

## Peer review comments

**Article ID:** 2022-0092

**Article Title:** Evaluating the impact of COVID-19-related health care disruptions on pathologic cancer staging during the first pandemic year: a retrospective cohort study from March 2019 to March 2022

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### **Reviewer 1: Nguyen Trieu/ Private, Saigon Biopharma**

The background accurately represents current knowledge in this field.

The author does explain why they conducted the study.

The research questions are clear.

The study design is appropriate.

The methods are described in enough detail, nothing is confusing.

Good study design, providing an overview of health care changes during the COVID-19 pandemic. The statistics of cancer models during this pandemic period have controlled and monitored patients carefully, avoiding omissions, the data provided will serve as a valuable basis for evaluation later.

### **Reviewer 2: Dawn Stacey/ University of Ottawa, School of Nursing, Faculty of Health Sciences**

Thank you for the opportunity to review this manuscript. Delayed cancer diagnosis and treatment was commonly heard during the COVID-19 pandemic and it was helpful to see this study showing there was no difference.

Can the authors comment on why an Interrupted time series analysis was not conducted?

**Interrupted time series was considered but ruled out due to the relatively small number of people in each stage category on a month-to-month basis. It is possible that this type of analysis would reveal that a stage shift had gradually started, but the sample size would have been too low to show such a trend with any confidence. We have added to the limitations that it is possible that delays have accrued cumulatively over time and were not sufficiently long in the initial pandemic period to result in stage shift, but have at some point accumulated to the point that they have led to stage shift.**

To help put the results in context, it would be helpful to describe the COVID-19 pandemic period with a description of what services were available or not available. this could be a figure. For example, prostate cancer surgery for men with low risk prostate cancer was cancelled at least twice during the first year of the pandemic at the large teaching hospital where I am a senior scientist.

**Generally, cancer services province-wide operated at reduced capacity during the lockdowns, and fluctuated during the first year of the pandemic period; it is not feasible to summarize the services that were available. We provide a statement referencing reductions in cancer-related healthcare services: "Previous studies have shown reductions in cancer screening, testing, and treatment during the COVID-19 pandemic (5–9)" [page 4, paragraph 2]**

And many patients newly diagnosed were sent for radiation therapy given the lack of access to the OR. Were prostate cancer surgeries or other cancer diagnostic procedures cancelled in London at any period of time during the first year of the pandemic?

**In Ontario, decisions regarding cancer surgeries balanced the benefit of treatment with the risk of morbidity/mortality from the cancer or COVID-19. The methods have been expanded, to provide greater insight to the triaging process:**

**"Guidelines for triaging and prioritizing cancer care were also developed (16). Generally, surgical management for cancer patients were prioritized in cases with greater risk of imminent**

morbidity/mortality, lower risk of COVID-19-related critical illness, and lack of effective alternative treatments.” [page 5, paragraph 2].

Prostate cancer procedures were reduced in our study during the pandemic period by 26.5%. Some of these reductions were likely due to delayed/cancelled procedures, as most prostate cancer cases do not meet the criteria for imminent morbidity/mortality. There are also likely patients who underwent primary non-surgical treatments (radiation, hormone, or chemotherapy). The interpretation section has been edited, to expand on these points:

“Another possibility is that primary surgical staging may have been reduced for some cancers in favor of first-line drug or radiation therapy. During the pandemic, cancer treatment pathways have been modified, with triaging based on a combination of patient (e.g. risk of COVID-19 infection as an inpatient), disease (e.g. cancer stage and aggressiveness, risk of mortality/morbidity, and options for effective non-surgical treatments), resource, and COVID-19-related risk factors (16), with variable impact. In another Canadian study, there was a significant decrease in lung cancer cases during the early pandemic period, along with a reduction in surgeries as the primary treatment modality (25). In our study, the greatest increase in neoadjuvant-treated cases during the COVID period was observed in prostate cancer.” [page 9, paragraph 2].

Then in the interpretation, please discuss the findings in relation to shut downs in London and if there were similar or different access to health services across the province or country. I am trying to figure out the generalizability of the findings. Is the conclusion, living in London Ontario was better because there was no change in health services related to cancer or did London provide similar reductions in health services compared to other areas in London?

**We have edited the interpretation section to address the generalizability of our findings (see answer to comment #16).**

In the background, a sentence ends with "the initial pandemic period" - what are you referring to as this initial period? is it the full first year of the pandemic that was the focus of this study?

**In the manuscript, the term “initial pandemic period” has been replaced with “the first year of the pandemic” for clarity.**

Results in the abstract and in the manuscript use different terms. The abstract reports breast cancer staging procedures increased (41.3 vs 39.6 cases /30 days) whereas in the results it says "increase in breast cancer cases (41.3 vs 39.6 per 30 days). Please use consistent reporting between the abstract and body of the paper.

**This has been revised for consistency.**

In the abstract, there was no statistically significant differences in "pathologic features" and in the main paper "high-risk features"

**Pathologic features and high-risk features were used as synonyms; this has been edited for consistency and clarity.**

Why was there an 10.3% decrease in colorectal cancers? was this associated with a stop of colonoscopy screening during the shut down period of the pandemic?

Please add a conclusion. The paper seems to add on limitations.

**Reviewer 3:** Quincy Chu/Cross Cancer Institute, Medical Oncology

Thank you for the invitation to review the manuscript titled "Evaluating the impact of COVID19-related healthcare disruptions on pathologic cancer staging: a retrospective cohort study".

Quality of writing: Good.

Analysis: Sounds.

Results: Although the stage of the cancers included in the study did not seem to change, some of the adverse pathological features of breast (grade, lymphovascular invasion), colorectal cancer (lymphovascular, perineural invasion and positive margin), endometrial (lymphovascular invasion and high grade), and prostate cancer (high gleason, lymphovascular and positive margin) were more common during COVID. The impact on outcome such as disease-free survival and overall survival will need to be followed.