term disability (at 6 months). In Australia, recent evidence with the 10-item Swedish Orebro Musculoskeletal Pain Screening Questionnaire – Short-Form (OMPSQ-SF) administered to recently (1–3 weeks after injury) injured workers (Nicholas *et al.* 2019b) was shown to predict those likely to have delayed recovery (measured by the important metric of lost time from work over a 2-year follow up). Although there is some evidence on the implementation of screening tools and risk-based interventions (Nicholas *et al.* 2019a), there is a need for more research in the broader primary care setting.

Evaluations and evidence gaps

Most studies (67% of initiatives evaluated) were observational. Of the experimental research studies included in this review,

Table 1. Features of the initiatives identified

Unless indicated otherwise, data show the number of initiatives for each specific group. AS ankylosing spondylitis; ATSI, Aboriginal and Torres Strait Islander; CALD, culturally and linguistically diverse; MSK, musculoskeletal; n.a., not applicable; NSW, New South Wales; OA osteoarthritis; QI, quality improvement; RA rheumatoid arthritis; SA, South Australia; WA, Western Australia

	Initiatives		
	Consumer (<i>n</i> = 56)	Health professional capacity building (<i>n</i> = 21)	QI and health system support (<i>n</i> = 7)
Setting	14 National, 8 multistate, 14 NSW, 8 Victoria, 7 WA, 2 Queensland, 2 SA, 1 Tasmania	5 National, 3 multistate, 4 NSW, 3 Victoria, 5 WA, 1 Queensland, 1 SA	5 National, 2 multistate
Region	12 Metropolitan, 10 regional, 13 metropolitan and regional, 21 no specific region	7 Metropolitan, 4 regional, 3 metropolitan and regional, 7 no specific region	2 Metropolitan and regional, 5 no specific region
Target age	38 Adults, 1 younger people, 17 no specific age group	n.a.	n.a.
No. (%) studies focusing on vulnerable populations (ATSI/CALD)	2 (4)/5 (9)	2 (10)/0 (0)	n.a.
Pain condition	14 Arthritis (9 OA, 2 RA, 1 AS, 2 not specified), 15 back pain, 6 other or multiple MSK conditions, 5 other conditions, 16 not condition specific	3 Arthritis (1 OA, 2 RA), 9 back pain, 3 other or multiple MSK conditions, 6 not condition specific	7 Not condition specific
Pain continuum focus ^A	7 Secondary prevention, 40 management, 9 both or not specific	4 Secondary prevention, 6 management, 11 both or not specific	0 Secondary prevention, 1 management, 6 both or not specific
Providers	27 Multidisciplinary, 7 physiotherapists, 5 GPs, 3 pharmacists, 3 other allied health, 11 other	5 Multidisciplinary, 2 physiotherapists, 8 GPs, 3 pharmacists, 1 practice nurses, 1 other allied health, 1 other; 6 targeting student providers	1 Multidisciplinary, 3 GPs, 1 pharmacists, 2 other; 1 targeting student providers
Primary mode of delivery ^B	31 Face-to-face, 14 online, 7 telephone, 2 print, 1 telehealth, 1 TV/radio	15 Face-to-face, 4 online, 2 print	1 Face-to-face, 6 online

^APain continuum focus refers to secondary prevention (acute/subacute pain) versus the management of chronic pain.

^BSome initiatives involved secondary modes of delivery, such as telephone follow-up or supporting printed information.

Table 2. Evaluation details of the initiatives identified

Data are given as *n* (%). QI, quality improvement

	Initiatives		
	Consumer (<i>n</i> = 56)	Health professional capacity building (<i>n</i> = 21)	QI and health system support (<i>n</i> = 7)
Evaluation identified	42 (75)	14 (67)	2 (29)
Study type: experimental (vs observational)	16 (38)	3 (21)	0 (0)
Outcomes evaluated ^A			
Effectiveness ^B	34 (81)	14 (100)	2 (100)
Costs ^C	7 (16)	3 (21)	0 (0)
Description of costs	2	2	0
Analysis of costs	5	0	0
Cost-effectiveness	0	1	0
Acceptability	21 (50)	4 (29)	1 (50)
Feasibility	14 (33)	4 (29)	1 (50)

^AInitiatives may have evaluated multiple outcomes. Values in parentheses are the percentage of evaluated initiatives.

^BOutcome measures including general health, general function, quality of life, pain (severity, self-efficacy, catastrophising), physical measures (e.g. range of motion, joint stiffness, muscular strength and endurance), work-related outcomes (work status, return to work rates, lost time from work), appropriateness of care, consumer and health professional knowledge, confidence, attitudes, beliefs and changes in behaviour (self-reported, simulated or actual concerning medication use and prescribing, health care utilisation and referral, and patient participation in exercise) and reach of community-level interventions (e.g. number of website visits).

^CDescriptions of costs are reports on costs associated with implementation (costs and cost savings); analyses of costs are reports on costs associated with implementation compared with a similar intervention or control group; and cost-effectiveness refers to economic evaluations of both costs and initiative outcomes compared with a control group.

most (16/19) measured effectiveness using outcomes measuring overall function, general health, quality of life, pain, physical measures (e.g. range of motion, joint stiffness), work-related outcomes, appropriateness of care and the knowledge, confidence, attitudes, beliefs and behaviours of consumers and health professionals.

Fewer studies ($n = 10$) reported on costs. Of these, only one initiative provided a cost-effectiveness economic evaluation (Mortimer et al. 2013); however, the planned analyses of patient-level outcomes was not completed due to insufficient patient recruitment. The other studies identified included either a description of the implementation costs or cost savings (e.g. due to reduced hospital admissions, compensation claiming, requests for medical investigations and medication prescriptions; Broadhurst et al. 2007; Buchbinder et al. 2008; Zuo et al. 2011; Joypaul et al. 2019) or described and then compared these costs to a similar program or control group (Davies et al. 2011; Daly 2013; Moi et al. 2016; Nicholas 2016; Scuffham et al. 2019).

Approximately half the experimental research studies reported on acceptability (10/19) and feasibility of implementation (10/19). There is a need for more research that examines the implementation considerations, contextual factors and acceptability and feasibility of chronic pain initiatives implemented in real-life primary care settings. This is supported by Buchbinder et al. (2015), who highlight that implementation research is underutilised in fields concerning chronic pain, including the workplace setting (Main et al. 2016).

The wider need for better implementation and evaluation of initiatives aimed at improving the care of patients with chronic pain is well acknowledged, with frameworks and strategies available to support the process (Briggs et al. 2016a, 2016b). Future efforts should focus on applying these frameworks, with ongoing high-quality evaluation to broaden the evidence base to allow for better informed decisions about future investment and scale-up of primary care chronic pain initiatives.

Limitations

Because this was a scoping review, no assessment of risk of bias or critical appraisal of included studies was conducted. The authors acknowledge that the National Strategic Action Plan for Pain Management (Australian Government Department of Health 2019) was released while this project was being completed, but confirm that using this plan instead of the National Pain Strategy (PainAustralia 2010) would not have changed the initiative categories created to report the review findings. It is also important to note that to inform PHN decision making on commissioning, this review has not considered any existing international or hospital outpatient service evidence.

Conclusion

This review identifies initiatives to improve the secondary prevention and management of chronic pain in Australian primary care to inform options available to PHNs. There is evidence to support a range of consumer, health professional and health system support initiatives. However, there is a paucity of experimental research studies to provide evidence of effectiveness, and few studies have evaluated costs or cost-effectiveness. There is also a need for implementation research

that examines the acceptability and feasibility of chronic pain initiatives implemented in real-life primary care settings. This review also highlights the following evidence gaps: initiatives that address the secondary prevention of chronic pain; relevant initiatives that target vulnerable and regional populations and improve access to care; relevant health professional capacity building initiatives for GPs and other PHC providers; and relevant quality improvement and health system support initiatives.

Conflicts of interest

The authors declare no conflicts of interest.

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