

The backlog in mammograms during the COVID-19 pandemic

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At its onset, the COVID-19 pandemic severely disrupted medical care, as millions of elective procedures were postponed or canceled. While the volume of many procedures rebounded by the end of July 2020, the

disruption caused a massive backlog. In a recent article in *Health Services Research*, LDI Associate Fellow and postdoctoral researcher Alon Bergman and his co-authors study the impact of the COVID-19 pandemic on one common procedure, mammograms, and answer the question: When might we expect to clear the queue and return to regular operations?

Using claims data from Independence Blue Cross, a large regional health insurer, we estimate that 58% of expected routine screening [mammograms](#), and 38% of expected diagnostic mammograms, went unperformed between March 11 and July 28, 2020. We then project how long it would take to clear this queue of missed mammograms. In the best-case scenario, we estimate that it would take a minimum of 22 weeks to clear the queue. In the [worst-case scenario](#), however, demand will continue to exceed capacity, and the backlog will grow.

Our sample includes nearly 600,000 mammograms performed between January 1, 2018 and July 28, 2020. The majority were screening mammograms (88%), performed routinely and used for detection of early-stage breast [cancer](#); the others were diagnostic mammograms (12%), performed after the detection of palpable mass or following an abnormal screening result.

We estimate the number of missed screening and diagnostic mammograms from March 11 to July 28, 2020 using a difference-in-difference methodology, comparing the weekly number of mammograms performed over the same period (weeks 11-30) to earlier in the year (weeks 1-10), across 2018, 2019, and 2020. As shown in Figure 1a, routine screening mammograms dropped by nearly 99% of expected weekly levels in early April 2020, began rebounding in May, but were still 14% below expected level by the end of July. We found a similar, though less severe, trend for diagnostic mammograms, which decreased by 74% by April, but rebounded to levels on par with previous

years by the end of July (Figure 1b). Alarming, these significant decreases were also observed for women with a prior diagnosis of breast cancer, with a 40% reduction in screening mammograms and a 30% decrease in diagnostic mammograms over weeks 11-30 of 2020.

Based on previous studies, which found that the incidence of true-positive screening mammograms ranges from 51% to 82%, we estimate that the 39,200 missed screening mammograms translate to 200 to 320 cases of delayed breast cancer diagnosis within the insurer's population, of which 130 to 200 will be invasive cancer. We predict that the true-positive rate among missed diagnostic screening cases would be higher (perhaps significantly so), given that diagnostic mammograms are only scheduled following an abnormal finding.

To estimate how long it may take for women who missed a mammogram (of either type) to receive one, we apply our estimates to a basic operations research queuing formula. We consider different scenarios, based on (a) how social distancing guidelines and new cleaning protocols might reduce capacity; and (b) how providers might extend their hours of operation to increase capacity. We find that even in the best-case scenario, where capacity is only mildly affected by social distancing guidelines and providers increase their hours of operation by 50%, it would take 22 weeks, or 5 months, to clear the queue. This calculation was based on the assumption that demand for mammograms remained at week 30 levels, meaning that no further lockdowns, shelter-in-place orders, or other events that might curb demand would recur after July 28. With a second wave of COVID-19 affecting most regions in the U.S. in the fall of 2020, it is likely that our "best case scenario" has already failed to materialize.

Our data only represent a single insurer and a single type of cancer screening—a fraction of patients affected by delays in nonurgent health care services. Breast cancer is not the only form of cancer with reduced

screening rates. Given the importance of early detection in the management of other forms of cancer, the full implications of seemingly temporal changes to [screening](#) patterns during the pandemic may not be realized for years to come.

The article, Disruptions in Preventive Care: Mammograms During the COVID-19 Pandemic, was published online in *Health Services Research* on Nov. 4, 2020.

More information: Hummy Song et al. Disruptions in preventive care: Mammograms during the COVID-19 pandemic, *Health Services Research* (2020). [DOI: 10.1111/1475-6773.13596](https://doi.org/10.1111/1475-6773.13596)

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