# The impact of COVID-19 on the delivery of care by Australian primary health care nurses


## Author

Ashley, Christine, Halcomb, Elizabeth, James, Sharon, Calma, Kaara, Stephen, Catherine, McInnes, Susan, Mursa, Ruth, Williams, Anna



## Published

2022

## Journal Title

Health & Social Care in the Community

## Version

Accepted Manuscript (AM)

## DOI

10.1111/hsc.13710

**Title:** ***The impact of COVID-19 on the delivery of care by Australian primary health care nurses***

**Authors:**

**Dr Christine Ashley RN PhD FACN**

Project Officer

School of Nursing, Faculty of Science, Medicine & Health

University of Wollongong, Northfields Ave Wollongong NSW 2522

E: cashley@uow.edu.au

**Professor Elizabeth Halcomb RN BN(Hons) PhD FACN**

Professor of Primary Health Care Nursing

School of Nursing, Faculty of Science, Medicine & Health

University of Wollongong, Northfields Ave Wollongong NSW 2522

Illawarra Health & Medical Research Institute

P: +61 2 4221 3784

E: ehalcomb@uow.edu.au

**Dr Sharon JAMES RN BN MPH PhD**

Research Fellow/Project Manager

Department of General Practice, School of Public Health and Preventative Medicine

Monash University, 1/270 Ferntree Gully Rd, VIC 3168

E: Sharon.James@monash.edu

**Kaara Calma RN BN(Hons)**

PhD Candidate / Sessional Tutor

School of Nursing, Faculty of Science, Medicine & Health

University of Wollongong, Northfields Ave Wollongong NSW 2522

E: kaara@uow.edu.au

**Catherine Stephen RN BN(Hons)**

PhD Candidate / Sessional Tutor

School of Nursing, Faculty of Science, Medicine & Health

University of Wollongong, Northfields Ave Wollongong NSW 2522

E: cstephen@uow.edu.au

**Dr Susan McInnes RN BN(Hons) PhD**
Lecturer
School of Nursing, Faculty of Science, Medicine & Health
University of Wollongong, Northfields Ave Wollongong NSW 2522
E: smcinnes@uow.edu.au

**Ruth Mursa NP DipAppSci(Nursing) MN**
PhD Candidate
School of Nursing, Faculty of Science, Medicine & Health
University of Wollongong, Northfields Ave Wollongong NSW 2522
Illawarra Health & Medical Research Institute
E: ram701@uowmail.edu.au

**Associate Professor Anna WILLIAMS RN BHlthSc(Nursing) MPH PhD**
National Deputy Head Nursing and Midwifery, Health Sciences and Physiotherapy
Faculty of Medicine, Nursing & Midwifery and Health Sciences
University of Notre Dame Australia, Sydney NSW 2010
E: anna.williams@nd.edu.au

**Corresponding author:** Professor Elizabeth Halcomb, School of Nursing, University of Wollongong, Northfields Ave Wollongong NSW 2522. P: +61 2 4221 3784
E: ehalcomb@uow.edu.au

**Acknowledgements:** We are very grateful to the nurses who took the time to complete the survey and who were so generous in their responses. We would also like to thank the Australian Primary Health Care Nurses Association and Australian College of Nursing for their support of the work.

**Conflict of Interest Statement:** The authors declare there are no conflicts of interest.

**Funding/sources of support:** This Project was jointly funded by the Australian College of Nursing and the University of Wollongong (Award/Grant number is not applicable).

## Abstract

This qualitative study describes the impact of the first wave of the COVID-19 pandemic on Australian primary health care (PHC) nurses' provision of care. Participants were purposefully recruited following completion of a national survey about PHC nurses' experiences during the pandemic. Twenty-five semi-structured interviews were conducted by two experienced researchers and professionally transcribed. The mean duration of interviews was 38.5 minutes. Thematic analysis revealed three themes about the impact of COVID-19 on PHC nurses' provision of care. These were: workplace adjustments, changes in healthcare delivery, and concerns about long term health impacts of COVID-19. The sudden disruption and de-stabilisation of care delivery was reported as significantly impacting on initial service provision, although participants reported adapting quickly and finding new ways to deliver care. The impact of the pandemic on high risk communities and mental health support needs of clients created additional challenges, although some nurses reported positive outcomes such as increased confidence of some clients to provide self-care. There were concerns about the potential long term impact on communities due to reduced levels of cancer screening, disrupted management of chronic conditions and reduced opportunistic health assessments. Findings from this study demonstrated how PHC nurses played an important role in the continued provision of PHC by adapting quickly to changed circumstances, adjusting and modifying clinical activities, and by monitoring for future potential negative outcomes from the pandemic. These findings are important for future management of pandemics, and in the long term planning of PHC service provision.

## Keywords

COVID-19; primary health care; general practice; nurses; pandemic; community nursing; qualitative; primary care.

**What is known about the topic**

- Internationally, reports describe widespread disruptions to health service provision as a result of COVID-19.
- The focus of health care has been largely on acute pandemic management and screening / vaccination programs rather than the effects of the pandemic on PHC.
- Long term impacts on health as a result of service disruption has not been widely considered.

**What this paper adds**

- Evidence that nurses working in PHC settings were quickly able to adjust to changed circumstances to minimize service disruption.
- The pandemic created specific new challenges for PHC nurses, including the provision of care by telehealth, and increased need for mental health care support of clients.
- Experiences of PHC nurses indicate that there may be long term health impacts of the pandemic due to reduced screening, monitoring and opportunistic health assessments.

## Introduction

Since the identification of COVID-19 as a pandemic by the World Health Organisation in March 2020, health services worldwide have faced significant disruption in the provision of care. The impact on the delivery of hospital based acute care services has been widely reported (Commonwealth of Australia, 2020; Fernandez et al., 2020). However, within primary health care (PHC) the pandemic has also impacted on the delivery of health promotion programs, preventive health care and on the diagnosis and ongoing management of chronic disease (Australian Institute of Health and Welfare, 2021; Searby & Burr, 2021; Wright et al., 2020). The World Health Organization (2020, 2021) has noted that PHC providers play critical roles in making health systems more resilient in times of crisis, being proactive in detecting early signs of epidemics and having the capacity to act early in response to surges in demand for services.

The Australian PHC sector is complex, with services being provided by various non-government not-for-profit organisations, and general practices which operate as small businesses or corporate chains. In addition, PHC is delivered by government funded community health services, schools, correctional health services and Aboriginal community controlled health services (Australian Institute of Health and Welfare, 2016). Funding for PHC is provided by a combination of state/territory and federal government models (Australian Government Department of Health, 2021). Care is provided by doctors, nurses, midwives, pharmacists and allied health professionals working at the frontline of the health system. PHC nurses are employed to provide a diverse range of specialist and generalist services in PHC settings within rapidly evolving scopes of practice according to their professional and individual education and skills (Guzys, 2017; Halcomb et al., 2014).

Following activation of the Australian Health Sector Emergency Response Plan for Novel Coronavirus (COVID-19) in February 2020 (Commonwealth of Australia, 2020), Australia's PHC response to the pandemic acknowledged the frontline role of PHC, and developed an

action plan. This focused on the need to protect vulnerable populations and to continue to provide regular PHC services across communities including chronic disease management, preventative and mental health services, and supporting and protecting the PHC workforce (Commonwealth of Australia, 2020). In March 2020, the Australian Government introduced funding to support the use of telehealth for patient consultations (Australian Government Department of Health, 2020). Initial funding was limited to general practitioners, restricting nurses to only provide face-to-face care at a time when patients were unwilling to leave their homes. These barriers were later removed, enabling patients to access some nurse-led PHC services via telehealth.

The COVID-19 pandemic has highlighted the important role PHC nurses play during health crises, supporting findings from earlier pandemics (World Health Organization, 2021). Specific responsibilities include assisting in the public health response by monitoring those at risk, undertaking community COVID-19 testing, providing education relating to infection control and risk management, and reducing indirect mortality by supporting individuals and communities during social disruption (Shaw et al., 2006; World Health Organization, 2021). However, the initial limitations associated with the provision of telehealth and other factors associated with the COVID-19 pandemic such as social distancing, lockdowns and other measures to reduce the spread of COVID-19 are reported to have impacted on the delivery of routine services in PHC in Australia (Halcomb et al., 2020). In order to better understand these impacts it is important to capture the experience of PHC nurses to inform both the ongoing management of COVID-19 and also future pandemic management.

**Methods**

A national mixed methods study was undertaken following the first wave of the pandemic to explore various aspects relating to the PHC nursing workforce response to COVID-19. Phase one of the study consisted of a national online survey of PHC diploma-prepared enrolled nurses, baccalaureate-prepared (or equivalent) registered nurses, or masters'-

prepared nurse practitioners conducted in April 2020. Recruitment to the survey was undertaken via national professional nursing organisations and social media platforms including LinkedIn, Facebook and Twitter. Survey findings have been reported elsewhere (Halcomb et al., 2020a; Halcomb et al., 2020b).

Survey respondents were asked to indicate a willingness to participate in semi-structured interviews (phase 2). Interview questions were structured to explore the early and immediate impact of the pandemic on PHC nurses. This paper describes qualitative data relating to the impact on nurses' care delivery modes and the provision of direct patient care during COVID-19. Other aspects of the larger study, including challenges associated with the rapid implementation of telehealth and the health and well-being of PHC nurses, have been reported elsewhere (Ashley et al., 2021a; Ashley et al., 2021b; James et al., 2021).

**Recruitment and sampling**

Of the 141 survey participants who indicated that they were willing to participate in the interviews, individuals were purposefully selected for interview participation based on factors such as professional status, area of PHC employment, location, gender, age, and nursing experience. Potential participants were contacted by two investigators (CA and SJ) via phone or email to provide study information, answer any questions or concerns and gain written consent to participate. Twenty five interviews were conducted at a time when COVID-19 restrictions were in place in most states/territories, and the state of Victoria was in lockdown.

**Data collection**

Drawing on survey findings and existing literature, a semi-structured interview schedule was developed. Additional prompts were used where necessary to elicit further detail. The suitability of the schedule was tested in six pilot interviews, with minor modifications made to improve clarity. Two investigators (CA & SJ), experienced in PHC nursing and research, conducted the 25 telephone interviews between June and August 2020. One interviewer

(CA) interviewed 12 nurses employed in various PHC community settings, and the other interviewer (SJ) interviewed 13 PHC nurses working in general practice. Due to disparate geographic locations, evolving pandemic restrictions and participant preference, interviews were conducted exclusively via telephone. Each interview was audio-recorded and professionally transcribed verbatim, as well as being de-identified. In addition, field notes written during data collection provided valuable data on the interviewers' thoughts and perceptions.

**Data analysis**

Interviews ranged from 19.0 – 59.0 minutes (mean 38.5 minutes; SD 11.4 minutes) in duration. The transcripts and recordings were initially checked by the two investigators for accuracy then downloaded into Microsoft Word© where they were analysed using the thematic analysis approach suggested by Braun and Clark (2006). A process of inductive analysis was used, with researchers coding data without pre-existing coding frames or preconceived themes. As emerging patterns and themes were identified these were discussed amongst the interviewers, and then with all members of the research team. After identifying each theme, transcripts were further reviewed to ensure all data were captured. Reporting of findings was guided by the consolidated criteria for reporting qualitative research (COREQ) checklist (Tong et al., 2007).

**Ethical Approval**

The study was approved by the Human Research Ethics Committee at the University of Wollongong (Approval Number HE2020/161) and ratified by the University of Notre Dame (Approval Number 2020-056S). Anonymity and confidentiality were assured.

**Findings**

**Participant characteristics**

Thirteen (52%) participants were employed as general practice nurses (GPN), with the remaining 12 (48%) participants worked in various community health nursing (CHN) roles.

These included community health centres, correctional centres, mental health services, women's health, maternal and child health, schools, and an Aboriginal medical service. Participants working in general practice were privately employed either by the practice operating as a small business or as part of a corporate chain. Those in CHN roles were employed by state or federally funded health services or by not-for-profit organisations. The mean age of participants was 45.1 (range 26 – 66, SD 11.2). Twenty (80%) participants were Registered Nurses (RN), three (12%) were Nurse Practitioners (NP) and two (8%) were Enrolled Nurses (EN). Years working in PHC ranged from 1 – 37 years (mean 12.5, SD 9.2).

Analysis of participants' responses to the early impact of the pandemic on the provision of PHC identified three key themes: workplace adjustments, changes in healthcare delivery, and concerns about the long term effects of COVID-19.

**1. Workplace adjustments**

The initial recognition and onset of the pandemic was described by most participants as a time of sudden interruption and destabilisation of care delivery which had a major impact on day-to-day service provision. In those early stages, participants reported adapting quickly to ensure safe environments for both staff and patients. Workplaces responded in various ways, with some participants reporting how the initial impact led some general practices to suddenly temporarily cease face-to-face care delivery. Others whose work linked closely with acute services were affected by the flow-on effect of the sudden cessation of elective surgery.

> "Then when it suddenly, bang, hit, there was nothing one day and then the next day it's all chaos and bedlam, a lot of the local [general] practices, the majority, they started to pull back and they [had a] kind of kneejerk reaction

and a lot of them closed in panic mode and weren't seeing anyone. I was still open, seeing people face-to-face". **CHN02, NP.**

"Well, because of a lot of the work that we get in the community is from elective surgeries and because a majority of them closed down, we had actually a reduced workload for a little bit". **CHN07, RN.**

Other participants reported changes in patient throughput due to cancellations relating to safety concerns. This required rapid restructuring of work practices to enable 'business as usual' at the same time as ensuring the safety of staff and patients.

"It was the volume, yeah. …the [types of] presentations didn't change although the sheer volume of particularly those older clients" **CHN02, NP.**

Similarly, nurses undertaking home visits and running clinics, reported how the initial impact of the pandemic required re-designing work processes to ensure safety.

"So up until probably mid-April we were actually still running ...business as usual. We were still expected to go to clients' homes, clients were still expected to come to us at the clinic appointments. We were told to keep distancing within our work environment and when we were doing the home visits, we did have to screen our clients just to make sure that they hadn't been overseas or weren't unwell". **CHN04, RN.**

**2. Changes in healthcare delivery**

In the early stages of the pandemic, several participants described how the pandemic led to decisions relating to care prioritization and new ways of working to ensure safety for patients and staff. Services such as flu clinics were impacted by being relocated to carparks to avoid patients needing to come into the clinic, and home visits, routine screening and management

of chronic conditions were disrupted. The introduction of telehealth meant that many preventive or non-urgent aspects of care were not performed. This included cervical screening, pre-employment medicals, 45-49-year-old health assessments, Vitamin B12 injections, respiratory assessments, minor excisions and sexual health screening. Care that did occur face-to-face focussed on perceived urgent issues such as wound care, electrocardiograms, international normalised ratio blood tests, or immunisations.

> "Spirometry stopped. So, people with respiratory issues that needed diagnosing or assessing – they're all on hold…. Other than that.. nobody came in for a care plan or a health assessment. None of the elderly recalls were called in". **GPN11, NP.**

> "Other things that we delayed were cervical screening, so we'd only do cervical screening that was an urgent follow up or someone hadn't had one for a long time. We weren't doing routine screening for that. We weren't doing …spirometry. We did dressings but….we were more likely to discharge someone earlier and give them some stuff to do it at home and say only come in if you're worried about it or something". **GPN01, RN.**

Nurses also described how using telehealth became an important adjunct to providing direct care for patients.

> "Actually probably 70% of our patients for routine care and general appointments changed to telehealth, and most people were happy to change to telehealth if it was offered to them. They wanted to stay home." **GPN07, RN.**

> "nurses were cancelling appointments …, and obviously the kickback from our clients … 'do we come, do we stay, are you coming'? Then we changed [the] procedure … we were then running telephone appointments…So our

> appointments were structured in such a way that we were given half an hour to talk on the telephone and then we were instructed to give the client the opportunity then to come in and get babies weighed. Or if they had any concerns, then we could touch base with them one on one and also the policy came in that they could only be the carer, or the primary carer and the baby". **CHN04, RN.**

In the community, however, changes in service provision in the acute sector led to increased work relating to wound management, which would normally have been attended to in hospital outpatient clinics:

> "… we thought there might be a decrease in referrals but we certainly noticed an increase in the actual day to day work … so there was certainly extra work for us. People weren't attending their outpatient appointments so we were sort of being the go between". **CHN05, RN.**

High-risk communities were particularly affected by the pandemic. In one Aboriginal community, a participant described how the initial lockdown significantly disrupted the routine delivery of care and resulted in increased acute presentations:

> "Being an Aboriginal community, it was shut off. There was no entry or exit for the locals living in that area…. they weren't allowed in or out and only nurses and doctors allowed in… There was almost no presentations for me. [In] child health, there were no kids turned up for immunisation...they [community members] saw the tents set up in front for screening everyone and that's so intimidating for our community that's already suffering and frightened by being locked down… My role changed in that I didn't get a lot of children presenting except for – by the time they came, they were acutely

unwell…..so it became more acute rather than preventative primary health".

**CHN06. RN.**

Several participants spoke of the impact that COVID-19 had had on the provision of mental health support and care. Providing community mental health support required careful consideration relating to the need for face-to-face support or other means of care provision.

> "Yeah, there were definitely changes in how things were done. So for example, if somebody needed a home visit, a home visit became the exception rather than the rule…. So if we had someone who came through as a referral and we would try and work out whether they had a reliable internet connection, whether they had the ability to Facetime, all those things, what the particular issues were, how we could manage it, and try and work out what it was we needed to be able to go and do that home visit .. ".
>
> **CHN08, RN.**

> "I was comfortable if my clients were to see me face-to-face if I did the appropriate checks. Or [I] did a lot of phone work and stuff like that. It depends on the clients… Some are very high need. Some are very independent. Some you can manage once a month. Others it's two or three times a week. Those [once a] month they weren't the issue. A phone call was fine or a text message. They were happy with that". **CHN03, RN.**

GPNs reported how they spent additional time providing patients with mental health support.

> **"** we spent probably more time doing mental health stuff, ..a lot more time talking to people about how they were managing and how they were feeling about the changes, helping people to adapt to some of the restrictions and trying to help ..[such as] "Oh, okay. Well, you can't get together with your friends for lunch regularly, but what about you call them at the time you

would normally get together and talk to them instead?" And lots of those sorts of things just to help in terms of people's mental health because we were noticing a lot of people feeling very isolated." **GPN12, RN.**

Some positive aspects relating to provision of care were described by participants, in particular concerning wound management.

"We went from, say, doing a wound dressing twice a week to doing it once a week, and then setting the patient up at home to do that other dressing that we were missing out on. We were skilling our patients in self-care." **GPN02, EN.**

"some people have improved their confidence, if you like, in changing their dressings themselves and either phoning and explaining what the wound may look like…so they could send a picture …. they could get confidence in changing their dressing themselves at home '[be]cause they weren't able to come in". **GPN08, RN.**

### 3. Concerns about long-term health impacts

Several participants expressed concern about how the COVID-19 pandemic may affect the health of individuals and communities in the long term. Participants identified how routine cancer screening was missed, disrupted or delayed and the potential impact of that:

"They [the mobile breast screening service] come here every two years and set up for four months. That packed up and went… you know, we found 19 breast cancers the two years before when they came and it just made me wonder how many breast cancers got missed because that bus drove away. I'd hand out 20, at least a week, FOBT kits [faecal occult blood test].

> I've handed out none since March. Not one..... So it's all those things that I worry that in 12 months' time we're going to have another wave of problems and it's going to be chronic disease, it's going to be cancer diagnoses that have gone too far." **GPN05, EN.**

The routine management of chronic conditions was also felt to have been negatively affected by the pandemic.

> "We have had a few people that have now presented with chronic wounds that if they'd had the ability [to be reviewed] they probably wouldn't have escalated to what they did." **GPN02, EN.**

> "So, if somebody [comes for] their one three-monthly cycle for diabetes [and] doesn't get their feet checked or their weight checked…if those things don't happen for that one three-month period, …it's not terribly impactful. But if that was to continue over six or nine months, that's when then the negative outcomes would show up, I guess". **GPN01, RN.**

Others talked about how changes in care delivery may have led to missed care or opportunities to discuss other health issues or for nurses to undertake their opportunistic assessments of patients.

> "Normally someone comes in for an INR and rarely is it just the INR. It's usually 'oh by the way while I'm here can I do this or what about this or what about that'. So all those things didn't happen, which is great really and really efficient because the patient realises that they're in the carpark and that it's all a bit weird so they just – they were more – less likely to bring up opportunistic things as well, so you don't really know what you're missing". **GPN01, RN.**

> “It's not until someone else points out ‘oh, their [baby’s] head's a bit wobbly’, ... parents don't realise. A lot of our assessment skills are just watching the babies while they're in the clinic and seeing what they do, so it was a lot of developmental stuff I feel may have been missed. So we have missed that whole assessment port of call really, because we've not been able to see people and parents - and particularly parents who don't realise there's something a bit quirky with their bub we've missed now”. **CHN04, RN.**

## Discussion

Nurses have always played a significant role during disasters and emergencies, including disease outbreaks, pandemics and epidemics. Disease outbreaks have been associated with feelings of anxiety relating to the environmental changes and the level of uncertainty associated with disease progression and confusing messages about levels of safety (Ren et al., 2020; Usher et al., 2020). While nurses remain committed to their roles, the unprecedented pressure exerted by the COVID-19 pandemic on health care systems has exacerbated these feelings and created specific clinical and related challenges (Labrague & Santos, 2021). Findings from this study highlight how the pandemic immediately affected service delivery in the Australian primary health care sector. As in other areas of health care (Søreide et al., 2020), the initial emergency response to COVID-19 was related to the number of cases in the local area, and how services were able to respond to the emerging needs. Limited availability of data and misinformation in the early stages left PHC workers frustrated about how to adapt their services safely and effectively (Labrague & de los Santos, 2021). PHC nurses were somewhat disempowered in this process given the rapid changes that occurred, a lack of nursing leadership and input into the changing health policy,

and the nature of nurses' employment in PHC (Halcomb et al., in press; Halcomb et al., 2020a; Halcomb et al., 2020b). Further research needs to explore the longer-term impacts of these changes and the way in which nurses and other health professionals respond to and are affected by them.

Following the emergency response, a period of adaption to the 'new norm' has been described by several authors concerning acute care delivery (Holtmann et al., 2020; Søreide et al., 2020; Valentino et al., 2020). Our study showed that many PHC services promptly implemented mechanisms to better balance the availability of services to keep clients and staff safe but also to retain essential and urgent services not related to COVID-19. This adaption phase was described by our participants and others (Leung et al., 2020) as requiring the availability of reliable and consistent information for health workers to enable them to respond and adapt to emerging factors relating to the pandemic. In particular, our study highlighted how changes in the delivery of acute services had a flow on effect to the PHC system. This highlights the importance of policy makers and health services leaders engaging across acute and PHC services to ensure shared information, resource allocation and staffing.

The provision of clinical care during both the emergency and the adaption phases also evolved and adapted in line with international, national and local advice. The initial response to the pandemic in PHC, as in other settings, was to provide 'business as usual' with a focus on risk mitigation by ensuring hand hygiene, use of personal protection equipment, social distancing and symptom monitoring (Holtmann et al., 2020). Participants in our study reported innovative ways of providing face-to-face care in this environment, as well as adapting quickly to telehealth when this became available to nurses (Halcomb et al., in press; James et al., 2021). As part of the health care response to the worldwide pandemic, telehealth has emerged as one proposed solution to address this type of global challenge

(James et al., 2021; Ness et al.; Valentino et al., 2020), although as noted in our study, it may not be suitable to replace face-to-face consultations in some client groups.

The adaptions to service delivery during the pandemic have highlighted some positive aspects that need to be considered as we return to a new normal. Participants in our study reported promoting health literacy and self-management as strategies to reduce the frequency of face-to-face contacts for those with chronic conditions or wounds. Building self-management capacity has long been recognised as an important component of chronic condition management (Ory et al., 2013). However, determining how frequently a patient needs to be seen by health professionals versus their ability to undertake tasks themselves is often a difficult clinical decision impacted by various factors. Despite the concern that health outcomes would deteriorate in those with chronic conditions during the pandemic, Batten et al. (2021) surprisingly found that despite reductions in diabetes services, their diabetic patients demonstrated improved glycaemic control as measured by HbA1C. This highlights a need to reevaluate how care is delivered and the ways in which health professionals can actively support people to build self-management capabilities.

The outcomes from the interruption in providing routine screening services, such as breast and bowel cancer, as reported by our participants, will become clear in the coming months and years. In Australia, the national breast screening program, BreastScreen Australia has reported that from January to June 2020 there were approximately 145,000 fewer screening mammograms performed compared with 2018 (Australian Institute of Health and Welfare, 2021). This contrasted with the National Bowel Cancer Screening program which sent specimen kits to individuals by mail biannually with specimens collected at home and returned in the mail. The numbers of returned specimens appear not to have been affected by the lockdown (Australian Institute of Health and Welfare, 2021), although our participants described providing fewer kits opportunistically. However, colonoscopies, which are undertaken in day surgery units to check for bowel abnormalities were reportedly

significantly affected by the pandemic, with reduced numbers being performed (Issaka & Somsouk, 2020). As we return to a new normal it would seem prudent for health professionals in PHC to be highly vigilant for symptoms, and actively promote recall and screening programs opportunistically to all patients. Where possible PHC services should seek to provide increased opportunities for health checks to at-risk and vulnerable groups who may be less likely to identify and seek assessment of concerning symptoms.

Looking to the future there is still uncertainty about what the 'new normal' will look like. However, it is certain that a robust and prepared PHC workforce will play an essential part in ensuring the safety and continued health of communities.

## Conclusion

The disruption to global health and social welfare by the COVID-19 pandemic has been unparalleled in modern history. This study has identified how PHC nurses have played an important role in keeping Australians safe by adapting quickly to changed circumstances, adjusting and modifying clinical activities, and by monitoring for future potential negative outcomes from the pandemic. Lessons learned from early interventions in PHC during this pandemic must be recognised when planning for future COVID-19 waves and other pandemics or emergency situations.

## References


Ashley, C., et al. (2021a). Primary health care nurses' perceptions of risk during COVID-19: a qualitative study. *Journal of Nursing Scholarship*, *53*(6), 689-697.

Ashley, C., et al. (2021b). The psychological well-being of primary health care nurses' during COVID-19: A qualitative study. *Journal of Advanced Nursing*, *77*(9), 3820-3828.

Australian Government Department of Health. (2020). *Australians embrace telehealth to save lives during COVID-19*. Canberra, ACT, Australia Retrieved from https://www.health.gov.au/ministers/the-hon-greg-hunt-mp/media/australians-embrace-telehealth-to-save-lives-during-covid-19

Australian Government Department of Health. (2021). *The Australian health system*. Canberra, ACT, Australia. Retrieved from https://www.health.gov.au/about-us/the-australian-health-system

Australian Institute of Health and Welfare. (2016). *Primary Health Care in Australia*. Retrieved from https://www.aihw.gov.au/reports/primary-health-care/primary-health-care-in-australia/contents/about-primary-health-care

Australian Institute of Health and Welfare. (2021). *Cancer screening and COVID-19 in Australia*. Canberra Retrieved from https://www.aihw.gov.au/reports/cancer-screening/cancer-screening-and-covid-19-in-australia/contents/how-has-covid-19-affected-australias-cancer-screening-programs

Batten, L., Chandrajay, D., Burkinshaw, C., Gill, J., & Jayagopal, V. (2021). Service restriction during the COVID-19 pandemic and its impact on HbA1c: a surprising outcome. *e14414*, *38*(1).

Braun, V., & Clark, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, *3*, 77-101.

Commonwealth of Australia. (2020). *Australian Health Sector Emergency Response Plan for Novel Coronavirus (COVID-19).* (12723). Canberra Retrieved from https://www.health.gov.au/resources/publications/australian-health-sector-emergency-response-plan-for-novel-coronavirus-covid-19.

Fernandez, R., Lord, H., Halcomb, E., Moxham, L., Middleton, R., Alananzeh, I., & Ellwood, L. (2020). Implications for COVID-19: A systematic review of nurses' experiences of working in acute care hospital settings during a respiratory pandemic. *International Journal of Nursing Studies*, *111*, 103637.

Guzys, D., Whitehead, D., Brown, R., & Halcomb, E. J. (2017). *An Introduction to Community and Primary Health Care* (2nd edition ed.). Melbourne, VIC, Australia: Cambridge University Press.

Halcomb, Williams, A., Ashley, C., McInnes, S., Stephen, C., Kalma, K., & James, S. (2020). The experiences of primary health care nurses during the COVID-19 pandemic in Australia. *Journal of Nursing Scholarship*.

Halcomb , E., et al. (in press). The impact of COVID-19 on primary health care delivery in Australia. *Journal of Advanced Nursing*, https://doi.org/10.1111/jan.15046.

Halcomb , E., et al. (2020a). The experiences of primary health care nurses during the COVID-19 pandemic in Australia. *Journal of Nursing Scholarship*, *52*(5), 553-563.

Halcomb, E., Salamonson, Y., Davidson, P., Kaur, R., & Young, S. (2014). The evolution of nursing in Australian general practice: a comparative analysis of workforce surveys ten years on. *BMC Family Practice*, *15*(1), 52.

Halcomb , E., Williams, A., Ashley, C., McInnes, S., Stephen, C., Calma, K., & James, S. (2020b). The support needs of Australian primary health care nurses during the COVID-19 pandemic. *Journal of Nursing Management*, *28*, 1553–1560.

Holtmann, G., et al. (2020). "It ain't over … till it's over!" Risk-mitigation strategies for patients with gastrointestinal diseases in the aftermath of the COVID-19 pandemic. *35*(7), 1117-1123.

Issaka, R. B., & Somsouk, M. (2020). Colorectal Cancer Screening and Prevention in the COVID-19 Era. *JAMA Health Forum*, *1*(5), e200588-e200588.

James, S., et al. (2021). Experiences of primary health care nurses in using telehealth during COVID-19: a qualitative study. *BMJ Open*, *11*, e049095.

Labrague, L. J., & de los Santos, J. A. A. (2021). Fear of COVID-19, psychological distress, work satisfaction and turnover intention among frontline nurses. *29*(3), 395-403.

Labrague, L. J., & Santos, J. A. A. (2021). Fear of COVID-19, psychological distress, work satisfaction and turnover intention among frontline nurses. *Journal of Nursing Management*, *29*(3), 395-403.

Leung, M. S. T., Lin, S. G., Chow, J., & Harky, A. (2020). COVID-19 and Oncology: Service transformation during pandemic. *9*(19), 7161-7171.

Ness, M. M., Saylor, J., Di Fusco, L. A., & Evans, K. Healthcare providers' challenges during the coronavirus disease (COVID-19) pandemic: A qualitative approach.

Ory, M. G., Ahn, S., Jiang, L., Smith, M. L., Ritter, P. L., Whitelaw, N., & Lorig, K. (2013). Successes of a National Study of the Chronic Disease Self-Management Program: Meeting the Triple Aim of Health Care Reform. *Medical care*, *51*(11), 992-998.

Ren, S.-Y., Gao, R.-D., & Chen, Y.-L. (2020). Fear can be more harmful than the severe acute respiratory syndrome coronavirus 2 in controlling the corona virus disease 2019 epidemic. *World Journal of Clinical Cases,,*.

Searby, A., & Burr, D. (2021). The impact of COVID-19 on alcohol and other drug nurses' provision of care: A qualitative descriptive study. *Journal of clinical nursing*.

Shaw, K. A., Chilcott, A., Hansen, E., & Winzenberg, T. (2006). The GP's response to pandemic influenza: a qualitative study. *Family practice*, *23*(3), 267-272.

Søreide, K., et al. (2020). Immediate and long-term impact of the COVID-19 pandemic on delivery of surgical services. *British journal of surgery*, *107*(10), 1250-1261.

Tong, A., Sainsbury, P., & Craig, J. (2007). Consolidated Criteria for Reporting Qualitative Research (COREQ): a 32-item checklist for interviews and focus groups. . *International Journal for Quality in Health Care 19*(6), 349-357.

Usher, K., Durkin, J., & Bhullar, N. (2020). The COVID-19 pandemic and mental health impacts. *International journal of mental health nursing*, *29*(3), 315-318.

Valentino, L. A., Skinner, M. W., & Pipe, S. W. (2020). The role of telemedicine in the delivery of health care in the COVID-19 pandemic. *26*(5), e230-e231.

World Health Organization. (2020). *WHO COVID-19 preparedness and response progress report 1 February TO 30 June 2020*. Geneva, Switzerland Retrieved from https://www.who.int/emergencies/diseases/novel-coronavirus-2019/strategies-and-plans

World Health Organization. (2021). *Fact Sheet - Primary Health Care*. Geneva Retrieved from https://www.who.int/news-room/fact-sheets/detail/primary-health-care

Wright, A., Salazar, A., Mirica, M., Volk, L. A., & Schiff, G. D. (2020). The Invisible Epidemic: Neglected Chronic Disease Management During COVID-19. *Journal of General Internal Medicine*, *35*(9), 2816-2817.