



## EDITORIAL

## Recovering cancer screening in the pandemic: strategies and their impacts

The coronavirus pandemic has disrupted cancer screening programmes. Kregting and colleagues' microsimulation models indicate that attempting to quickly catch up with missed screens while simultaneously restarting the ongoing programme would achieve better outcomes but require substantial increases in normal screening capacity that may not be feasible.

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## MAIN

The coronavirus pandemic has disrupted all elements of national cancer control programmes. Patients are less likely to present to primary care with symptoms and signs while cancer screening programmes have been partially or wholly suspended in many countries. Once seen, there may be longer waits for investigations and treatment.<sup>1,2</sup> Some treatment options have been changed because the most efficacious modality may not be safe or available.<sup>3</sup> The initial priority to make cancer care safe above all else has extended through 2020 to allow other aspects of service quality—particularly accessibility—to be restored to some extent. As health services recover, there is a need to rapidly inform strategies to achieve the best outcomes from new models of cancer care.

Cancer screening programmes operate in most developed countries. They are based on the premise that outcomes will be improved by detecting and treating asymptomatic cancers in at-risk populations that would have become symptomatic at a later stage, when the prognosis was poorer. They also have some capacity for primary prevention by detecting and treating risk factors. Programmes to screen for breast, colorectal and cervical cancers are the commonest. Their benefits and harms are subject to much debate but breast screening in the UK, for example, is estimated to save 1300 lives per year.<sup>4</sup> In Australia, colorectal screening has been estimated to prevent 92,200 incident cases and 59,000 deaths from colorectal cancer between 2015 and 2040, even with uptake remaining at 40%.<sup>5</sup> The impacts of the coronavirus pandemic on pausing cancer screening, and the best way to restart services when there are competing pressures to minimise the ongoing infection risks, are uncertain.

Kregting and colleagues<sup>6</sup> provide helpful insights into the impacts of stopping cancer screening for breast, colorectal and cervical cancers and restarting it in a variety of ways in the Netherlands. The work expands their initial report on breast cancer.<sup>7</sup> Their methodology benefits from using microsimulation to allow individuals' trajectories through screening to be modelled. This approach permits adjustment for the effects of patients entering and leaving programmes over different periods and at different ages. An alternative, inferior, approach would have been to have taken each screening cohort and assume that interruptions in screening affected all patients equally, when, for example, those towards the upper age for screening might never be invited back. With a number of potential options for restoring cancer screening, Kregting et al.<sup>6</sup> presents each of them to assist an option appraisal.

Kregting and colleagues assume a 6-month cessation of cancer screening programmes followed by five approaches to

restarting them and present their estimated impacts on cancer incidence, mortality and screening capacity. It is worth rehearsing these approaches to restarting screening because doing so in itself is a useful framework for any country considering its options: (1) resume the programme without attempting to catch up on missed screens; (2) postpone the entire programme and advance it wholesale to a later date (at which point the oldest participants would no longer be eligible for screening); (3) resume invitations as normal for those entering the programme for the first time but advance to a later date those already in the programme; (4) postpone the entire programme and advance it wholesale to a later date and continue to screen those who then exceed the maximum age; and (5) resume all screening activity as normal when the disruption ceases and catch-up with those who missed a screen by adding the length of the disruption to their initial invitation date. Broadly, attempting to quickly catch up with missed screens while simultaneously restarting the ongoing programme would require substantial increases in normal screening capacity—perhaps doubling it—while those in which some groups are not pursued might require equal or reduced total capacity. The effects of suspending screening on incidence (that is, observed incidence, not true occurrence) might take 5 years to resolve. Again, in broad terms, attempts to catch up quickly might lead to an initial increase in observed cancer incidence followed by a decrease while the other strategies might lead to a decrease followed by an increase. Early attempts to catch up after the disruption might have little effect on mortality; while the other approaches might increase it for several decades. The impacts of screening disruption on mortality were largest for breast cancer, smaller for colorectal cancer and smallest for cervical cancer.

How can Kregting's results be used to inform cancer screening programme recovery in other countries? Perhaps the starting point is a practical one, by working back from their estimates of required screening capacity. One stark conclusion of this analysis is that only a large increase in screening resources to rapidly catch-up with missed patients will result in minimal effects on cancer mortality. However, as the authors point out, the majority of European countries already had limited resources for screening prior to the pandemic and even usual—let alone greater—capacity will not be restored immediately after pausing screening. This means that there will be a long tail of service disruption until widespread vaccination has effectively eliminated coronavirus from a country. At the time of writing—November 2020—the emergence of several highly efficacious vaccines this month raises

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real hope that many of the restrictions can be lifted at some point in 2021. But even an optimistic assessment would be that cancer screening in many countries will have been disrupted for at least 15 months. Might trade-offs be made between screening programmes so that resources are shifted towards breast cancer and away from cervical screening? Probably not. In practice, the screening, diagnostic and treatment pathways between the three cancers share few common resources. Some of the assumptions about the numbers of deaths that screening might prevent (for breast cancer, about the same number as estimated for the UK, which is three times larger), impacts on inequalities, and age ranges should also be considered by countries applying Kregting's analysis to their own populations.

While the risk and responses to coronavirus are rapidly changing, there is a universal need to rapidly inform recovery of cancer screening as part of the spectrum of cancer control activities. Kregting and colleagues offer both a helpful practical framework of the options together with estimates of the resources that each might require and their impacts of cancer outcomes.

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David S. Morrison <sup>1</sup>

<sup>1</sup>Director of the Scottish Cancer Registry, Institute of Health and Wellbeing, University of Glasgow, Glasgow, UK  
Correspondence: David S. Morrison (david.morrison@glasgow.ac.uk)

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