

# Mitigating COVID-19's impact on missed and delayed cancer diagnoses

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The COVID-19 pandemic has brought unparalleled changes to our lives and health care system. The need to increase hospital capacity and redirect health care resources led to the unprecedented suspension of cancer screening during the first wave of the pandemic, decreased screening in subsequent waves, and delays in cancer diagnosis and treatment.<sup>1</sup> Although we will not be able to comprehend the full impact of these delays on cancer mortality rates for several years, family physicians have an important opportunity to encourage their patients to resume screening activities in order to mitigate further deleterious outcomes.

## Impacts on cancer screening and diagnosis

Cancer screening came to a halt across Canada from mid-March 2020 to May 2020, and the gradual resumption of screening was further hindered by subsequent COVID-19 waves in 2021 and 2022. A review of Ontario's breast, lung, colon, and cervical cancer screening programs showed that in 2020 there were 41% (951,000) fewer screening tests conducted compared with 2019. Screening volumes rebounded after May 2020, but they were decreased by 20% from prepandemic levels.<sup>2</sup> Based on historic detection rates, this reduction in screening translates into fewer invasive cancer diagnoses: 1412 to 1507 fewer breast cancers, 1148 to 1222 fewer cervical cancers, and 393 to 462 fewer colorectal cancers.<sup>2</sup> In Ontario, as of December 2021, the estimated cancer screening backlog included 89,347 Papanicolaou tests, 307,617 mammograms, and 297,299 fecal immunohistochemical tests.<sup>3</sup> In Quebec, the number of fecal immunohistochemical tests in 2020 to 2021 was 26% lower than in the previous year, and the number of screening mammograms had decreased by 24%.<sup>4</sup> Similar trends were noted in Manitoba during cessation of screening in the first wave, with a 54% decrease in screening mammograms, an 83% decrease in Pap tests, and an 81% reduction in fecal occult blood tests. Although screening volumes returned to expected levels by September 2020, there was a considerable cumulative backlog noted in August 2021 of 17,370 screening mammograms, 22,086 Pap tests, and 5253 fecal occult blood tests.<sup>5</sup>

Follow-up investigations for abnormal screening results were also backlogged during the shutdown. In Quebec, the number of diagnostic mammograms performed in 2020 to 2021 decreased by 13% compared with the previous year.<sup>4</sup> In Ontario, diagnostic lags for abnormal breast and colon screening results were noted in April 2020; however, these lags had been resolved

by May 2020.<sup>2</sup> Some backlogs persisted, with 33% of Ontarians with high-grade screening cervical cytology results before the start of the pandemic still awaiting colposcopy as of August 2020.<sup>6</sup> Patients living in neighbourhoods in the lowest income quintile were more likely to have diagnostic delays following an abnormal breast, colorectal, or cervical screening result than were those in higher-income neighbourhoods.<sup>2</sup>

Patient hesitancy to be seen in person, coupled with the rise of virtual care and decreased health care resources for diagnosis, including biopsy and imaging, reduced the number of symptomatic cancers diagnosed. Approximately 30% of cancers were diagnosed through emergency departments in COVID-19 waves 1 and 2, compared with a baseline of 11%.<sup>7,8</sup> A survey of radiologists showed that prostate biopsies ceased during the initial shutdown and gradually resumed by August 2020.<sup>9</sup> One Ontario study noted a decrease of 85% in expected rates of skin biopsies from January to September 2020, with only 27% of the usual volume of biopsies for melanoma. This led to a deficit of 595 fewer cases of melanoma diagnosed in 2020 compared with 2019.<sup>10</sup> A similar impact was seen in the diagnosis of lung cancer at a cancer centre in Quebec, with a decrease of 35% in new lung cancer cases diagnosed between March 2020 and February 2021 compared with the previous year. The lung cancers that were diagnosed were noted to be at a slightly more advanced stage.<sup>11</sup> Analysis of the Manitoba Cancer Registry showed a 23% decrease in new cancer diagnoses in April 2020, accompanied by a 21% decrease in the volume of pathology reports and a 43% drop in surgical resections.<sup>12</sup> Quebec data revealed a 5% decrease in pathology results positive for malignancy in 2020 to 2021 compared with the previous year.<sup>4</sup> Canada-wide, the number of cancer surgeries decreased by about 20% in 2020 compared with 2019.<sup>13</sup>

## Modeling future impact

The impact of screening delays on cancer incidence and stage has been modeled, and delays have been shown to increase late-stage cancer diagnoses and mortality. In 1 model, a 3-month interruption in breast screening resulted in 310 more breast cancers being diagnosed at a later stage (IIIA) and 110 more deaths. Similarly, a 3-month interruption in colorectal cancer screening resulted in the diagnosis of an additional 1100 colon cancers, with 60% of them at an advanced stage (III or IV), and 480 more deaths.<sup>14</sup> These findings were echoed in a second modeling study, which projected cancer mortality

in Canada would increase by 2% between 2020 and 2030, with a peak of 6% excess mortality predicted in 2022. This model anticipates 21,247 excess cancer deaths over the next 10 years in Canada owing to the pandemic.<sup>15</sup>

The impact of COVID-19 on cancer is far reaching: screening backlogs, delayed workup of symptomatic patients and abnormal screening results, and delays in cancer treatment and research, all exacerbated by patient apprehension to be seen in person. It is clear that there is not only a lost cohort of screened patients, but also a subset of missed cancer diagnoses due to delays in patient presentation and assessment, leading to stage migration in those cancers that are diagnosed. Modeling suggests missed diagnoses and late-stage cancer diagnoses will translate into higher mortality, and higher costs can be anticipated with the more intensive treatments required for advanced cancers. As gatekeepers of screening and cancer diagnosis, family physicians have an invaluable part to play in mitigating the impact of COVID-19 on patients with cancer. We must take an active role in surveying our practices for patients who are overdue for screening and in advocating for this preventive care. Family physicians must be judicious in our use of colonoscopy and avoid using this finite resource to screen patients at low risk, so as to increase the capacity for the workup of positive screening results and high-risk patients. We should monitor for the expected increase in symptomatic cancers and facilitate expeditious workup. Family physicians are uniquely placed in our health care system to decrease the collateral damage of the COVID-19 pandemic and reduce avoidable cancer deaths.

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