

**Why do residents leave?**  
**A multi-institutional study investigating the impact of culture on attrition from surgical residency**

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### **a. Project Description**

Clinical medicine is a career choice with both great rewards, and great personal costs. Each year, clinical residents around the country make the decision to voluntarily leave training programs, either to switch specialties or leave medicine altogether. Resident attrition is disruptive and costly to programs, and can lead to physician shortages in fields with particularly high rates, such as general surgery. We are proposing a rigorous, case-controlled qualitative study of categorical general surgery residents who have left training within the last 5 years, after the initiation of the 80-hour work week. Stanford will be partnering with three additional residency programs, the University of Indiana, University of Nevada, and Mount Sinai Beth Israel. Each program will provide a list of individuals who have left categorical general surgery positions during that time. These individuals will be invited to participate in a de-identified, one-on-one phone interview regarding their decision to leave residency as well as their life and career since leaving. We will also interview age-, gender-, program-, and post-graduate year matched control subjects who have either completed residency or are currently in good standing.

### **b. Rationale**

Attrition rates in general surgery are between 14-32%, with the most commonly cited number being 20% of general surgery residents leaving prior to completing the program.<sup>1</sup> This is an issue of considerable concern to program directors and surgical educators, and numerous studies have examined the characteristics of residents who “drop out.” The majority of these are single-institution database studies, examining resident characteristics available in an admission file, such as age, gender, and test scores.<sup>2-4</sup> Most studies found no predictive characteristics do distinguish between the residents who leave, and those who stay. The few traits that were predictive in single institution studies, including older age or female gender, have not been validated in multi-institutional data, and are not consistently significant across centers.<sup>2,5,6</sup> The conclusion from the available data is that 20% of general surgery residents will leave residency, and we do not understand why. There is a clear and pressing need to investigate this phenomenon with a deeper, qualitative study, comparing the perspectives of residents who drop out with those who stay.

### **c. Pilot Data**

While we do not have any pilot data from our center, we are building on existing scholarship examining the reasons for resident attrition. Overall, these studies have utilized pre-existing databases and questionnaires, without consensus regarding the reasons or risk factors for attrition. We propose a study that delves beyond retrospective single-institution databases, which has the potential to reveal novel information to inform future interventions to decrease resident attrition.

### **d. How the project supports/promotes diversity**

Several single institution studies have found that women are 2-3 times more likely to leave general surgery residency programs.<sup>2,5,6</sup> It is also well established that women and minorities continue to be underrepresented in medicine, and especially in surgery,<sup>7</sup> and that minority physicians report less positively on program fit and faculty relationships during residency.<sup>8</sup> This is especially concerning as a sense of belonging has been correlated with likelihood of staying in surgical residency.<sup>9</sup> There are no studies that fully explore the relationship between gender, race, and surgical attrition. If there are programmatic forces that target these groups and lead to higher attrition rates, it is essential for the ongoing health of our field to find and eliminate them.

### **e. Methods**

We have four institutions committed to this study: Stanford, University of Indiana, University of Nevada, and Mount Sinai Beth Israel in New York. The co-investigators on this grant, a general surgery Associate Program Director, a general surgery resident, and an expert in qualitative

methods, will develop an interview guide for all participants. The interview guide will be pilot tested with the other participating program directors and non-participant general surgery residents for initial validity evidence. After obtaining IRB approval at all four institutions, we will recruit participants for a case-control study. The cases will be residents who have left categorical general surgery positions at the participating institutions between 2010-2016. Controls will be residents who are either currently in training, or have graduated during that time period, matched on the basis of gender, institution, and post-graduate year. All participants will then be contacted for a de-identified one-hour phone interview with a qualitative methods expert who has extensive experience with interviewing, and who is not a physician or connected directly with any residency program. We will then conduct a team-based inductive review of the interview transcripts to identify emergent themes, with the potential to compare themes from cases and controls.

**f. Timeline and implementation plan**

Activity Name	Mar	Apr	May	Jun	Jul
<b>Interviews</b>					
Prepare and member check interview guide					
IRB submission at all participating institutions					
Recruit participants					
Participant interviews					
Data analysis					
Conference presentations, manuscript preparation					

**g. Anticipated work product**

The anticipated work product will consist first of an interview template that can be used in additional studies on resident attrition, both in general surgery and in other fields. We will also produce a manuscript describing our findings about resident attrition to the broader community.

**h. Plan for evaluation**

We will be conducting a multi-institutional, hypothesis-generating qualitative study on how the surgical resident learning environment impacts resident attrition. Using a phenomenological approach and rigorous qualitative methods, we will inductively develop a codebook and validate code applications by using two independent coders to test for inter-rater reliability. To enhance credibility, we will utilize a team-based approach for thematic analysis. Finally, we will perform participant validation to enhance the confirmability of our findings.

**i. Plan for dissemination of results**

Our aim is to present this work at the American College of Surgeons annual meeting, and publish in manuscript form in Academic Medicine or the Journal of the American College of Surgeons (JACS).

**j. Anticipated impact on education/mentoring at School of Medicine**

One in five general surgery residents leave training, and that degree of attrition impacts the surgical environment and the likelihood of medical students to consider general surgery as a specialty. Every medical student at Stanford rotates in the general surgery department, and identifying elements of the culture that are negatively impacting resident retention will positively impact the clinical education environment at the School of Medicine.

**k. Specific educational aims**

**Specific Aim 1:** Identify factors that contribute to resident attrition within general surgery.

**Specific Aim 2:** Evaluate the impact of surgical culture on resident decisions to leave general surgery residency.

References:

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