

Screening resilience modelling

Breast screening prioritization scenarios

Background: Breast cancer screening in Canada stopped for approximately 3 months during the first wave of the COVID-19 pandemic. Screening has since resumed but it will take time to catch up with the backlog from the screening pause.

Objective: This analysis compared two strategies for resuming breast cancer screening in 2020-2021: (i) No prioritization – 50% of women (due for first and subsequent screens) delay screening by 1 year; and (ii) Prioritize first screen - ~54% of women due for subsequent screens delay screening by 1 year.

Methods: Using OncoSim-Breast, a Canadian mathematical simulation model of breast cancer natural history, we simulated the lifetime breast cancer outcomes of a cohort of women eligible for breast cancer screening in Canada in 2020-2021 and compared the lifetime breast cancer deaths between the two strategies.

Results: Compared to no prioritization, the strategy prioritizing first screens would lead to ~120,000 more women receiving their first screens on schedule; on the other hand, ~120,000 more women due for their subsequent screens would be receiving screening one year later in 2020-2021. At the population-level, the difference in lifetime breast cancer deaths between the two strategies was negligible. The analysis did not capture changes in stage at diagnosis between the two strategies.

Interpretation: Although women attending their first screens have higher cancer detection rates than women attending subsequent screens, the difference in lifetime breast cancer deaths at the population level was small as the intervention was of fairly short duration.

Implications: Maximizing the number of individual women participating in screening (within capacity constraints), would have a greater impact in mortality reduction than prioritizing first vs. re-screens, especially if the latter is logistically challenging.