Attrition of Female Surgical Trainees in Canada

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16.7% of Canadian Surgeons are Female
Prevalence and Causes of Attrition Among Surgical Residents
A Systematic Review and Meta-analysis

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- 2016 (1982-2013)
- Overall attrition rate from General Surgery 18%
- Female 25%
- Male 15%

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2000-2010

Start Surgical Training

Year 1
Register for assessment of training

Year 2
Register for SF examination

Training

Training

Year 5/6
Register for Specialty examination

Take Specialty Examination

Leave in first 6 months of training

Leave Training
## 2000-2010

<table>
<thead>
<tr>
<th></th>
<th>Assessment of Training</th>
<th>Complete Final Exam</th>
<th>Completion Rate</th>
<th>Attrition Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Residents</strong></td>
<td>2563</td>
<td>2357</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Male (68.9%)</strong></td>
<td>1765</td>
<td>1657</td>
<td>93.3%</td>
<td>6.7%</td>
</tr>
<tr>
<td><strong>Female (31.1%)</strong></td>
<td>798</td>
<td>700</td>
<td>87.7%</td>
<td>12.3%</td>
</tr>
</tbody>
</table>

$p < 0.001$
Surgical Cohort Composition by Gender

Year | Males (%) | Females (%)
--- | --- | ---
2000 | 72.7 | 27.3
2001 | 77.5 | 22.5
2002 | 73.7 | 26.3
2003 | 77.1 | 22.9
2004 | 76.0 | 24.0
2005 | 68.9 | 31.1
2006 | 65.2 | 34.8
2007 | 63.3 | 36.7
2008 | 61.8 | 38.2
2009 | 65.4 | 34.6
2010 | 60.8 | 39.2
Why do women leave surgical training? A qualitative and feminist study

Rhea Liang, Tim Dornan, Debra Nestel

• 2019 Qualitative study – culmination of many factors
• Multifactorial
  • Long hours
  • Fatigue
  • Unpredictable lifestyle
  • Bullying
  • Sexism/lack of role models
  • Lack of learning opportunities
  • Pregnancy/childbirth/childrearing
  • Harassment and assault
The Effect of Gender on Resident Autonomy in the Operating room

Shari L. Meyerson, MD, * Joel M. Sternbach, MD, * Joseph B. Zwischenberger, MD, † and Edward M. Bender, MD‡

*Department of Surgery, Northwestern University, Feinberg School of Medicine, Chicago, Illinois; †Department of Surgery, University of Kentucky, Lexington, Kentucky; and ‡Department of Cardiothoracic Surgery, Stanford University, Palo Alto, California

• 2017 study of 33 Thoracic Surgery Residents with 48 Faculty
• Autonomy to operate was related to
  • Level of Training
  • Case Complexity
  • Gender
• Decreased Autonomy with Female Residents
Conclusions

• Female surgical residents in Canada have a higher attrition rate than their male colleagues (12.3 vs 6.7%)
• The attrition gap is improving with time
• The number of female surgical trainees is increasing
• Surgical training programs need to examine how they can improve diversity and retention of trainees
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Distribution of General Surgery Residencies in the United States and Gender Inequality: Are We There Yet?

Adel Elkbuli, MD, MPH, Raed Ismail Narvel, Brianna Dowd, Mark McKenney, MD, MBA, FACS, and Dessy Boneva, MD, FACS

Department of Surgery, Kendall Regional Medical Center, Miami, Florida

• 2019
• Female general surgery PGY1 in US 37%
Comparison of postoperative outcomes among patients treated by male and female surgeons: a population based matched cohort study

Christopher JD Wallis resident\textsuperscript{1,2}, Bheeshma Ravi surgeon and assistant professor\textsuperscript{3}, Natalie Coburn surgeon and associate professor\textsuperscript{4}, Robert K Nam surgeon and professor\textsuperscript{1}, Allan S Detsky internist and professor\textsuperscript{2,5}, Raj Satkunasivam surgeon and assistant professor\textsuperscript{1,6}

• Patients treated by female surgeons had a small but statistically significant decrease in 30 day mortality
• Similar readmission and complication rates
The effect of gender on operative autonomy in general surgery residents

Shari L. Meyerson, MD\textsuperscript{a,*}, David D. Odell, MD\textsuperscript{b}, Joseph B. Zwischenberger, MD\textsuperscript{a}, Mary Schuller, MSEd\textsuperscript{b}, Reed G. Williams, PhD\textsuperscript{c}, Jordan D. Bohnen, MD\textsuperscript{d}, Gary L. Dunnington, MD\textsuperscript{c}, Laura Torbeck, PhD\textsuperscript{c}, John T. Mullen, MD\textsuperscript{d}, Samuel P. Mandell, MD\textsuperscript{e}, Michael A. Choti, MD\textsuperscript{f}, Eugene Foley, MD\textsuperscript{g}, Chandrakanth Are, MD\textsuperscript{h}, Edward Auyang, MD\textsuperscript{i}, Jeffrey Chipman, MD\textsuperscript{j}, Jennifer Choi, MD\textsuperscript{k}, Andreas H. Meier, MD\textsuperscript{l}, Douglas S. Smink, MD, MPH\textsuperscript{m}, Kyla P. Terhune, MD\textsuperscript{n}, Paul E. Wise, MD\textsuperscript{o}, Nathaniel Soper, MD\textsuperscript{b}, Keith Lillemoe, MD\textsuperscript{d}, Jonathan P. Fryer, MD\textsuperscript{b}, Brian C. George, MD\textsuperscript{p}, on behalf of the members of the Procedural Learning and Safety Collaborative

- 412 Residents  524 Faculty
- 14 General Surgery Training Programs
- Autonomy to operate was related to
  - Level of Training
  - Case Complexity
  - Gender
- Decreased Autonomy with Female Residents

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