Peer Review File
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Reviewer A

Comment 1: The authors present an interesting qualitative study commenting on the impact and roles thoracic surgeons have had in the COVID-19 pandemic. Clearly, much work has been done in interviewing and detailing 11 thoracic surgeons and I applaud the team for this. As a fellow specialist, I am intrigued that our contribution to the pandemic centered around tracheostomies and guiding management of tracheostomies. It would be valuable also given the selection of academic surgeons to find out the impact that the pandemic had on research practices, output and teaching. If the team has such information gathered it would be of interest to the reader. Furthermore, it would be even better if a more international viewpoint could be presented as the current sample group focuses a lot on the local response within the US.
Lastly, I wonder if there was information gathered regarding the surgeon's mental health and ability to cope during the pandemic which was undeniably a stressful time for all.

Otherwise, minor editing errors (reference in line 160 and 163) which can be refined.

Reply 1: Thank you for your comments. While we agree that both an international perspective and a discussion about surgeon's mental health would be beneficial to describe, these items go beyond the scope of this study. The collaboration within a national thoracic surgery group and the surgeons therein took a substantial time and effort burden to execute, even amongst 11 thoracic surgeons. While the phycological and mental health effects on surgeons during the COVID-19 pandemic are beyond the scope of this particular study, we agree that this would be an interesting area of study in the future. Unfortunately, this data was not collected for this study.

Changes in the text: We have corrected the reference in lines 160-163.

Reviewer B

Comment 1: In the manuscript entitled ´Lessons Learned by Thoracic Surgeons during the COVID-19 Pandemic Running Title: COVID-19: Thoracic Surgeon Lessons Learned the authors present the results of interviews with experienced thoracic surgeons concerning the Covid-19 pandemic and its implications on future events. Although the topic is of importance for the surgical readership and the manuscript is well-written I personally am in doubt that such a small number of

participants being interviews is representative from the scientific point of view. That is why I am sorry to reject the manuscript. Why didn´t you design a ditigal survey the a computer-based questionnaire and sent it around?
Reply 1: Thank you for the feedback. We agree that the small number is unusual; however, the intent of qualitative work is to obtain enough of a sample to understand depth vs breadth. All thirty-nine Thoracic surgeons belonging to the Thoracic Surgery Outcomes Research Network (ThORN), were recruited via e-mail request asking for voluntary participation in a qualitative study assessing how the COVID-19 pandemic had affected thoracic surgical providers. An additional e-mail was sent to ThORN members after the initial invitation to recruit additional participants. The authors believe it is representative of viewpoints shared by the greater at large thoracic surgical community based on the use of a surgical research group comprised of participants from around the country in different surgical practice backgrounds. We employed standardized qualitative research methodology in analyzing our data including thematic saturation, which ensures that an adequate number of responses have been obtained to draw conclusions about themes in the data.
We believe that a survey study would have been inferior for several reasons. First, survey studies often have poor response rates usually below 30% participation, and even less for more length surveys such as would be required to appropriately perform this study. This problem would be exacerbated by creating an online survey that could be easily ignored, especially when the questions would take between 15-30 minutes total response time in a busy clinical setting. Also, a digital survey would create several barriers and potential areas of concern regarding bias. Some examples include the following: if surveys were widely distributed, but respondents only represented one geographical area, one surgical practice setting, or one demographic group, bias could be introduced; if surgeons started to fill out the survey but declined to finish it in its entirety, how would those survey responses be addressed?
For these reasons, we believe the methodology was preferred to the distribution of an online survey, but we recognize and report this as a limitation of our study.
Changes in the manuscript: n/a

Reviewer C

Comment 1: This is a qualitative analysis of 11 academic thoracic surgeons on their experiences during the COVID pandemic especially with regards to changes in practice. Several themes that were identified were airway and tracheostomy management, workflow prioritization of elective surgery, delayed in diagnosis and treatment of thoracic conditions, and potential involvement in critical care. There are a number of quoted narratives. The article generally reads well, but appears loosely structured and unfocused. In the end, the themes and recommendations that emerge do not seem highly significant, possibly due to the small sample of thoracic surgeons represented. The reader is left only with a certain level of raised awareness of what

some thoracic surgeons had experienced in their local context through some anecdotal recollections.

Reply 1: Thank you for your comments. The authors respectfully disagree that the study only represents a collection of anecdotal recollections. Surveys were structured and data was collected in a scientific manner that provides a framework of knowledge to guide future efforts by thoracic surgeons in similar scenarios. Additionally, these generalized themes are important to study and report, especially in the setting of concerns over future pandemics (e.g., monkeypox) and how thoracic surgeons may be involved in the care of patients in the future. The purpose of this study was to raise awareness and understanding of the thoracic surgeon experience during this pandemic because it is important and valuable to report and will facilitate easier transition during future eras of resource scarcity.
Changes in the manuscript: N/a

Reviewer D

Comment 1: First of all, I'd like to congratulate you for your very interesting work. It allows us to have an idea about how the COVID-19 first wave of the pandemic was lived by US thoracic surgeons and to learn from past mistakes in order to try not to repeat them.
Reply 1: Thank you for your comment.
Changes in the manuscript: n/a

Comment 2: There are several weak points in the paper. The first one of them is included by the authors as its first limitation, which is its small sample size; only 11 individuals is a too small number to sample the whole USA. Anyway, if these people were from different states, they could be considered a more significant sample; that is why I suggest to specify in results the origin of each respondent.
Reply 2: We agree with this comment as a limitation of the study; however, it is somewhat representative of the nation at large given the included group of respondents, who represent physicians from different areas, hospital settings, and backgrounds across the country. Respondents were from seven different states. We will provide more text to clarify on this fact in the methods. The exact institution is not linked to each participant given that ThORN is a relatively small group and we want to protect the identities of respondents from being linked to their interview responses.
Changes in the manuscript: Participant geographics are now mentioned in line 177-179.

Comment 3: Another paramount point is what has been detected in the paper as one of the major concerns of thoracic surgeons, which is the oncologic treatment and the

way it has been affected by the pandemic. But it becomes a weak point since it has been scarcely discussed; it would be interesting to broaden that aspect.
Reply 3: We agree that the treatment of oncologic patients during the pandemic was one of the most significant areas of concern and focus, we have dedicated a paragraph of the discussion to this topic and added slightly to the conclusion.
Changes in the text: We have added to the conclusion (lines 351-355) and also added two additional references to the discussion of the oncologic impact (lines 323-325) to improve our focus on this important point.

Besides these general suggestions, here I point some specific items to be changed:

INTRODUCTION:

Comment 4: Line 100. You make a list of diseases which may require thoracic surgical intervention (pneumothorax, pneumatocele, empyema, hemothorax), and you finish with one which is not a disease, but a technique; lung transplantation; it is not coherent.
Reply 4: We will change "lung transplantation" in the text to read "end stage lung disease" to make it more coherent.
Changes in the text: lung transplantation changed to end stage lung disease.

Comment 5: Line 105: There is indeed limited published information about the experiences of thoracic surgeons during the COVID-19 pandemic, but there are some that might be discussed and which results should be compared with this work, like the papers of Martínez-Hernández (Spanish Thoracic Surgery Society) and Depypere (European Society of Thoracic Surgery).
Reply 5: We agree with this comment and will add some text to discuss these two studies in the discussion. They add to our thoracic oncologic impact discussion and are important papers that corroborate our findings.
Changes in the text: We believe that Depypere et al. and Martinez-Hernandez et al. are an asset to the discussion and they have been added (lines 323-325).

MATERIAL AND METHODS:

Comment 6: Recruitment and Study designs: It should be specified when the recruitment was done and when the interviews were done.
Reply 6: We will add timelines to the recruitment and interview periods in the methods
Changes in the text: Lines 132-135 detail the recruitment timeline, the interview timeline is added to lines 142-143.

Comment 7: Participants: It should be specified how many members compose ThORN in August 2021. Is it 39, which is said to be the number of invited individuals?

Reply 7: Yes, it is 39 total individuals. We will clarify this in the methods
Changes in the text: Added to line 128.

Comment 8: Lin 157: "The 10-30 minute individual interviews were audio recorded and transcribed verbatim by the transcriptionist."; repeats what has previously been said

Reply 8: Thank you for this comment, we will eliminate the redundancy.
Changes in the text: Line 157 has been updated.

Comment 9: It is understood that the objective of the paper is only the first wave of the pandemic, but it hasn't been specified; it should be specified which period of time is the one which the respondents are asked about.

Reply 9: We will specify the time frame of inquiry in the methods section
Changes in the text: Lines 140-141 are updated.

RESULTS:

Comment 10: Participants: It would be interesting to have a correlation of which states are the participants from and which was the COVID-19 incidence in those states. It could maybe be done completing table 1.
Reply 10: While we agree this would be interesting, COVID-19 rates are often a snapshot in time and vary from week to week or even institution to institution in the same city. These interviews were conducted to examine the experience during the pandemic (stretching almost 2 years at the point that the interviews were conducted)- and many swings in hospitalizations and surge rates occurred by each region- therefore it is not practical to give a snapshot for what the COVID-19 rates were for each participant's institution. Furthermore, we intentionally avoided linking the institution of each participant directly to them in Table 1 given the risk of identification (given that the ThORN group is relatively small).
Changes in the text: We have added this as a limitation (lines 335-338).

Comment 11: Line 247 and 263: The rest of the quotes aren't in central position in the page; these two should keep the same structure.

Reply 11: Thank you, we will change the structure to reflect the rest of the document.
Changes in the text: Changed lines 247 and 263 to be formatted as the other quotes.

Reviewer E

Comment 1: The impact of COVID-19 on thoracic surgical care has indeed been a major issue and I myself had to stop surgical practice and only deal with thoracic emergencies and surgical tracheostomies.
Regarding the value and the originality of the paper, It certainly reflects the changes that all of us had to go through during the past 3 years but I am not sure if a non-standardised interview of 11 surgeons is of major scientific interest.

Reply 1: Thank you for your comment. However, we respectfully disagree both that the interviews were non-standardized and that it is not of scientific interest. Regarding the first point, the interviews were organized according to-qualitative methodologies using semi-structured and consistent questions in order to obtain in-depth understanding of the impact of COVID-19 on the clinical practices of thoracic surgeons in order to anticipate roles and changes in practice in future such circumstances. The results contain consistent themes across the interviewed audience. To the second point, obtaining knowledge of how other hospitals, providers, regions, etc. conduct medical care and sharing it for the advancement of the medical field is the very foundation of medical research. Without knowledge sharing of scientific studies, there cannot be consistent scientific advancement across an area of study. In this particular case, it is valuable to compile these generalizable themes to serve as a blueprint for future reference during either a subsequent wave of COVID-19 or if another global pandemic strikes.
Changes in the text: n/a

Reviewer F

Comment 1: Thank you for the opportunity to review your work on the lessons learnt by thoracic surgeons during the COVID- 19 pandemic. This was an interesting manuscript that was well written and achieved what it set out to achieve.

Reply 1: Thank you for your kind comments
Changes in the text: none

Reviewer G

Comment 1: The authors investigate the impact of the COVID-19 practice on thoracic surgeons' practices through August 2021. The results show the impact and opinions received by individual thoracic surgeons. I understood the importance of organized measures to be activated during a pandemic. Unfortunately, there is nothing

new in the opinions presented by the authors when targeting thoracic surgeons as readers. In addition, differences in region, facility size, or circumstances faced by thoracic surgeons are unclear. I believe that these items affect both the behavior of thoracic surgeons and their practice. The author explains that these academic issues are resolved by regional and institutional diversity, but the explanation of this diversity is unclear from the text.

Reply 1: Thank you for your comment. Respectfully, we disagree that some of these opinions are obvious it would be unwise to press this assumption across the entire scientific community. Also, even things that could make logical sense to some in medicine are not always true or effective (for example, the antiquated practice of bloodletting for bloodstream infections is not effective). Thus, even theories that seem obvious deserve scientific study and reporting to confirm. However, we agree that the respondent differences are unclear and thus will elaborate further on their demographic features. We highlight that authors are from nine institutions across seven states, and given the variability of the pandemic in each state (e.g. New York had a severe surge in early 2020 versus New Hampshire which was comparatively isolated from COVID-19) and the respondents (different genders, years in practice, and institutions) we believe that this is a diverse cohort of opinions.

Changes in the text: In the results we have added some detail on respondent demographics, lines 177-181.

Comment 2: I understand that the small sample size makes statistical analysis difficult, but lacks statistical analysis. Nevertheless, visual results or messages (e.g., figures) are needed.

Reply 2: The qualitative nature of this study precludes quantitative statistical analysis as you point out. However, we agree that further visuals are needed and have added a table on the most common roles taken on by thoracic surgeons, saturated themes and operations performed to the manuscript- we believe this is a cohesive way to organize the results, tables are often used in qualitative analyses, and it will help the reader to visualize the main points of this paper.

Changes in the text: Added Table 2.

Comment 3: I request ideas to overcome the hardships of the pandemic based on the "two lessons learned".

Reply 3: While the ideas to overcome the pandemic are of vital importance, this is outside of the scope of this manuscript and is likely left best to hospital administrators, policy makers, and politicians. However, we will add some text to the discussion to briefly touch on a few ideas to ease the barriers the physicians encountered.

Changes in the text: We have elaborated on some ideas in the conclusion, lines 344-351.