Reviewer comments

Article ID: CMAJOpen-2022-0188
Article Title: Impact of delayed non-urgent surgery during the COVID-19 pandemic on surgeons in Alberta: a qualitative interview study
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Reviewer 1: David Urbach / University of Toronto, Surgery, Toronto, Ont.

1. Although the title and text suggests that the study examines the impact of the pandemic on surgeons, much of the results go beyond impact on surgeons themselves, and seem to me to be surgeons' perceptions of the impacts of the pandemic. I think of impact on surgeons as things like change in work, emotional exhaustion/burnout, financial impact; whereas much of the manuscript describes valuable insights from the surgeon perspective in health system impacts of the COVID pandemic, as well as potential remedies. The paper could better clarify what surgeons actually experienced, vs what they perceived about what was happening.

Response: Indeed, surgeons not only described the impact of the COVID-19 pandemic on themselves but also on their perception of the impact of the COVID-19 pandemic on the health system and their surgical patients. We believe their perceptions on the impact of the pandemic on the healthcare system are important to document as they are entangled in their experiences. We have provided clarifying statements on Page 9, Paragraph 2, Lines 236 to 238 and Page 14, Paragraph 2, Lines 364 to 366 to better delineate between what surgeons experienced and what they perceived to be happening within the healthcare system.

Page 9, Paragraph 2, Lines 233 to 235

> **Participants identified themes related to their own experiences during the COVID-19 pandemic as well as their perceptions on the impact of the pandemic on the health system and surgical services.**

Page 14, Paragraph 2, Lines 363 to 365

> **Surgeons described their own experiences during the COVID-19 pandemic as well as their perceptions of the impact of the pandemic on the health system and surgical services.**

2. Page 10 line 30: Can you clarify what is meant by "administrative bodies"?

Response: We agree that the term “administrative bodies” is vague. Administrative bodies in this context refers to administrative leadership in the form of department heads and medical executive committees. We have clarified the statement to now read as follows on Page 10, Paragraph 3, Lines 291 to 295.

> Participants expressed tensions between surgeons and administrative **leadership (e.g., department heads, medical executive committees)** on the appropriate approach to making decisions on when to enact disruptions to surgical care to build hospital capacity and the process for deciding which surgeries should be delayed (triaging).

3. Page 10 line 50-52: Are these really new professional roles? I can see that there is an added

burden of administrative and scheduling tasks due to the hospital disruptions.

Response: We agree that the additional administrative, scheduling and triaging tasks better reflects an expansion of previous roles rather than a new professional role. We have refined the following statement on Pages 11, Paragraph 4, Line 300 to 306 to reflect this.

> They also **expanded their administrative and professional roles by taking** on **new** administrative tasks such as seeing additional patients in clinic, canceling surgical cases, and talking to patients regarding postponing their surgeries (Q15).

4. Is it possible to analyze any potential differences on surgeon impact by gender or age? Some of the phenomena described in this manuscript regarding personal/work-life effects may have differential impact based on gender role, family situation, age/career status etc.

Response: We agree that there may be potential differences on surgeon impact based on gender, age and/or career status and is very interesting. Due to convenience sampling, there is insufficient representation by gender, family situation and age to effectively analyze differences on surgeon impact by gender or age. We have added the following limitation to the Discussion on Page 17, Paragraph 2, Lines 438 to 440.

> **Secondly, we were unable to analyze our results by age and/or gender due to the use of convenience sampling as these factors were not used to guide sampling leading to sample heterogeneity.**

5. I think I know what the authors mean by "decoupling of surgeons from patients", but I think this should be clarified in the text for readers. If in fact this refers to surgeons "operating on patients who 'belong' to other surgeons" ("team-based care"; "shared care"), then I think this warrants additional discussion in the paper since it is a major flashpoint in the current debated regarding new models of surgical care in Canada. What did the surgeons think of this? Was it harmful? Did it result in fragmented/worse care or weaken patient-physician relationships? Was it helpful? Does it have potential to address some other problems in the surgical workforce such as enhancing equity of professional opportunities among surgeons (eg women surgeons)? Did surgeons have any perception on whether this could improve standardization and reliability of care? Were there lessons learned that might inform how surgical care can be restructured?

Response: We have provided clarification in the manuscript regarding what is meant by “decoupling of surgeons from patients”. The Reviewer is correct to interpret this to mean surgeons operating on patients that do not necessarily ‘belong’ to them in a team-based care model. This clarification is provided on Page 14, Paragraph 1, Lines 353 to 355. As these recommendations were participant generated, limited perceptions from surgeons can be gleaned from the data however surgeons did report this experience to be stressful for both the surgeon and the patient. No comments can be made regarding any resulting harm from the experience, fragmentation of care or weakening of the patient-physician relationship. The Reviewer does raise some interesting questions on the topic of team-based care, patient-physician relationships and the impact on equity which are excellent topics for future research projects. There is some available literature on the implementation of a quality improvement initiative focused on team-based approaches to surgical scheduling where patients were scheduled for the next available surgeon as opposed to the more traditional approach of waiting for a surgical time with their particular assigned surgeon. Overall, both surgeons and patients were satisfied with this alternative scheduling model and it may be an amenable

solution to enhancing equity among surgeons and improve standardization and reliability of care among patients. It is key to recognize that avoiding coercion of patients to participate in this care model was important to its success and satisfaction. Certainly considerations need to be made when evaluating this approach in the delivery of highly specialized surgical care by particular expert surgeons as well as associated feelings of stress that may arise in both surgeons and patients [1]. To address the Reviewers comments, we have included the following statements on Page 15, Paragraph 1, Lines 388 to 398.

Page 14, Paragraph 1, Lines 353 to 355

> Other described strategies included decoupling of surgeons completing surgeries from their patients **(i.e., team-based care; shared care) which surgeons and patients alike reported feeling stressed having to adopt this approach under these conditions (Q28).**

Page 15, Paragraph 2, Lines 387 to 397

> **The use of team-based approaches to patient care where patients are matched to the next available surgeon was suggested by our participants and has been explored in the literature as a quality improvement initiative. In one study where a team-based surgical scheduling approach was used to schedule patients with head and neck cancers, surgical groups were better equipped to maintain high utilization of blocked operating room times which maintaining patient and surgeon satisfaction. Patients were open and interested in being assigned to the next available surgeon to reduce their waiting period and may be a feasible approach to surgical care that additionally enhances equity, standardization and reliability of care among patients and surgeons [29]. When examined in the Canadian context, Ontario health system leaders felt that this model could improve quality and reduce scheduling variability when designed to address local needs [2].**

Reference:

1. Schmitt, N.C., et al., *Team-Based Surgical Scheduling for Improved Patient Access in a High-Volume, Tertiary Head and Neck Cancer Center.* Ann Surg Oncol, 2022. **29**(11): p. 7002-7006.

6. Page 14 line 40: It doesn't seem like this was necessarily a period of "increased" workload based on earlier findings in the paper, since some surgeons had more free time when blocks of surgery were cancelled for prolonged periods. I interpreted this as more like workload "disruption" or "unpredictable"

Response: Thank you for highlighting this inconsistency**.** We have modified the statement to now read as follows on Pages 17, Paragraph 1, Lines 420 to 422.

> Addressing modifiable risk factors for surgeon burnout (e.g., equitable workload among surgeons, financial compensation) during these periods of **unpredictable workloads** will be important to address surgical backlog as a result of the COVID-19 pandemic [3].

7. The term "private" (figure page 24, page 12) is a confusing and emotionally charged term in the debate about organization of health care in Canada. "private" could relate to private delivery (most care is already delivered in private settings; arguably including "public" hospitals,

which in Ontario at least are not-for-profit corporations that are funded by the province but are governed by independent boards), private financing, and private administration. There are also questions around for-profit vs not-for-profit entities ("who keeps the change"), which is not as clear cut as these 2 terms imply: as well as issues around private insurance and private payments. I suggest the authors avoid the term "private", and rather focus on what types of facilities they think are necessary to address system shock such as pandemics. For example, are we talking about free-standing facilities dedicated to providing surgery that are not general hospitals? Whether these are independent facilities or are integrated into hospital corporations, and whether they are incorporated as not-for-profit corporations or owned by investors are relevant questions, although it is not clear that the respondent in this study has specific input on these details.

Response: We agree that the term “private” is confusing and may be emotionally charged. In the context of our study, multiple participants described alternative models for surgical care delivery focused on the private administration of surgical care in free-standing facilities dedicated to providing surgery. Participants did not discuss financing strategies for the private administration of surgical care. We have refined the following statements on Page 10, Paragraph 1, Lines 239 to 242, Page 14, Paragraph 1, Lines 356 to 358, and Page 16, Paragraph 1, Lines 399 to 404.

Page 10, Paragraph 1, Lines 255 to 258

> Surgeons **believed** that these additional surgical delays prompted some patients to explore **free-standing facilities dedicated to providing** surgical care **with** other patients presenting with advanced disease requiring urgent interventions due loss of function (e.g., joint collapse, pain crisis) (Q3 & Q4).

Page 14, Paragraph 1, Lines 355 to 357

> Additional strategies included the administration of day surgeries **in free-standing facilities** through alternative care models and capacity building through extended hours for non-urgent surgical scheduling (Q29).

Page 16, Paragraph 1, Lines 398 to 404

> Our findings additionally suggest advocacy for additional funding, service expansion (e.g., extended and weekend operating times), and considerations for outsourcing (i.e., **free-standing health centres**) as further short-term and long-term strategies to address this backlog **and to generate sustainability to address pre-existing structural problems in surgical care delivery in the Canadian healthcare system** [4-6].

8. I think the authors are selling their study short by narrowly framing their analysis of system improvements as "pandemic focused". The authors framed the pandemic's impacts on surgery as an exacerbation of pre-existing structural problems in Canadian health care. I think it is very legitimate to extend the observations and remedies to apply to Canadian health system improvement generally, rather than limited to a pandemic recovery (which seems more like a short-term task).

Response: We agree that some of the observations and suggested solutions could be applied to Canadian health system improvements more generally. To introduce this concept, we have

expanded our Discussion section with modification of the following statements on Page 16, Paragraph 1, Lines 399 to 404 and Page 16, Paragraph 1, Lines 404 to 408.

Page 16, Paragraph 1, Lines 398 to 402

> Our findings additionally suggest advocacy for additional funding, service expansion (e.g., extended and weekend operating times), and considerations for outsourcing (i.e., **free-standing health centres**) as further short-term and long-term strategies to address this backlog **and to generate sustainability to address pre-existing structural problems in surgical care delivery in the Canadian healthcare system** [4-6].

Page 16, Paragraph 1, Lines 402 to 406

> Long-term strategies will have to additionally address patient-centered health system performance to optimize operating room efficiencies, administrative efficiencies, and patient care pathways to have sustained benefit on surgical wait times and backlogs **in order to address the underlying pre-existing issues with surgical delays that have been exacerbated by the COVID-19 pandemic** [4, 6].

Reviewer 2: Jason Park / The University of British Columbia Faculty of Medicine

1. Methods - for the most part is well described. COREQ checklist has been completed. One concern I have is the selection of participants. What they have in common are that 1. they are surgeons and 2. they perform non-urgent procedures. However, non-urgent procedures - defined by the authors as "medically necessary but can be scheduled in advance" include a very wide range of potential procedures. The sample includes adult and pediatric surgeons and a range of specialties involving surgical procedures for a wide range of pathologies--e.g. invasive cancers that are potentially life threatening vs. chronic problems that affect quality of life but are not life threatening vs. other procedures are minimally symptomatic or completely elective. With this sampling strategy, you may gain in breath of perspectives, but I am concerned that you lose some strength in themes by being so broad. While the number of participants would be considered adequate for more homogenous groups, I think the authors really need to comment on the effect of heterogeneity either here or in the discussion/limitations section.

Response: We thank the Reviewer for the positive comments. We agree that there is heterogeneity in the sample of surgeons interviewed including the type of procedures and patients that they manage. We aimed to use a heterogeneous sample to gain the breadth of perspectives and experiences as a result of the COVID-19 pandemic; however, it is possible that some perspectives may not have been represented as strongly due to heterogeneity such as differences in perspectives based on age and/or gender. We have added the following limitation to Pages 17, Paragraph 1, Lines 438 to 473.

> **Secondly, we were unable to analyze our results by age and/or gender due to the use of convenience sampling as these factors were not used to guide sampling leading to sample heterogeneity. Additionally, the impact of the COVID-19 pandemic on surgeons' personal (i.e., family situation and stability, age) and work life (i.e., training,**

position) and their performance (i.e., ability to physically complete surgeries) was not identified as a major theme by our participants. However, this may represent an important factor impacting surgeons' experiences of surgical delays.

2. Results - table to show lists sub themes for each theme. Are all the same themes listed or are there additional sub themes?

Response: Table 2 including demonstrative quotations for themes shows all identified subthemes developed by the researchers. There are no additional subthemes. To provide this clarification within the manuscript, we have refined the sentence on Page 9, Paragraph 2, Lines 241 to 242 below.

Quotations illustrating themes **and all identified** subthemes are provided in Table 2.

3. I have to admit that I do not really follow all the sub themes in the "accelerator for surgical crisis" theme. This theme describes how the pandemic unmasked or exacerbated long-standing health system issues. Quote 1 and the health care system strain subtheme I understand. I do not really follow exemplar quotes 2 and 3, which describe emergency, delayed or advanced presentations. I do not really read anything in these exemplar, however long term issues, especially quotation 3. Do these necessarily describe long standing issues or could they include delayed presentations of new or evolving problems directly due to void related processes -- eg. closing or reduced access to physicians or diagnostic services, or patient delays in seeking treatment due to COVID-related anxiety as well -- as has been suggested by other studies.

Response: Thank you for highlighting areas for clarification. When placed in the context of the participant responses, Quotation 2 and 3 describe surgeon's reported experiences of seeing urgent surgical cases that would have previously (pre-COVID-19) been completed non-urgently; the surgeons attribute to surgical delays from long waitlists that were made longer due to the COVID-19 pandemic related cuts to surgery. It is possible that there are other reasons that may have impacted the other delays such as delays in diagnostic services or delays in patients seeking treatment, but this was not the perception shared by the surgeons interviewed. We have refined the statements on Page 10, Paragraph 1, Lines 252 to 258 to better delineate that these statements quotations reflect the perceptions of the surgeons interviewed as it is possible additional factors may have played a role that the participants did not share or recognize.

Surgeons **perceived** that non-urgent surgical delays **were responsible for** additional consequences on patient outcomes such as increased risk of adverse events, less predictable outcomes due to more complex surgeries being required and increased chronic pain (Q2). Surgeons **believed** that these additional surgical delays prompted some patients to explore **free-standing facilities dedicated to providing** surgical care **with** other patients presenting with advanced disease requiring urgent interventions due loss of function (e.g., joint collapse, pain crisis) (Q3 & Q4).

4. Figure 1 - Well organized figure, important points.

Response: We thank the Reviewer for the positive comment. Figure 1 is not Figure 2 as a result

of the addition of a figure to help illustrate the setting and context the study was conducted.

5. Discussion. I found this section needing more substance. There have been numerous qualitative studies in the recent literature on surgeon perspectives of surgical processes during COVID and other physicians' perspectives during other pandemic events, but none of these are discussed, compared, or even referenced. I also think the limitations section needs to be developed far more fully.

Response: We have reviewed the literature again to provide additional recent findings related to surgeon perspectives on the impact of COVID-19 on surgical processes. We have elected to remain focused on the surgeon's perspective as non-surgical physicians are likely to have had different experiences during the COVID-19 pandemic that would be unique but not necessarily relevant to the surgical process. We have added additional statements on the surgeon perspectives from the literature on Page 16, Paragraph 2, Lines 410 to 414. Additionally, the limitations section has been expanded with directed responses that can be found in response #8 and #12 to the Editors, response #4 to Reviewer #1 and response #1 to Reviewer #2.

> **Recent studies evaluating surgeons' experiences during the COVID-19 pandemic highlight both positive and negative consequences related to non-urgent surgical delays. Similar to our study, surgeons expressed concern regarding the financial impacts of surgical delays [32]. Conversely, other studies have highlighted the benefits of the implementation of telemedicine and additional focus on wellness due to non-urgent surgical delays [33, 34].**