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## LEARNING FROM PAST PANDEMICS

# Will the COVID Pandemic Lead to Uncounted Cancer Deaths in the Future?

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During the height of the first COVID-19 wave in the United States from March to April 2020 that disproportionately affected East Coast states and in particular devastated New York City, many cancer centers around the United States reduced their censuses and postponed nonessential cancer services to flatten the curve and raise the threshold of hospital capacity.<sup>1,2</sup> On average in the United States, radiation oncology practices saw two-thirds of their typical patient volume.<sup>3</sup> In retrospect, such policies proved to be prudent because patients with cancer may be at greater risk of death from COVID-19 infection.<sup>4-8</sup> However, as recently communicated from the Director of the National Cancer Institute Norman Sharpless, prolonged slowdowns in screening, cancer care, clinical trials, and research will lead to excess cancer mortality over the coming decade—with the potential to “turn one public health crisis into many others.”<sup>9</sup>

Emerging literature estimates the excess cancer mortality that will result from slowdowns in cancer services in the United States and in Europe. In March 2020, much of the United Kingdom suspended breast, cervical, and bowel cancer screening programs. In April 2020, the US Centers for Medicare & Medicaid Services classified cancer screening as a low priority, with the suggestion to delay these procedures.<sup>10</sup> Thus far, it is estimated that more than 22 million screening tests in the United States have been delayed due to COVID-19.<sup>11</sup> There is a particular concern over delays in screening and evaluating patients with upper gastrointestinal symptoms because they are most likely to have actual cancer.<sup>12</sup> The US

National Cancer Institute conservatively estimates 10,000 excess deaths over the next decade from underdiagnosed and undertreated breast and colorectal cancers during COVID-19, but this model did not include other cancers, the effects of upstaging due to delays, or a disruption in care lasting for more than 6 months.<sup>9</sup> An analysis by Lai et al, currently in preprint, estimates an excess of 1-year deaths from any cause of 6270 and 33,890 from the United Kingdom and the United States, respectively, under a conservative assumption that only patients with newly diagnosed cancer are affected.<sup>13</sup> In a single institution in Italy, pathologic cancer diagnoses fell by 39% in 2020 compared with 2018 to 2019, and the authors expressed particular concern that a 62% decrease in colorectal cancer diagnosis may lead to excess cancer mortality.<sup>14</sup> Although intentionally limiting lower-priority oncologic services was sensible during initially unfamiliar circumstances, repeating a similar ramp down may not be the optimal strategy in continuing or successive waves of the pandemic.

Similar developments occurred during the earlier experience of SARS in 2003, when a 48% reduction in colonoscopies was observed in Hong Kong.<sup>15</sup> This year, during the early phase of the COVID-19 pandemic, the mean number of upper and lower endoscopies per week in Hong Kong dropped by 51.0% and 58.8% from late January through March 2020, and the number of gastric and colorectal cancers diagnosed per week fell by 46.2% and 37.0%, respectively.<sup>16</sup> However, recognition of this slowdown led to active public health campaigns propagated by academic institutions and nongovernmental organizations in Hong Kong to restart

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screening and other cancer-related procedures, with teams sent out to educate the public and with specific targeting of populations identified as at highest need of screening.

In terms of acute cancer care services such as radiation oncology, the SARS experience contributed to a more prepared transition in Hong Kong. From the outset of the COVID-19 outbreak in late 2019, Hong Kong public hospitals immediately established strict protocols that emphasized infection prevention, early detection, and isolation but, notably, did not establish quotas for most cancer services (see summary of policies in Appendix E1). Thus, the University of Hong Kong-Shenzhen Hospital observed only a 1.5% decrease in the number of radiation treatments in the first quarter of 2020 compared with the first quarter of 2019. The University of Hong Kong-Shenzhen Hospital continued using standard dose fractionations and did not cut back on intensity modulated or stereotactic techniques.<sup>17</sup>

SARS has resulted in an informed public and health care system in Hong Kong. A telephone survey post-SARS found that over 90% of the general public in Hong Kong perceived the use of facemasks, frequent hand-washing, and disinfection of living quarters to be effective in preventing SARS.<sup>18</sup> The painful and unforgettable lessons learned in 2003<sup>19</sup> paved the way for early and rapid public health responses with contact tracing and community-wide wearing of face masks during the first wave of COVID-19, resulting in low disease incidence.<sup>20,21</sup>

The SARS epidemic was controlled by the month of July 2003, totaling 8 months from beginning to end.<sup>22</sup> As a result of this shattering experience, Hong Kong is one of several cities in Asia that maintained acute cancer service provision throughout COVID-19.<sup>23-25</sup> However, the uncounted deaths that will result from less obvious sources such as delayed diagnoses, forgone screening, and the public's inability or hesitancy to report to hospitals remain an ongoing challenge. This secondary effect will only be addressed through recognition of the issue, focused solutions including strict infection-control policies and an emphasis on public health measures, and no small amount of institutional and societal resolve.

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