Effect of Work Hour Restriction on Residents Case Volume

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ABSTRACT

Objectives: 1. To determine the effect of the Accreditation Council for Graduate Medical Education (ACGME) 80-hour work restriction on the total number of cases of graduating residents. 2. To determine the effect of the ACGME 80-hour work restriction on the total number of “key indicator” cases of the graduating residents.

Study Design: Case logs analysis

Setting: ACGME accredited otolaryngology residency programs

Subjects and Methods: The ACGME national data reports of case logs for graduating residents from 2005-2011 were analyzed. Linear regression was used to evaluate for changes in total case numbers over time. Separate models were generated for total case volume, resident participation (surgeon, assistant, supervisor), and ACGME “key indicator” categories.

Results: A statistically significant increase in total case volume was observed over the study period, with graduating residents on average performing 25.8 more cases per study year (95% CI = 6.5 to 44.9, p=0.018). This increase is primarily accounted for by an increase in the number of cases categorized as surgeon, with 19.8 more cases per study year (95% CI = 5.8 to 33.7, p=0.015). An increase of 4.1 cases per study year in the “key indicator” category of Head and Neck was observed (95% CI = 1.6 to 6.5, p=0.008).

Conclusion: Despite implementation of the 80-hour duty restriction, case logs of graduating residents demonstrated an increase in case volume over calendar time. Further research will be necessary to determine if this finding reflects improved efficiencies in training programs or redistribution of resident activities away from other educational opportunities.

Introduction

• On July 1, 2003, the 80-hour duty regulations which was established by the Accreditation Council for Graduate Medical Education (ACGME) was implemented for all ACGME-accredited residency and fellowship training programs.

• The 80-hour duty restrictions included:
  - Limiting in-house call to a 24-hour period with an additional 6 hours to partake in didactics, transfer of care, and participate in outpatient clinics
  - Providing a 10 hour break between shifts
  - Providing one day off for every seven days worked.

• The regulations were put into practice to prevent resident fatigue, to promote patient safety and to improve residents’ quality of life.

• Concern was most great in the surgical residencies that the decreased work hours would result in training of less qualified surgeons.

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Methods

• Approved by the University of Michigan IRB

• The ACGME national data reports of case logs from graduating otolaryngology residents from 2005-2011 were evaluated.

• The median of the total case volume for each graduating year was determined and then subdivided based on resident participation: (1) surgeon, (2) assistant, (3) supervisor.

• The mean case volume for each of ACGME “key indicator” categories: (1) Head and neck, (2) Otolaryngology, (3) Facial plastic & reconstructive surgery (FPFRS), (4) General/Pediatrics was determined based on the “surgeon” participation group.

• Linear regression was used to evaluate for changes in total case volume over time.

• Separate models were generated for total case volume, ACGME resident participation subcategories, and ACGME “key indicator” categories.

Figures & Tables

Figure 1. Median of Total Case Volume Based on Resident Participation

Table 1: Regression of Surgical Volume Over Calendar Time

<table>
<thead>
<tr>
<th>Case Type</th>
<th>Regression Coefficient</th>
<th>95% CI</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>25.8</td>
<td>6.5 to 45.0</td>
<td>0.018*</td>
</tr>
<tr>
<td>Surgeon</td>
<td>19.8</td>
<td>5.8 to 33.7</td>
<td>0.015*</td>
</tr>
<tr>
<td>Assistant</td>
<td>3.5</td>
<td>-6.7 to 13.7</td>
<td>0.42</td>
</tr>
<tr>
<td>Supervisor</td>
<td>2.5</td>
<td>-3.0 to 7.9</td>
<td>0.3</td>
</tr>
</tbody>
</table>

*statistically significant if p < 0.05

Figure 2. Median of Case Volume Based on “key indicator” categories as a “surgeon”

Table 2: Regression of Surgical Volume Over Calendar Time Based on “Key Indicator” Procedure Categories

<table>
<thead>
<tr>
<th>Case Type</th>
<th>Regression Coefficient</th>
<th>95% CI</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Head and Neck</td>
<td>4.1</td>
<td>1.6 to 6.5</td>
<td>0.008*</td>
</tr>
<tr>
<td>Otolaryngology</td>
<td>3.5</td>
<td>-2.1 to 9.1</td>
<td>0.17</td>
</tr>
<tr>
<td>Facial Plastics</td>
<td>-1.7</td>
<td>-5.7 to 2.3</td>
<td>0.32</td>
</tr>
<tr>
<td>General &amp; Pediatrics</td>
<td>7.3</td>
<td>-2.6 to 17.2</td>
<td>0.11</td>
</tr>
</tbody>
</table>

*statistically significant if p < 0.05

Discussion

• The graduating residents on average performed 25.8 more total cases per study year (Table 1) which was statistically significant (p = 0.018).

• The graduating residents on average performed 25.8 more cases per study year as “surgeon” (Table 1) which was statistically significant (p = 0.015).

• However, the increase in the number of cases as “assistant” and “supervisor” per study year was not statistically significant (Table 1).

• Based on the data from the “key indicator” categories, only the Head and Neck category showed statistically significant increase in cases per study year (p = 0.008) with 4.1 more cases per study year (Table 2).

• The “key indicator” categories of otology, facial plastics, and general/pediatrics did not show a statistically significant increase of cases per study year (Table 2).

References

For a detailed list of references, please email idarrat1@hfhs.org.

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CONFERENCE POSTER DESIGN & PRINTING

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