

Impact of the COVID-19 Pandemic on the Delivery of Definitive Therapy for Cancer at Mass General Brigham

Background: In March 2020, authorities recommended that elective procedures be postponed, preserving resources and minimizing risks for operative patients and staff due to the COVID-19 pandemic. However, delays in cancer treatment may impact the odds of cancer progression and mortality. We sought to evaluate the effect of the pandemic on delivery of definitive therapy for prostate, non-small cell lung (NSCLC), breast, and colon cancer in a large health system in New England.

Methods: Data on all prostate, NSCLC, breast, and colon cancer patients treated at Mass General Brigham institutions in 2019-2020 were retrieved from the Research Patient Data Registry. Patients under 18 years of age and those with metastatic disease were excluded. Definitive therapy was defined by cancer site using NCCN guidelines. Procedure counts were summed for the periods 12/1-3/1 (T1) and 3/2-6/1 (T2) in 2018-19 and 2019-20. Yearly ratios (T2/T1) were used to account for seasonality and differences in frequency between procedures. The difference-in-yearly-ratios (DIYR) represents the change in definitive therapy attributed to the COVID-19 pandemic.

Results: We identified 2719 breast, 5340 prostate, 4489 NSLSC, and 183 colon definitive therapy events delivered in 2019-2020. Delivery of definitive therapy decreased for all four cancers (Fig. 1). All changes were statistically significant except for NSCLC (DIYR: -0.085; 95% CI: -0.203 to 0.033; $p=0.16$). Definitive therapy of colon cancer exhibited the greatest change (DIYR: -0.757; 95% CI: -1.269 to -0.245; $p<0.01$), followed by breast cancer (DIYR: -0.370; 95% CI: -0.503 to -0.238; $p<0.01$) and prostate cancer (DIYR: -0.230; 95% CI: -0.332 to -0.128; $p<0.01$).

Conclusions: Within a large health system in New England, the COVID-19 pandemic is associated with a significant decrease in delivery of cancer therapy. Combined with delayed cancer screening and diagnosis, these reductions and delays in treatment may impact long-term cancer m