

Jordan Book, Tingting Li, Brian Boulmay

LSU Health Sciences Center, School of Medicine, New Orleans, LA

LSU Health Sciences Center, Department of Hematology and Oncology, New Orleans, LA

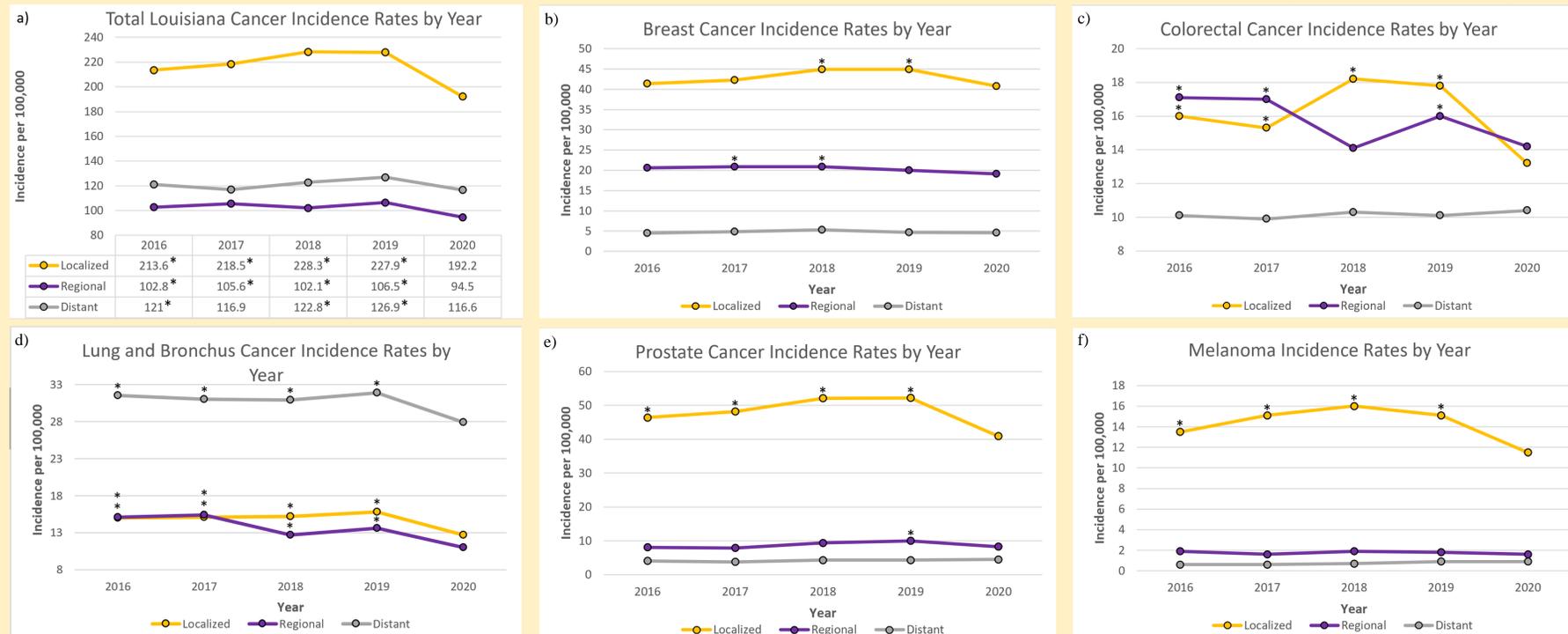
## INTRODUCTION

- Many studies have found that routine cancer screenings significantly decreased during the coronavirus pandemic, likely for reasons such as limitation of non-emergent cases and disruptions in patients' personal lives.
- One study analyzed the National Cancer Institute Surveillance, Epidemiology, and End Results (SEER) cancer screening data from March-May of 2020 and compared it to March-May of 2018 and 2019. There was a 25.5% decrease in biopsies in March-May of 2020 compared to an average of the previous two years. There were significant decreases in biopsies for breast, colorectal, lung, prostate, and melanoma skin cancer.
- With a decrease in screening, we expect to also observe a decrease in detected cancer incidence in 2020, and possibly later years.
- This would indicate that there are several cancer cases that have gone undetected throughout the pandemic, which leaves the undiagnosed patients with the likelihood of being diagnosed at more severe stages.
- In this study, we focus on recorded incidence and stage at diagnosis of breast, colorectal, lung and bronchus, prostate, and melanoma skin cancer in Louisiana from before the pandemic compared to 2020.

## METHODS

- In this retrospective study, we reviewed data from the Louisiana Tumor Registry from 2016-2020.
- We used SEER\*Stat for data analysis. Data was age-adjusted to the 2000 US Standard Population with 95% confidence for rates.
- We focused on recorded annual incidence of each cancer type per 100,000 and the stage of diagnosis, which included localized, regional, and distant cases.
- Cancer diagnoses categorized as in-situ or with unknown stages were excluded.
- We used an average of the annual incidences from 2016-2019 as the pre-pandemic baseline, which we then compared to 2020 incidence for each cancer type. We also examined changes from year to year.
- For each cancer type, we calculated the percentage decrease in recorded incidence from the pre-pandemic baseline (2016-2019 average) compared to 2020.

## RESULTS



**Figure 1. Annual Louisiana incidence rates of different cancer types at localized, regional, and distant stages of development from 2016-2020.** 1a) Total incidence of all cancer types from 2016-2020. 1b) Total incidence of breast cancer from 2016-2020. 1c) Total incidence of colorectal cancer from 2016-2020. 1d) Total incidence of lung and bronchus from 2016-2020. 1e) Total incidence of prostate cancer from 2016-2020. 1f) Total incidence of melanoma skin cancer from 2016-2020.

\* = p < 0.05.

- Overall, there was a significant decrease in recorded incidence of breast, colorectal, lung and bronchus, prostate, and melanoma skin cancer during the first year of the pandemic compared to previous years.
- When all cancer cases in Louisiana were included, there was a significant decrease in overall localized, regional, and distant cancer incidence from the pre-pandemic baseline to 2020.
- For colorectal cancer, when localized, regional, and distant cases were included, total incidence decreased by 12.04% from the pre-pandemic baseline to 2020. For localized cases, incidence decreased by 21.55% in 2020 compared to the pre-pandemic baseline. A significant decrease occurred in detected incidence of localized and regional cases, but there was no significant change in distant case incidence alone.
- For lung and bronchus cancer, a significant decrease in recorded incidence occurred in all stages: localized, regional, and distant. In total, there was a 15.13% decrease in lung and bronchus cancer incidence from the pre-pandemic baseline to 2020.
- For prostate cancer and melanoma, a significant decrease in detected incidence was only observed in localized cases. From baseline to 2020, there was a 17.75% decrease in localized prostate cancer incidence and a 22.95% decrease in localized melanoma incidence.
- Breast cancer trends did not show a significant decrease in total detected incidence from pre-pandemic baseline to 2020. 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 colorectal, lung and bronchus, prostate, and melanoma skin cancer, as well as breast cancer to a lesser extent.
- 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.
- Evaluation of data from future years will be needed to determine how this will impact cancer treatment and mortality, as well as how these problems have disproportionately affected different demographics.

## REFERENCES

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