Screening resilience modelling

Colorectal screening prioritization scenarios

Background: Colorectal 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: The analysis compared two strategies towards reducing the surge in colonoscopy demand from catch-up screening: (i) reduce fecal test screening backlog over a longer period rather than inviting all individuals at once; and/or (ii) increase the fecal test threshold for referring individuals for a follow-up colonoscopy.

Methods: Using OncoSim-Colorectal, a Canadian mathematical simulation model of colorectal cancer natural history, we simulated the impact of three recovery periods (or time to catch-up with FIT screening backlog) – 6, 12 and 24 months – and various FIT thresholds on colonoscopy demand and colorectal cancer deaths. When trying to reduce the screening backlog over a longer period, it was assumed that programs would delay ongoing screening slightly (e.g., six weeks later than their scheduled screening, on average), allowing programs to prioritize those who missed screening during the interruptions (those eligible for screening in Mar-Jun 2020).

Results: Catch-up screening can mitigate most of the risks from the screening pause, especially when maintaining the current FIT thresholds for colonoscopy referrals. Increasing FIT threshold for colonoscopy referrals and/or increasing recovery period could help manage the demand for colonoscopy. Without additional fecal test follow-up colonoscopies, programs would have to increase FIT threshold for follow-up referrals; however, maintaining the regular threshold for follow-up referrals would be more effective in mitigating the harms from screening interruptions. The analysis showed that increasing the fecal test follow-up colonoscopies by 4% for the next 24 months could reduce most of the colorectal cancer deaths from paused cancer screening (409 or 93% deaths prevented).

Interpretation: Catch-up screening can mitigate most of the risks from the interruptions. A longer recovery period could be an option for maximizing long-term colorectal cancer outcomes in the context of constrained colonoscopy resources. This could be done through reallocating colonoscopy resources from lower yield indications, such as primary colonoscopy screening or for constipation in those under the age of 50 years without a family history of colon cancer or alarm features.*

Full report: Statistics Canada, English and French

*Choosing Wisely Canada. October 2020. Five Things Physicians and Patients Should Question. https://choosingwiselycanada.org/gastroenterology/

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