

How has COVID-19 impacted cancer screening? Adaptation of services and the future outlook in Australia

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Key points

- Emerging evidence suggests the COVID-19 pandemic has, to some extent, disrupted the delivery and improvement of cancer screening programs, and thus delayed diagnoses, resulting in potential adverse morbidity and mortality
- The extent of potential adverse effects is emerging. Rapid research into the effects will inform urgent responses and could also fast-track evidence for optimisation of cancer screening in Australia, with benefits during and after the pandemic response and recovery

Abstract

The coronavirus disease 2019 (COVID-19) pandemic has caused major disruptions to many aspects of life in Australia and globally. This includes actual and potential future impacts on Australia's three national screening programs for breast, bowel and cervical cancer. These programs aim to improve cancer outcomes through an organised approach to the early detection of cancer and precancer in asymptomatic populations. The design of each program varies according to biological differences in the three cancers, the available screening technology, the target population, and variations in their administration of Australia's federal, state and territory jurisdictions. The observed and potential impacts of COVID-19 on these programs, and on related activities such as the current national enquiry into lung cancer screening feasibility, therefore vary significantly. This article focuses on observed short-term impacts, adaptations and the longer-term outlook for cancer screening in relation to COVID-19. It summarises potential responses to minimise the harms of disruptions caused by COVID-19, and highlights research and policy opportunities in the pandemic response and recovery which could inform and accelerate optimisation of cancer screening in the long term.

Introduction

On 11 March 2020, the World Health Organisation declared a global pandemic.¹ Australia's federal and state/territory governments introduced strict control measures, while closely monitoring COVID-19 infection and mortality rates.² Restrictions on physical movement and social interactions were implemented by Australia's states and territories. Health services were

adjusted to protect both healthcare professionals and patients while maintaining vital clinical services. Cancer-related services were classified as vital and remained available, but utilisation reportedly dropped due to patient reluctance to access services.³

In May–June 2020, restrictions eased and health services, including non-urgent and elective surgeries, resumed. Restrictions on some services were reintroduced in July following an increase in COVID-19 cases and deaths. At the time of writing (23 November 2020), there have been 27 821 COVID-19 cases and 907 deaths in Australia.⁴

The pandemic has disrupted health services and highlighted challenges in the health system such as fragmentation between jurisdictional programs and less investment in long-term prevention activities compared with acute care.⁵ Pre-existing health disparities and access to health services, for example in high-priority groups such as Aboriginal and Torres Strait Islanders, may be exacerbated by the pandemic and could widen further, if not addressed.

Impacts on cancer have been observed in Australia and internationally, in reduced screening rates, reduced health service use, and the consequent impact on delays in diagnoses attributed to COVID-19 have been modelled.^{3,6,7}

The key cancer control programs delivered nationally are three screening programs – BreastScreen Australia, the National Bowel Cancer Screening Program (NBCSP) and the National Cervical Screening Program (NSCP). These pillars of Australia's cancer control framework are shown to reduce mortality and morbidity through early detection of cancer and precancer in asymptomatic populations.⁸ At the onset of the pandemic, the Australian Government Department of Health (DoH) was also assessing the feasibility of lung cancer screening.

Minor disruptions to screening programs are unlikely to cause significant increases in cancer burden, given the lead time between precancer, early-stage cancers and adverse outcomes, and the potential for catching up with missed screening tests. However, the risk of more substantive disruptions such as those caused by the COVID-19 pandemic raises questions about ongoing health impacts, how adaptive these programs will be in the face of uncertainty, and the status of lung cancer screening. As one response, the DoH funded a media campaign ('Cancer screening saves lives') from late September 2020 in response to the COVID-19 pandemic to promote participation in screening programs.

This paper provides an overview of how the COVID-19 pandemic could impact on cancer screening in Australia, considering several dimensions: the short-term impact, adaptation/recovery of programs and the longer-term outlook.

BreastScreen Australia

Short-term impact

BreastScreen Australia is administered by state and territory governments under a national agreement. BreastScreen involves a biennial mammographic screening test where women attend a fixed or remote imaging service, and suspicious abnormalities are referred for investigation ('assessment'). Screening and assessment require close physical interaction between women and health personnel. BreastScreen normally screens about 1.8 million women every 2 years, including 55% of the target age range of 50–74 years, and 14% of women aged 40–49 or 75 years and older.⁹ About 40 000 assessments are provided annually.⁹ All BreastScreen services were paused starting from late March to early April 2020 (based on jurisdictional decisions), to reduce the risk of COVID-19 transmission.

Adaptation of screening services

Breast screening resumed in late April 2020, with throughput reaching 83% of 2018 capacity by the first week of June.⁷ Adaptive measures to continue screening in the pandemic have included risk assessment, use of personal protective equipment, increased social distancing and modified mammogram positioning techniques.¹⁰ A range of infection control procedures, such as frequent disinfecting of surfaces, physical distancing (e.g. fewer people permitted in waiting rooms), and assessment of participants' recent health and travels, and requirement for self-isolation for participants potentially exposed to COVID-19, have been in place since service resumption.¹⁰ There has been some prioritisation of available screens in place, for example for women in the 50–74 years age group already due or overdue for a screening mammogram.¹⁰ Some regions have also made specific adaptations. For example, in August 2020, the Northern Territory mobile screening unit 'Millie' did not visit remote communities as usual due to COVID-19.¹¹

Longer-term outlook

COVID-19 may continue to impact on BreastScreen throughput at a local level due to regional outbreaks, heightened social distancing measures, and directly impacted personnel or clinical sites.¹⁰ Longer-term reduced throughput would mean an accumulation of women with delayed screens so that screening intervals are extended for some women. In that scenario, even a default approach of minimising delays with equal priority for all women, with some preference for women in the target age range (50–74 years), could be complex and resource intensive. A more optimal response could prioritise services to women at greatest risk of an interval cancer.¹² Innovation, flexibility, additional resources and political will might be required to design and implement

such a risk-based approach, supported by clear communication to impacted women.

National Bowel Cancer Screening Program (NBCSP)

Short-term impact

The federally-administered NBCSP has continued to distribute immunochemical faecal occult blood test (iFOBT) kits without interruption. After a 14-year phased rollout, the NBCSP was fully implemented in 2020, with all eligible people aged 50–74 years invited to participate. The most recent national data on participation rates (42%) was current to December 2018.¹³ Participation data from January to July 2020 showed that kits were distributed to participants but there was a decrease in kits returned during the reported period. This may also have been impacted by bushfires in late 2019 to early 2020 and/or the lag between kits sent, completed and returned, but these data will not reflect post-July impacts of the pandemic.⁷

Adaptation of screening services

The NBCSP is likely well placed to withstand disruptions to health services of the nature caused by the pandemic. The kit is home based and analysed via a dedicated pathology service, which has been unaffected by COVID-19. Therefore, there is a case to promote NBCSP participation, irrespective of the pandemic response, provided an effective national postal service is operational. Before COVID-19, media campaigns successfully encouraged people to increase participation¹³ and this type of intervention is now being used again in the 'Cancer screening saves lives' campaign.

However, while the mailing and analysis of kits could continue indefinitely, the effective management of individuals who test positive and require a colonoscopy for investigation is more complex. The median national colonoscopy wait time in 2018 was 55 days.¹⁴ Colonoscopy services have been affected by a reorganisation of personnel to address COVID-related needs, limited access to health personnel in regional and remote areas due to travel restrictions, and individuals' reluctance to access health services due to risk of infection.

Longer-term outlook

COVID-19 has highlighted the need to reinforce existing screening guidelines to address ongoing challenges in colonoscopy prioritisation. Concerns over wait times have long been linked to the NBCSP, yet based on estimates of screen-positive referrals (approximately 100 000 in 2020) it is thought that only about 10% of colonoscopies are NBCSP related.¹⁵ This situation suggests that,

pre-pandemic, there was non-optimal prioritisation of existing services and non-guideline recommended use of colonoscopy as first-line screening.

Given that people testing positive through the NBCSP are high priority for review, it is anticipated that COVID-prompted adaptations to the health system to deal with current demands could create longer-term opportunities for new, evidence-based efficiencies in colonoscopy prioritisation. One example of this is that some categories of individuals presenting with symptoms or at higher risk could be encouraged to take an iFOBT test as a form of triage to assess the urgency for colonoscopy; the evidence base to support this would be required.

National Cervical Screening Program (NCSP)

Immediate impact

The NCSP was not officially halted; however data suggest there have been disruptions to participation⁷, and COVID-19 has created challenges for initiatives to recruit under-screened women as cervical screening requires attendance at a clinic.

Due to the success of the NCSP (in place since 1991), the cervical cancer burden in Australia is relatively low.¹⁶ Changes were made to renew the NCSP from December 2017, shifting from 2-yearly cytology to 5-yearly human papillomavirus (HPV) testing. Among the women who had already received their first HPV test under the renewed program, more than 90% had no HPV detected and consequently do not need to screen again until at least December 2022 – these women are protected during the disruption. Because a woman's first HPV test is due 2 years after her last cytology test, and COVID-19 disruptions occurred more than 2 years after the NCSP's transition, many women have already had their first HPV test (and those who had not were overdue). This transition reduced the impact of the pandemic on cervical screening compared with what would have occurred if 2-yearly cytology had continued.

Adaptation of screening services

Actions undertaken so far to encourage women to continue to screen include the national media campaign and innovative (but jurisdictionally localised) examples of the use of self-collection, which is highly acceptable to under- and never-screened women. One laboratory has begun to offer home-based self-collection supported by telehealth. Kits are mailed to eligible women upon the request of their provider following a telehealth consultation¹⁷, minimising personal contact between participants and health professionals. COVID-19 is also likely to have had direct effects in follow-up health services, such as colposcopy, required for women with a positive screening test. As with the NBCSP, prioritisation

of colposcopy services is essential to balance clinical need with service capacity. As for the NBCSP, also, there were pre-pandemic challenges extant in managing screening program referrals, which are being addressed in part via a current review of clinical management guidelines for the renewed NCSP.

Longer-term outlook

The NCSP is critical to achieving cervical cancer elimination in Australia¹⁸, and doing so among all groups of women, not only at a national level. Although the transition to 5-yearly HPV screening has by its very nature increased some aspects of the resilience of the program, with the longer interval effective in protecting women, it is critical that, rather than lose momentum towards elimination^{19,20}, Australian health authorities view COVID-19 as an opportunity to further demonstrate international leadership, ensuring the Australian program is flexible, resilient and more accessible to all women, including in times of crisis.²¹ Encouraging the women who missed cervical screening in 2020 to return for screening faces an additional challenge: since more than 2 years had elapsed since the NCSP's transition to a longer interval, the only women expected to attend for a routine screening test in 2020 were those who were already overdue or never previously screened. By definition, under- and never-screened women have already proven more difficult to engage in screening, so the need for new and targeted approaches to focus on under- and never-screened women within the program is magnified by the impacts of COVID-19. There is an opportunity to build on recent initiatives and make self-collection more accessible, and to bolster targeted program communications to under- or never-screened women.

Lung cancer screening

In August 2019, the Federal Minister for Health, Greg Hunt, directed Cancer Australia (the national statutory cancer agency) to undertake a major national enquiry into the feasibility of lung cancer screening. It is too early to understand the impact of COVID-19 on Australia's ongoing lung cancer agenda. However, the crisis may prove significant given that if targeted lung cancer screening is phased in, it would involve low-dose computed tomography and pathology which may be restricted in availability and access due to the pandemic.

Conclusion

Although impacts have been fairly limited to date, the COVID-19 pandemic could have major future impacts on Australia's established cancer screening programs and emerging activities such as lung cancer screening. Given the demonstrated health and economic benefits of cancer screening, compromised provision of and access to the programs could lead to adverse health

outcomes – unless evidence-based and responsive measures are taken to ensure recovery. As a first step, detailed monitoring and evaluation is key – and this has begun.⁷ Although Australia's programs are effective, they must continue to evolve in step with the evidence on best practice, advances in screening technology, assessment, diagnostic and treatment pathways, and equitable access across all populations.

The greatest opportunities for longer-term screening optimisation may occur in targeted approaches, based on improved prioritisation of services, risk stratification and engaging more effectively with under-screened populations. These measures may attract increased research investment and accelerated trial and implementation opportunities as part of the COVID-19 and cancer response.

COVID-19 is an unprecedented crisis. It could also be an unprecedented opportunity to use the best available evidence to minimise the burden of cancer on the Australian population during the recovery and long after the pandemic has passed.

Peer review and provenance

Externally peer reviewed, invited.

Competing interests

KC is co-principal investigator of an unrelated investigator-initiated trial of cervical screening in Australia (Compass; ACTRN12613001207707 and NCT02328872), which is conducted and funded by the VCS Foundation (VCS), a government-funded health promotion charity. The VCS Foundation received equipment and a funding contribution from Roche Molecular Systems USA. However, neither KC nor her institution on her behalf (Cancer Council NSW) receives direct funding from industry for this trial or any other project.

Author contributions

All authors contributed equally in scoping, drafting, writing and reviewing the manuscript.

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