

Health care system factors influencing primary healthcare workers' engagement in national cancer screening programs: a qualitative study

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In Australia, an estimated 48,099 individuals died from cancer in 2020.¹ Bowel cancer is the second deadliest cancer, with an estimated 15,494 new cases diagnosed and 5,322 deaths.¹ Breast cancer is the most common cancer diagnosed in Australian women, with an estimated 19,974 new cases diagnosed and 3,031 deaths.¹ Whilst the incidence of cervical cancer in Australia (6.3 per 100,000 people) is nearing the World Health Organization's 2030 elimination target (4.0 per 100,000 people),² substantial inequalities exist for certain population groups, such as Aboriginal and Torres Strait Islander peoples.³ For all diseases, early detection through Australia's National Bowel Cancer Screening Program (NBCSP), the BreastScreen Australia program, and the National Cervical Screening Program (NCSP) have successfully reduced associated mortality and morbidity.⁴ Despite this success, participation rates across the three programs have remained relatively stable over the past 10 years. The most recent data from the programs suggest that only 44% of the eligible population were participating in the NBCSP, 55% in BreastScreen Australia, and 46% in the NCSP.⁵

Primary health care is generally the first contact a person has with Australia's health system.⁶ On average, Australians see their general practitioners nearly six times per year.⁷ Primary healthcare workers (PHCWs), including general practitioners (GPs), practice nurses (PNs) and practice managers (PMs) have different levels of direct involvement in the three cancer screening programs.

Abstract

Objective: This study aimed to explore factors across the environment, organisation and care team levels of the health care system that influence the engagement of primary healthcare workers (PHCWs) in Australia's national cancer screening programs.

Methods: A cross-sectional qualitative study involving semi-structured interviews with PHCWs – general practitioners (n=10), practice nurses (n=10), and practice managers (n=10) from settings across Australia. Transcripts were analysed using the Framework Method.

Results: Two environment-level factors were found to influence several organisation and care team level factors. Firstly, the financial structure of primary health care, impacting on practitioner: time, practice culture, screening knowledge and opportunistic conversations. Secondly, the structure of screening programs had flow-on effects for: access to patient screening records, recall and reminder systems, and sense of program ownership.

Conclusions: Encouraging more effective PHCW engagement in the screening programs requires the consideration and mitigation of overarching financial and structural barriers. Up-to-date and easy-to-use recall and reminder systems, whole-of-practice approaches which optimise the role of each PHCW and the identification of a 'champion' to drive implementation should be considered.

Implications for public health: This study offers insights into what elements practice and practitioner targeted initiatives in Australia should incorporate, potentially leading to improved engagement of PHCWs and increased cancer screening participation rates.

Key words: primary healthcare workers, cervical screening, bowel cancer screening, breast cancer screening

Accredited practitioners are responsible for performing cervical screening tests in addition to supporting eligible, under- and never-screened patients to participate in self-collection cervical screening.⁸ PHCWs are remunerated to engage in the NCSP through Medicare Benefits Schedule (MBS) item numbers as well as incentivised through the Practice Incentives Program Quality Improvement Incentive (PIP-QI), which requires practices to share data and to participate in quality improvement activities.⁹

Primary health care settings often manage their own recall and reminder system for their active patients, although an additional safety net is provided by the National Cancer Screening Register (NCSR), which supports the NCSP by maintaining participant screening data and implementing a separate recall and reminder system.

While PHCWs are less directly involved in the invitation and delivery of the NBCSP and BreastScreen Australia, they play a key role in

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identifying patients who may be at increased risk of cancer, who require more intensive screening, and in facilitating patients to complete the screening pathway.⁸ In terms of the NBCSP, immunochemical Faecal Occult Blood Test (iFOBT) kits are mailed to people aged 50 to 74 years who are registered with Medicare. Screening participants may nominate their GP to receive their test result. Additional ways to engage GPs in the NBCSP are currently in their early stages of implementation or trial. For example, in late 2020 NCSR launched the Healthcare Provider Portal, which allows PHCWs to request a kit for their patients through the NBCSP and to view their patient's test results and screening histories.¹⁰ Further, the National Indigenous Bowel Screening Pilot has trialled an alternative pathway for bowel screening that directly involves PHCWs in the invitation process.¹¹ Similar to the NBCSP, BreastScreen Australia sends invitations directly to women aged 50 to 74 years using addresses from the electoral roll, however, patients may also nominate their GP to receive their mammogram screening result. For all three screening programs, the endorsement of a GP has been shown to improve screening participation.^{12,13}

Many factors act as barriers or facilitators for PHCWs engaging in cancer screening programs. These factors can be mapped to a 'four-level model of the health care system', which was developed to clarify the structure and dynamics of the health care system, the interdependencies among levels of the system and the levers for change.¹⁴ The four levels are: 1) Patient; 2) Care team (healthcare workers – clinical and non-clinical); 3) Organisation (e.g. general practice, hospital); and 4) Environment (the conditions under which organisations and care teams operate).¹⁴ Research, largely from the USA, has found environment-level factors (e.g. financial incentives), organisation-level factors (e.g. quality improvement activities and resources, a whole-of-practice approach, time and an identified practice champion to drive cancer screening initiatives) and care team level factors (e.g. attitude towards cancer screening and knowledge of screening guidelines) to influence the engagement of PHCWs.^{15–18} Further, evidence suggests that practice-targeted initiatives such as audit and feedback and office-system prompts within the context of wider organisational change, are an effective way to increase cancer screening participation rates.¹⁵ An

awareness of the factors that limit or promote engagement in cancer screening programs can aid PHCWs, as well as relevant program developers and policy makers, in addressing barriers and enhancing facilitators.

However, a dearth of research exists on factors influencing the engagement of PHCWs in Australia's national cancer screening programs, with the generalisation of findings from the USA not appropriate in such a different health system structure. PHCW perspectives may offer insights into what elements practice and practitioner targeted initiatives in Australia should incorporate, potentially leading to improved engagement of PHCWs and increased screening participation rates. This is the first study to explore factors across the environment, organisation, and care team levels of the health care system that influence the engagement of PHCWs in Australia's national cancer screening programs.

Methods

Participants and recruitment

This cross-sectional qualitative study focused on the workforce within primary health care settings, including general practices, community health centres and Aboriginal Community Controlled Health Services (ACCHS).⁶ We included consultations with both clinical and non-clinical PHCWs. While GPs and PNs are directly engaged in conversations and screening activities with patients, PMs are often responsible for other aspects of cancer screening implementation, including the management of recall and reminder systems, and accessing patient and provider education and promotional materials.

Recruitment of PHCWs occurred via advertisements placed in e-bulletins of four peak bodies: Australian Practice Nurse Association (APNA), Australian Practice Management Association (APMA), The Royal Australian College of General Practitioners (RACGP) and the National Aboriginal Community Controlled Health Organisation (NACCHO). Seventy PHCWs contacted the first author (EV) via email or phone to register their interest. In order to ensure representation from each state and territory in Australia, the first author contacted all PHCWs from jurisdictions in which a small number of PHCWs had registered their interest, and randomly selected PHCWs from states and territories in which a larger number

of PHCWs had registered their interest. In total, 40 PHCWs were purposively contacted to participate in the study, of whom 30 agreed to be interviewed (10 GPs, 10 PNs, and 10 PMs).

Data collection

The data were collected by three authors (EV, CN and LB) through semi-structured interviews conducted between 31 August – 14 September 2020. EV and CN are experienced in qualitative techniques, with training and guidance provided to LB. Due to the COVID-19 pandemic and social distancing requirements, all interviews were conducted remotely. Most participants were interviewed over the videoconferencing service, Zoom (n=26)¹⁹ with some participants preferring to be interviewed over the telephone (n=4). The interview protocol contained a range of open-ended questions which aimed to explore factors that influenced PHCWs engagement, or lack of, in the cancer screening programs. To establish rapport, participants were first asked about the primary health care setting that they worked in, their role within the setting and their role within each of the screening programs. Participants were then asked to provide their perspective on engaging patients with the screening programs, how their setting supports this, as well as resources that support their work in cancer screening. Practice managers were additionally asked if they had signed onto the PIP-QI, a national government financial incentive program and whether it had led to an increase in quality improvement activities. All interviews were audio-recorded with permission and took approximately one hour. Upon the completion of the interview, each participant received a \$50AUD gift card as compensation for their time.

Data analysis

Management and analysis of data were conducted using the Framework Method,²⁰ which provided clear 'stages' to follow. Following the transcription of interviews by a professional transcription service (*stage 1*), authors (EV, LB, and CN) listened to interviews they had not conducted to familiarise themselves with all data. Whilst listening to the recordings, authors also checked the quality of the transcripts and de-identified any personal data (*stage 2*). All transcripts were then uploaded to the software NVivo 12 Plus, where three authors (EV, LB and CN) used a combination of deductive and

inductive coding to develop the initial coding framework (stage 3). Parent nodes were levels of a four-level model of the health care system— environment, organisation and care team,¹⁴ (deductive codes) and child nodes were factors influencing the engagement of PHCWs (inductive codes). Three authors (EV, LB and CN) individually coded three transcripts according to this framework, before meeting to compare the codes they had applied (stage 4). Two authors (EV and LB) then coded all transcripts, meeting regularly to discuss coding and the relationship between factors (stage 5). Data saturation was reached following analysis of n=25 interviews, with consensus between authors (EV and LB) that no new codes emerged thereafter.²¹ The first author (EV) summarised all coded data within a matrix created in Microsoft Excel (stage 6), meeting regularly with all authors to discuss the interpretation of data (stage 7).

Ethical approval

Ethics approval for this study was granted by the Population and Global Health Human Ethics Advisory Group (HEAG), The University of Melbourne (2057362.1). Verbal informed consent was obtained from all participants prior to the commencement of the interview. The anonymity of participants was maintained by the de-identification of personal data.

Results

Data from 30 interviews (10 GPs, 10 PNs and 10 PMs), were analysed. Twenty-five participants were female. Most participants worked in the state of New South Wales (n=11), followed by Queensland (n=8) and Victoria (n=6). The remaining participants worked in South Australia, Western Australia or Northern Territory (n=5). Participants provided care mostly in general practices (n=25), followed by community health centres or ACCHS (n=5).

Analysis of the interviews identified that two environment-level factors influenced several organisation and care team level factors. Firstly, the financial structure of primary health care, impacting on practitioner: time, practice culture, screening knowledge and opportunistic conversations. Secondly, the structure of screening programs had flow-on effects for: access to patient screening records, recall and reminder systems and sense of program ownership (Figure 1).

The financial structure of primary health care and organisation and care team level factors

The financial structure of primary health care was outlined by most PHCWs as an important environment-level factor influencing their engagement in the screening programs. PHCWs discussed how the financial structure of primary health care impacted both organisation-level factors – time and practice culture, and care team level factors – screening knowledge and opportunistic conversations with patients.

With the exception of the NCSP, specific Medical Benefits Schedule (MBS) item numbers do not exist for BreastScreen Australia and the NBCSP, with many PHCWs perceiving this as a factor negatively influencing their engagement.

General practice, in a sense, has us back to the wall from a money point of view. As you might know, there is nobody offering to pay the GPs to spend time working on these things (breast or bowel cancer screening engagement). – GP 3

Despite their critical role in communicating with patients and maintaining and improving screening recall and reminder systems, there are no specific MBS item numbers that nurses can bill for providing cervical screening tests, or for discussing bowel and breast screening. A GP described how PNs are consequently “the biggest underutilised resource we have in general practice” (GP 8).

Remuneration is available to accredited practices that participate in the PIP-QI, a national government initiative to drive quality improvement in general practice. However, whilst one PM outlined how the recently introduced PIP-QI had incentivised them to do “a lot of quality improvement in the last 12 months” (PM 5), another described the program as “a little bit wishy-washy, it doesn't really have any substance at the moment. It's

just based on what your data is more than what you're actually really doing” (PM 10).

The current financial structure of the screening programs does not particularly encourage PHCWs to prioritise screening and other preventative health activities, with most PHCWs outlining how their ‘time’ was spent consumed by acute care. When asked whether they would like additional communication material to support them in engaging with patients about the screening programs, a GP responded:

If you think about the income, it's less, so sometimes, GPs prefer to see as many patients as they can, especially in bulk billing places. With cancer, you have to spend a few minutes asking your questions, you have to put the patient onto the bed (cervical screening test), it takes a few minutes rather than just writing the script. – GP 8

As a way to mitigate financial constraints and being time poor, most PHCWs outlined how they had ‘opportunistic conversations with patients’ about the cancer screening programs whilst conducting chronic disease care, due to being “remunerated for it” (GP 1) and having “the most amount of time one on one with patients” (PM 10).

That's one of the tricks that we've had in place for a long time, is that every time you do a GP management plan or an annual health assessment that you're touching base about the screening programs. – PM 3

Most PHCWs also reflected on ‘practice culture’ towards cancer screening, with a GP outlining the benefits of having a practice champion to lead cervical screening:

We had an amazing women's health practice nurse who was really driving cervical screening within the practice. When she changed positions, our numbers just dropped off again. We found that we really need that champion driving the in-house initiatives. – GP 1

Figure 1: Factors across a four-level model of the health care system influencing PHCWs engagement in the national cancer screening programs.



In contrast, PHCWs depicted how practice culture can limit the role PHCWs have in the cancer screening programs, particularly in the context of the adoption of new innovations. For example, a PN outlined how practice culture had restricted the adoption of a new cervical screening pathway, specifically introduced to engage under- and never-screened individuals in the screening program. Although still taking place in primary health care and supported by an accredited practitioner, this pathway allows women to collect their own vaginal sample rather than undergoing a speculum exam where the practitioner would collect a cervical sample.

We have never tried self-collection and our patients have never been offered it. Our business manager... is a Pap (cervical screening) nurse, and she's quite - I don't know if I'd say, 'against self-collection', but definitely doesn't promote it at our practice. – PN 5

Some PHCWs cited 'screening knowledge' as the reason that this new pathway has not been adopted, still holding the incorrect belief that samples collected via self-collection were not as accurate in screening for cervical cancer as clinician-collected samples.

We personally don't love the self-obtained ones, just the accuracy and things. – PN 9

I don't discuss the self-test with the pap smears. I don't believe that it's a great idea. I don't believe in it. I would prefer that a doctor do a CST (cervical screening test), or pap smear as opposed to a self-test. – GP 4

An unclear understanding of screening program guidelines, particularly for those that had been revised, was also evident.

Still, 12-24 months later, some GPs are struggling with aspects of the (NCSP) renewal. Some of the finer details in the referral pathways, after HPV, not 16, 18 has been detected, that sort of thing. – GP 1

The structure of screening programs and organisation and care team level factors

The structure of the screening programs was frequently discussed by PHCWs as an environment-level factor influencing their engagement in the cancer screening programs. PHCWs conveyed how the structure of the screening programs shaped both the care team level factor – sense of program ownership and organisational-level factors – recall and reminder systems and access to patient screening records.

For the NCSP, PHCWs felt a strong 'sense of program ownership', mostly due to patient engagement and the sample being collected in-practice and being conducted by an accredited practitioner.

I suppose the cervical screening one because we have a responsibility to do that ourselves, I find that's something I'm always thinking about with the patients. It's very much part of my everyday management and care of female patients. – GP 9

In contrast, PHCWs generally did not feel a strong sense of program ownership for managing breast screening through BreastScreen Australia and to an even lesser extent, bowel screening through the NBCSP. For many, this was due to the screening test occurring outside of primary health care and the screening programs interacting directly with participants rather than through PHCWs.

Many GPs have taken their hands off the steering wheel as far as bowel cancer goes because of the national program and all the publicity it has... (other GPs) have said, 'Oh well, the national program, we don't really need to do anything most people get these kits in the post, not our problem.' – GP 3

Also contributing to this ownership was the responsibility of practices to maintain accurate 'recall and reminder systems' for people who were due for screening. As cervical screening test results are delivered to practices electronically, and in most cases integrated into patient files, PHCWs detailed how they had "... a pretty thorough recall and reminder systems in place" (PM 6) for the NCSP. Although, for new patients, PHCWs did discuss how time-consuming it was to 'access patient screening records' through the NCSR.

If I wanted to check if somebody's had their screen at a different GP clinic, I have to call up the operators at [organisation] who are lovely, but it also sometimes just takes a long time and it's one at a time. – PN 3

Nearly all PHCWs outlined that they did not have recall and reminder systems in place for bowel and breast as they were, "trusting that the bowel screening and the mammogram people do that" (PN 6). Further, PHCWs discussed challenges associated with maintaining an accurate recall and reminder system for these two screening programs, with results only coming to practices if the patient nominated their GP, and when they did come, they were not always compatible with practice management software. A GP expressed disbelief that reminders for the NBCSP still had to be manually entered into

practice management software, outlining the cause for automatic reminders:

I'm talking about automatic reminders, so the system knows this patient has had the screening test on this date and it's due again on this date. When that date comes up, it will tell the patient and the doctors automatically, and it will keep telling them until it's done. None of them have that for bowel cancer screening. – GP 3

Discussion

Primary healthcare workers, both clinical and non-clinical, have a recognised and vital role in cancer screening programs.^{8,15} The endorsement of a GP has been shown to improve screening participation rates,^{12,13} reflecting the unique relationship of trust between patients and primary health care. This is the first study to explore factors across the environment, organisation and care team levels of the health care system that influence the engagement of PHCWs in Australia's national cancer screening programs. Using a four-level model of the health care system, we found that two environment-level factors influenced several organisation and care team level factors. Firstly, the financial structure of primary health care, impacting on practitioner: time, practice culture, screening knowledge and opportunistic conversations. Secondly, the structure of screening programs had flow-on effects for: access to patient screening records, recall and reminder systems, and sense of program ownership (Figure 1). An understanding of these barriers and facilitators may inform practice and practitioner targeted initiatives, potentially leading to improved engagement of PHCWs in the national cancer screening programs and increased cancer screening participation rates.

Primary healthcare workers felt the financial structure of primary health care did not incentivise them to engage in the national cancer screening programs, subsequently outlining how their time was instead consumed by acute and chronic care. In particular, participants in our study reported that PNs were 'underutilised' in cancer screening. Other work in Australia has described how funding models constrain time that PNs have to engage in preventative health activities,²² and therefore limit their role.²³ This is in contrast to PNs in the United Kingdom, who play a much greater role in the provision of screening services.²⁴

Recent evidence from a systematic review has highlighted the role that nurse-led interventions can have on increasing uptake rates of cancer screening²⁵; however, there is limited evidence or documented exploration of specific policy initiatives, including financial incentives, to facilitate the expansion of a PN's role in the Australian context.

Funding incentives that have been trialed are largely targeted at GPs, with varying evidence as to their effectiveness.¹⁵ A pay-for-performance scheme with relatively large expenditure was associated with a small but non-significant improvement in bowel, breast and cervical screening rates in Ontario, Canada.²⁶ Similarly, an examination of Australia's cervical screening pay-for-performance scheme found claiming incentive payments for screening under-screened patients was not associated with increased cervical screening.²⁷ Conflicting data may be due to practitioner financial incentives not necessarily considering the complex and demanding setting in which PHCWs work, and the balance across settings internationally between fee-for-service, performance-related, and capitation-based funding. A more effective financial incentive may be the PIP-QI, which encourages primary health care settings to conduct quality improvement activities that will support the role of PHCWs, including in cancer screening.⁹ However, this study highlights that there is confusion around this recently revised initiative, suggesting more clarity on requirements for remuneration is needed.

Primary healthcare workers discussed how organisation and care team level factors, such as practice culture and screening knowledge, also facilitated or hindered their engagement in the screening programs. For example, identifying a practice champion was found to be a way to drive positive practice culture towards cancer screening programs and to increase screening participation rates. This is supported by existing research, conducted in the US, on the feasibility of using practice facilitators to work with practice staff to increase bowel cancer screening rates. The multi-site study found that the practice with the most significant improvement to be the one with a dedicated nurse engaging with the facilitator.¹⁷ Evidence supporting the use of practice champions has also emerged in the context of increasing vaccination rates,²⁸ as well as in ensuring continuity of care for other chronic illnesses.²⁹

On a care team level, we found that outdated screening knowledge influenced PHCWs level of engagement in screening, with this finding also consistent with that of previous research.^{16,18} Some PHCWs outlined that they were not adopting the new self-collection cervical screening pathway due to their incorrect belief self-collected swabs were not as accurate as clinician-collected swabs. Although there has previously been uncertainty around the sensitivity of a self-collected swab, this has been addressed, with an updated meta-analysis demonstrating test performance for self-collected specimens to be equally sensitive to a clinician-collected specimen.³⁰ Additionally, compelling evidence indicates that self-collection can increase participation rates among under- and never-screened individuals in the NCS^{31,32} and it has been demonstrated to be highly acceptable to both screening participants and practitioners.^{33,34} The underlying beliefs of non-adopting practitioners as identified in this study highlights the importance of regular and accurate knowledge dissemination to PHCWs in order to support the adoption of initiatives that aim to increase engagement with the screening programs. Aligning with our findings, previous research has deemed that understanding the context and interplay between factors affecting intervention implementation as 'critical' to achieving change in primary health care.³⁵

The NBCSP and BreastScreen Australia have established structures outside of primary health care to facilitate participants to screen. Although these structures alleviate time pressure on GPs, our study demonstrates that the existing structure decreases PHCWs sense of program ownership. The structure of the screening program as a factor influencing engagement has been identified in previous research, specifically in terms of the bowel screening program.³⁶

Increasingly, research is being conducted on the impact of changing the structure of the NBCSP to increase the involvement of PHCWs. A study tested the effect of point-of-care iFOBT provision, printed screening advice and GP endorsement on iFOBT uptake, finding the odds of completing screening to be ten times higher when compared to usual care.³⁷ Further, preliminary results from the Indigenous Bowel Cancer Screening Pilot (the pilot), in which kit distribution is centred around primary health care, have shown promising results in boosting bowel

screening participation rates for Aboriginal and Torres Strait Islander people.³⁸ Following the results of the pilot, the NBCSP is working to increase kit distribution channels to reach under-screened cohorts of the population. National efforts are also being made to involve PHCWs more in the screening process, as demonstrated by the recent introduction of the NCSR Healthcare Provider Portal. The portal may alleviate PHCWs low sense of program ownership, as it allows GPs to order NBCSP screening kits for their patients and to obtain their patient's screening histories. PHCWs will also have access to cervical screening histories in real-time, addressing the barrier of access to patient screening records and this may facilitate greater promotion and use of the self-collection pathway. The portal may enable practices to more effectively manage recall and reminder systems for the NBCSP – a known effective strategy to increasing participation rates in cancer screening programs.¹⁵ However, the inability of practice software to search for all NBCSP reports, and therefore to produce automatic patient and provider reminders, remains an ongoing challenge for the engagement of PHCWs in the program.

There are also limitations to the portal. Screening kits are not available for PHCWs to provide to their patients on the spot, rather the timeframe for delivery via the NBCSP remains four to six weeks, which may result in lower uptake among patients. Additionally, patient screening records and histories for BreastScreen Australian are not included in the portal, with no known national initiatives to increase the involvement of PHCWs in the breast screening process. These limitations exemplify the importance of initiatives being multi-faceted and embedding factors known to facilitate the engagement of PHCWs. For example, system improvement through QI activities, as well as empowering staff, from receptionists to clinicians, to be involved in such activities. This is referred to as a 'whole-of-practice' approach, and although not specifically identified in this study, has been outlined as contributing to the likelihood of an initiative increasing screening participation rates.¹⁷

Limitations

Despite our best efforts to ensure representation from each state and territory in Australia, most PHCWs interviewed resided in the states of New South Wales, Victoria and Queensland (n=25) and were women (n=25).

However, this is reflective of the majority of Australia's health workforce and population being based in major cities and identifying as female.³⁹ Most of our study participants (n=25) provided care in general practice. While the applicability of our findings to other Australian primary health care settings (including community health centres and ACCHS) would need scrutiny, many of the structural factors identified would remain the same. Additionally, PHCWs self-nominated to participate in our study, meaning they may have had an existing interest in the national cancer screening programs.

Further, our study did not capture patient-level factors, an integral component of the four-level model of the health care system.¹⁴ However, the objective of our study was to capture the perspective of PHCWs, with existing literature on factors influencing the engagement of patients in the national cancer screening programs.⁴⁰⁻⁴²

Conclusions and implications

Primary healthcare workers play a key role in the success of the national cancer screening programs and are integral to increasing screening participation rates; however, several factors influence their daily engagement. Our study has shown that encouraging more effective PHCW engagement in the screening programs requires the consideration and mitigation of overarching financial and structural barriers. Primary healthcare workers require up-to-date data on patient screening status and automated patient and provider reminders, and we note that there are current initiatives underway in Australia to ensure this is a reality. Further, whole-of-practice approaches which optimise the role of clinical and non-clinical PHCWs and the identification of a 'champion' to drive implementation should be considered.

This study will assist program developers and policy makers to make more evidence-informed decisions when it comes to designing practice and practitioner targeted initiatives. Further, our findings are the first step in informing PHCWs of factors that may be influencing their engagement in the national cancer screening programs. Future research on factors influencing the engagement of PHCWs in community health centres and ACCHS is required. Particularly as workers are more likely to engage with populations, such as Aboriginal and Torres Strait Islander peoples, who experience

inequalities in cancer outcomes. Future research should also look at how addressing factors across the levels of the health care system affects cancer screening participation rates.

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