Michael G. Stewart, MD, MPH

Editor-in-Chief

The Laryngoscope

September 21, 2013

Dear Dr. Stewart and Reviewers,

Thank you for your careful review of our manuscript lscope-13-1484 submitted to the Laryngoscope, entitled "National Trends in Surgery for Sinonasal Malignancy and the Effect of Hospital Volume on Short-Term Outcomes" . Your helpful suggestions are much appreciated, and have led to significant improvements in the manuscript. Please find our responses below, outlining edits tracked in the accompanying document.

We thank **Reviewer #1** and **Reviewer #2** for their positive reviews and for their time.

**Reviewer #1**

1. The study does not really address the evolving nature of surgical management in sinonasal malignancies. There is likely a trend where these tumors are more likely to be managed with endoscopic resection (whether appropriately or not). Can the authors further elucidate this transformation? Could ICD-9 codes be evaluated over the study time frame to determine the increase in endoscopic approaches? This is admittedly challenging given the lack of endoscopic codes available for these procedures—but is there a clever way to problem solve this? Are any differences in short-term outcomes detected or are differences seen in high- and low-volume centers? I think these data would substantially add to the interest in the manuscript and would give a much more contemporary flavor to the data.

We appreciate the question. We definitely agree that endoscopic approaches could have changed the management of sinonasal tumors. Unfortunately it is a limitation of the database and ICD-9 coding that we are unable to indentify if any endoscopic approach is used. We have tried to look at subset of cases with particularly short LOS, however we felt any such analysis would be speculative and unsatisfactorily attempt to identify endoscopic approach. It is an interesting question if perhaps more incomplete resections are done with inappropriate endoscopic resection, however given the short term nature of the National Inpatient Sample, we are unable to uncover this question further using this database. We did feel like this an important question and have added this to the discussion on limitations (p. 8, third ¶).

2. Based on these data, would the authors elaborate on the health policy implications of this newfound knowledge? This is wading into a challenging discussion but this is what I was asking myself throughout the read of the manuscript. I would recommend addressing it more directly.

Thank you for the suggestion. **I just wrote something, not sure what angle you would prefer.** (p. 8, second ¶).

**Reviewer #2**

1. “Has the complication rate changed over time? Over time, is the complication rate the same in high- and low-risk cases?”

We appreciate the question. The types of complications have not changed over time (new supplemental figure D and E) **As an aside, there is a slight upward trend in complications over time that I didn’t notice previous. I don’t know if it is statistically significant although just b/c our sample size is so large, I suspect it might be. Please describe it how you feel best. David**. The complication rate higher in high risk cases (29.4% vs. 23.2%, Chi squared test, p < 0.001) and we have changed our manuscript to elaborate this further (p. 5, last ¶).

2. “The authors should include surgical and diagnosis codes used to query the database.”

Thank you for the suggestion. A new table 1 one has been added specifying the surgical and diagnosis codes used to query the database as well as the criteria with which we specified cases with orbital involvement, skull base involvement, or requiring neck dissection.

3. DVTs are listed in the methods but are not included in Table 4. Please revise.

Thank you for the correction. It has been revised to reflect the complications we identified.

4. One of the key findings remains that high-volume centers operate on higher risk cases with the same surgical complication rate, namely cranial neuropathies and hemorrhage. While it is important to include the increased rate of cardiopulmonary and electrolyte complications at these centers, this likely represents the complexity in postoperative management associated with comorbidities. Consider revising the abstract to expand on this difference.

Thank you for the suggestion. We changed the abstract to say: “Over time, complicated sinonasal surgeries are more likely to be performed at higher-volume hospitals while having similar surgical complication rates. High-volume centers had an increased rate of cardiopulmonary and electrolyte complications, likely representing complex postoperative management, but were not associated with a higher mortality rate.”

5. “The limitations of this type of study should be expanded. By depending upon coding data, there may be biases generated from accurate coding. … Additionally this type of study does not allow differentiation between the surgical goals. For example, a biopsy of a sinonasal malignancy (even an extensive biopsy) will likely have a different perioperative complication rate compared to a margin negative resection. This difference (while obvious in operative notes and tumor board discussion) may be more difficult to elucidate by surgical codes.”

Thank you for the thoughtful suggestion. We agree with that there are limitations to the use of the National Inpatient Sample that include potential biases in the coding of ICD9 codes. We feel the longitudinal nature and national scope of the NIS does allow for meaningful analysis of trends in incidence and complication. We have elaborated on the limitations (p. 8, third ¶) and have included the queried ICD9 codes

6. In the Discussion section, the increased rate of cardiopulmonary and electrolyte complications seen in high-volume centers may represent increased patient comorbidities in addition to greater levels of volume resuscitation. This point should be expanded.

Thank you for the thoughtful suggestion. We agree with your assessment and further described this potential explanation (p. 8, first ¶).

7. A reference for page 7, line 48-53 (Prior studies...) should be included.

Thank you for the suggestion. We have added citations of **I Asked Dr. El-Sayed, waiting for his email**

Again, we thank you for your kind review, and hope you will consider our manuscript now suitable for publication in the Laryngoscope.

Sincerely,

David Ouyang, Ivan El-Sayed, and Sue Yom