Is Perception of the Safety of Overlapping Neurologic Surgery Impacted by Practice Volume? Results from a Multi-Institutional Survey and An Administrative Database

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Disclosures

• None
Introduction: Overlapping Surgery

• Overlapping surgery, defined as two distinct operations occurring at the same time but without coincident critical portions, improves patient access to surgical care and facilitates resident training.

• Objectives:
  • To investigate the association between institution case volume and neurosurgery department chair and program director opinions regarding overlapping practice under the hypothesis that high-volume institutions tend to employ overlapping surgery more commonly than low-volume institutions and
  • To compare and contrast common surgical outcomes including length of stay (LOS), mortality, complications and 30-day readmissions between high-volume and low-volume hospitals.
Methods

• We conducted a self-administered survey of neurosurgery department chairs and residency program directors of institutions participating in the Vizient Clinical Database/Resource (CDB/RM).

• We queried participants regarding yearly departmental case-volume, frequency of overlapping surgery in daily practice, the degree of overlapping they find acceptable, their inference from the recent press issues and their opinion on the impact of banning overlapping surgery on resident training.

• We compared responses between high- and low-volume programs in reference to Vizient data describing lengths of stay (LOS), inpatient mortality, complications and readmissions.
Methods

Survey Analysis

Survey Responses received: 70/236 (29.7%)

Survey analysis stratified by responses

1st Strata:
Q2: How many surgical cases does your department perform per year?

LOW VOLUME: Less than 100
100 to 1,000

HIGH VOLUME: 1,001 to 2,000
2,001 to 3,000
3,001 to 5,000

OVERLAPPING PRACTICES
Weekly
Daily

2nd Strata:
Q4: Which of the following best describes the frequency of overlapping surgeries performed at your institution?

LOW VOLUME:
Less than median case volume for that quarter

HIGH VOLUME:
More than median case volume for that quarter

Non-Overlapping Practices
None
Rarely
Monthly

Analysis Scheme

Vizient CDB-RM Analysis

Using: Discharge Physician Specialty = "Neurosurgery"

84 hospitals with available data

Stratified by Quarterly Case Volume

LOW VOLUME:
Unweighted Analysis
Cases with 1 or more Complications
Readmission Rate

HIGH VOLUME:
Non-Overlapping Practices
Weekly
Daily

Quarterly Analysis of Quality Outcomes
Results

Figure 2 (a). Analysis for high-volume vs low-volume hospitals: Comparison of frequency of overlapping surgery

Figure 2 (b). Analysis for high-volume vs low-volume hospitals: Comparison of degree of overlap acceptable to respondent

Figure 2 (c). Analysis for high-volume vs low-volume hospitals: Comparison of inference from spotlight issue

Figure 2 (d). Analysis for high-volume vs low-volume hospitals Comparison of opinion on residency impact
Results

Figure 3 (a). Analysis for overlapping practices vs non-overlapping practices: Comparison of degree of overlap acceptable to respondent

Figure 3 (b). Analysis for overlapping practices vs non-overlapping practices: Comparison of inference from spotlight issue

Figure 3 (c). Analysis for overlapping practices vs non-overlapping practices: Comparison of opinion on residency impact
<table>
<thead>
<tr>
<th></th>
<th>High Volume (n=30) Mean (SD)</th>
<th>Low Volume (n=10) Mean (SD)</th>
<th>95% CI</th>
<th>P -Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quarterly Case Volume</td>
<td>426.93 (41)</td>
<td>121.01 (7.5)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean LOS Index</td>
<td>1.03 (0.142)</td>
<td>1.1 (0.27)</td>
<td>-0.04 - 0.09</td>
<td>p&lt;0.001</td>
</tr>
<tr>
<td>Weighted Mean Cases with or More Complication</td>
<td>6.981 (2.7)</td>
<td>7.174 (4.49)</td>
<td>-0.79 - 0.64</td>
<td>p=0.84</td>
</tr>
<tr>
<td>Mean Mortality Index</td>
<td>0.94 (0.30)</td>
<td>1.157 (2.3)</td>
<td>-0.02 - 0.40</td>
<td>p= 0.02</td>
</tr>
<tr>
<td>Weighted 30-day Readmission rate</td>
<td>5.25 (2.4)</td>
<td>4.6 (3.5)</td>
<td>0.92 – 0.21</td>
<td>p= 0.001</td>
</tr>
</tbody>
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Conclusion

- Our survey results demonstrate that institutional case volume may have a role in determining an opinion about overlapping surgery.
- It also shows that most surgeons agree that making regulations against overlapping surgery may adversely affect resident training.
- We also found that the outcomes between overlapping institutions and non-overlapping institutions are comparable.
- The findings of the present investigation will hopefully aid policy makers and regulatory bodies in crafting future regulations related to the practice of overlapping surgery.
Mayo Clinic Locations
Questions & Discussion