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"The COVID-19 Pandemic and Recorded Cancer Incidence in Louisiana"

INTRODUCTION: The circumstances of the coronavirus pandemic are likely to have affected routine cancer screenings due to disruptions in healthcare and patients' personal lives. With a decrease in screening, we would expect to see an associated decrease in new cancer diagnoses starting from 2020, indicating that many cases went undiagnosed and may be detected at advanced stages. With cancer being among the leading causes of death in adults and children, it is important to be aware of these trends. In this study, we focus on lung and bronchus, breast, colorectal, prostate, and melanoma skin cancer, which we selected because each type has a screening recommendation listed by the U.S. Preventative Services Task Force. In this study, we analyze cancer incidence and stage at diagnosis of each of these cancer types in relation to the onset of the coronavirus pandemic.

METHODS: In this retrospective study, we reviewed de-identified patient data from the Louisiana Tumor Registry from 2016 through 2020. We used SEER*Stat to perform statistical analysis of the records. We focused on the incidence of each cancer type and stage at diagnosis per 100,000 people in Louisiana. Cancers were categorized as localized, regional, or distant. Diagnoses categorized as in-situ and those with unknown points of development were excluded from the study. An average of 2016-2019 cancer incidence per 100,000 was used as a pre-pandemic baseline for comparison. We compared this average to cancer rates in 2020 in order to examine any differences in incidence upon the onset of the pandemic. We then calculated the percentage difference in total incidence of each cancer type from the 2016-2019 baseline to 2020 incidence. To detect if specific stages of each cancer type were disproportionately affected, we also separately calculated the percentage decrease in localized, regional, and distant cancer incidence of each type from baseline to 2020.

RESULTS: From pre-pandemic years compared to 2020, there was a significant decrease in recorded incidence of colon, prostate, lung/bronchus, and melanoma skin cancer, as well as breast cancer to a lesser extent. There was a 12.04% decrease in total colorectal cancer incidence from the 2016-2019 baseline compared to 2020. For colorectal cancer, the largest percentage decrease was observed in localized cases, which decreased by 21.55% in 2020. There was a 15.13% decrease in lung and bronchus cancer in 2020 compared to baseline. For this cancer type, there was a significant decrease observed in localized, regional, and distant cases. For melanoma and prostate cancer, a significant decrease in detected incidence was only observed in localized cases. There was a 22.95% decrease in localized melanoma and a 17.75% decrease in localized prostate cancer in 2020 compared to the pre-pandemic baseline. For localized breast cancer cases, there was a 5.94% decrease in incidence from pre-pandemic baseline to 2020. The 2020 incidence of localized cases was significantly lower than it was in 2018 and 2019, but it did not significantly differ from 2016 or 2017 incidences.

CONCLUSION: These results suggest that the hindrances of the pandemic considerably affected detection of cancer incidence of colorectal cancer, lung and bronchus cancer, prostate cancer, melanoma, and possibly breast cancer. Because any undiagnosed cases will likely be detected at more advanced stages, future problems could arise regarding severity of cancer cases and necessary courses of treatment.