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# Why Do Residents Quit General Surgery Residencies? A Study of 789 Graduates from 3 Campuses Who Matched into General Surgery over 40 Years: 1974 to 2015

*Daniel M Avery Jr*, Joseph C Wallace, John Burkhardt, John Bell VII, Charles E Geno, Andrew G Harrell, Garrett Taylor and Melanie Tucker*

*Department of Obstetrics and Gynecology, College of Community Health Sciences, University of Alabama, USA*

## Abstract

**Background:** General Surgery has the highest rate of attrition of all medical and surgical residencies. Uncontrollable lifestyle remains the number one reason residents quit general surgery residencies. Uncontrollable lifestyle means long hours, unpredictable schedules, long operative procedures and limited personal time. One out of every 6 general surgery residents quits residency training. More than half of general surgery residents contemplate leaving their surgery residency. Attrition is a major concern because of the existing shortage of general and rural surgeons in this country and even greater projected shortage in the near future.

**Design, Setting and Participants:** A list of 6,271 graduates of the University of Alabama School of Medicine (UASOM) from the Birmingham, Tuscaloosa and Huntsville campuses from 1974 to 2015 was obtained from the published records of the main campus in Birmingham. The list included residents who changed from general surgery to another specialty, were dismissed, quit medicine altogether, specialized early into an integrated program, or completed and practiced a surgical subspecialty. Graduates from the Tuscaloosa campus between 1974 and 2015 and graduates from the Birmingham and Huntsville campuses between 2001 and 2011 were interviewed by telephone or sent surveys by mail.

**Results:** Ninety residents were identified from the study that changed from general surgery (1 had expired). Fifty-eight graduates (65.2%) responded. Eighteen graduates matched into non-5 year categorical positions before other surgical specialties like urology, ENT, etc., and were excluded from the calculations. Nineteen (47.5%) graduates changed to another specialty. Fourteen (35%) graduates completed general surgery, then subspecialty fellowships and practiced surgical subspecialties.

**Discussion:** The most common reason residents quit general surgery residencies is uncontrollable lifestyle; the second is the physical demands of the presidency itself. Both are amenable to improvement. The attrition rate of general surgery residents in this study is 44%. Most residents who quit changed to another specialty or completed general surgery and pursued a subspecialty fellowship.

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***Correspondence:***
*Daniel M Avery, Department of Obstetrics and Gynecology, College of Community Health Sciences, University of Alabama, USA, Tel: 205-348-4487; Fax: 205-348-1395; E-mail: davery@cchs.ua.edu, davery@ua.edu*

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## Introduction

General surgery has the highest rate of attrition of all medical and surgical residencies [1-4]. Uncontrollable lifestyle remains the number one reason residents quit general surgery residencies [5]. Uncontrollable lifestyle means long hours, unpredictable schedules, long operative procedures and limited personal time. One out of every six general surgery residents quits residency training [1,6]. The national attrition rate for general surgery is 20% [1,3,7]. Attrition in general surgery is four to five times higher than surgical subspecialties and two to three times higher than internal medicine. More than half of all general surgery residents contemplate leaving their surgery residency [8]. Once a resident decides that general surgery will not provide the desired lifestyle, quitting the residency is inevitable [9]. Attrition usually occurs early in training, typically after the first two years [10] but can also occur during the research year [11]. All reports suggest that residents do not quit during their chief residency year. After the PGY1 year, attrition is less likely with progression of the residency [12]. Programs in the U.S. South have less attrition [12]. Common specialties residents change to are plastic surgery, anesthesiology and radiology. Attrition is a major concern because of

**Table 1:** Expanded Database of the University of Alabama School of Medicine Graduates from the Tuscaloosa, Birmingham and Huntsville Campuses (1974-2015).

| | |
|---|---|
| Matriculation Year | Zip Code |
| Graduation Year | RUCA Code |
| MD Granted Date | Rural/Urban Area |
| Full Name | MUC (Medically Underserved Community) |
| PGY1 Specialty | Board Certification |
| PGY1 Institution | Matched in Categorical Surgery |
| PGY1 City | Matched in Preliminary Surgery |
| PGY1 State | Practiced General Surgery |
| Training State to Practice State | Practiced General Surgery in Alabama |
| Practicing Specialty | Practiced General Surgery in Rural Alabama |
| Subspecialty | Practiced General Surgery in Rural U.S. |
| Rural Medical Scholars Program | Matched in Subspecialty Surgery |
| Primary Care/Other | Matched in Family Medicine |
| Practicing Matched Specialty | Practiced Family Medicine in Alabama |
| Practice Location | Practiced Family Medicine in Rural Alabama |
| Practice State | Practice Primary Care |
| Address | Practiced Primary Care in Alabama |
| Contact Telephone | Practiced Primary Care in Rural Alabama |
| Stayed in Alabama/Left Alabama | |

**Table 2:** Classification of Attrition in this Study.

| | |
|---|---|
| Changed to another medical or surgical specialty | 19 (47.5%) |
| Early specialization into an integrated program | 3 (7.5%) |
| Dismissal from the residency program | 1 (2.5%) |
| Quit medicine altogether | 2 (5%) |
| Changed to surgical subspecialty after completing general surgery | 14 (35%) |
| Response not specified | 1 (2.5%) |

the existing shortage of general and rural surgeons and even greater projected shortage of general surgeons in the very near future [13]. Currently, 58% of practicing general surgeons is over the age of 55 [14]. We are not keeping up with attrition with those practicing now. Most general surgery residencies have been affected by attrition and 33% of programs have lost more than one resident. Almost half of surgery residents consider dropping out of residency and almost half would not match into surgery again [14,15]. Forty percent of residents would not choose a medical career again [15]. Resident attrition continues to increase with some reports of almost 30%. Training programs classify attrition in several different ways. According to Dodson and Webb, the most common classifications of reasons for leaving residency are: 1) lifestyle issues, 2) early specialization into an integrated program (e.g., plastic surgery), 3) termination, and 4) decision to leave medicine altogether. Other programs have also used the classifications of voluntary and involuntary withdrawals. The classifications used by Yeo et al. [11] are: 1) resignation, 2) termination, and 3) transfer to another program. Attrition that occurs early in residency suggests that actual residency training was different from medical school expectations In one study, 20% of those who quit changed to another general surgery residency which attests to problems with that particular residency. More women leave surgery residencies than men. Of particular concern were residents who left involuntarily for performance or emotional problems. Dismissal or termination is often a long, hard process that includes documentation of problems, due process, corrective action, counseling, etc. In one study, the majority of residents who left a surgery residency left in good standing [16].

The strenuous lifestyle that accompanies general surgery residencies remains the most common reason why residents quit, often leaving to pursue residencies with better quality of life expectations such as anesthesia or radiology [6,10,12,16,17]. In fact, 83% of males and 63% of females report lifestyle as the primary factor in their decision against a career in surgery [18,19]. While previous generations of physicians and surgeons seemed willing to put medicine all other life priorities, including quality of life, the current generation appears significantly more committed to finding balance between their practice and their quality of life [18-21]. Unlike previous generations, today's medical students are attracted to specialties that allow for autonomy, flexible schedules, and balance between work and home life. Current medical students are interested in students are interested in specialties that allow more control over their quality of life and are resistant to being on call or otherwise available all of the time. Nearly half of all medical students' report they do not intend to practice medicine full time. Although most students give favorable evaluations of their surgery clerkship, only a disparate few ultimately choose to pursue a career in surgery. For these students, the expectation and frequency of in-house call and on-call requirements, the length of the residency, and the intensity of the training are the determining factors in their decision.

The demanding nature of the specialty takes a toll on trainees, leading to exhaustion due to work and/or stress—also known as burnout. General surgery residents have the highest burnout rate in the medical profession. Sixty-nine percent of surgery residents in one program met the criteria for burnout. What is it about general surgery that puts residents at such high risk for burnout and attrition? The volume of work, intensity of technical skills demanded, and long hours are often overwhelming, especially compared to other residency programs. Burnout has been associated with working more than 80 hr per week—the required weekly number of hours expected

of general surgery residents. Ninety-nine percent of medical students rank general surgery as the first or second most stressful specialty. Bullying has also been associated with attrition and the "surgical personality.

Resident attrition affects the residency program at multiple levels. When a resident leaves, the remaining residents must take on additional responsibilities, increasing their work load and call duties. This disruption of the resident teams can lead to anger and frustration. Furthermore, any additional work responsibilities taken on by the remaining residents do not abrogate their required 80 hr work week. Program directors, faculty and staff expend additional unplanned efforts to replace a resident, not to mention costs to the residency. Attrition is often a net loss to the residency and, subsequently, to the profession at a time when there is a substantial need for general surgeons in this country. When a resident leaves, the residency must utilize more time and resources trying to find a replacement, in addition to the substantial time that was already spent interviewing him or her as a prospective resident. Even if a replacement resident is acquired, the team must consider the possibility that he or she is available because of a failure to match, dismissal, substandard performance, etc.

## Design, Setting and Participants

This research was approved by the Institutional Review Board of The University of Alabama. Financial support was provided by The University of Alabama Institute of Rural Health Research. A list of 6,271 graduates of the University of Alabama School of Medicine from the Birmingham, Tuscaloosa, and Huntsville campuses from 1974 to 2015 was obtained from the published records of the main campus in Birmingham. Graduates assigned to the Montgomery Campus were not included since this campus opened only recently. This list contained the years of matriculation and graduation, full names, specialty choice, name and location of PGY1 institution, and name and location of residency. This database was expanded to include the additional information listed in Table 1. Information was obtained primarily from Google Search Engine. Publicly available data from internet sources was selected as the primary source of information, with verification from other sources when feasible. The investigators recognize the positives as well as the limitations of internet-based data. Information was obtained for 6,238 (99.5%) graduates assigned to the three campuses from 1974 to 2015. Physicians were identified by their practice website. The database was then configured into a SPSS database so that descriptive statistics could be applied.

This study included graduates who matched into General or Categorical Surgery but changed into another specialty, were dismissed, quit medicine altogether, specialized early into an integrated program or completed general surgery followed by a subspecialty fellowship and practiced a surgical subspecialty. Graduates who matched into non-5 year categorical positions (i.e. one year of surgery before ENT) were not included. Respondents were not given incentives for participating in the study. Phase 1 of the study included graduates assigned to the Tuscaloosa Campus from 1974 to 2015 who withdrew from their matched surgery residency. Responses from Phase 1 were used to prepare survey questions for Phase 3. Phase 2 of the study included an analysis of the Tuscaloosa Campus surgery clerkship student evaluations from 2005 to 2015 to see if improvements could be made in the clerkship to attract more medical students to surgery residencies and careers (This data is discussed in another paper). Phase 3 included graduates from the Birmingham, Tuscaloosa, and Huntsville campuses who changed from general surgery residencies over the last 10 years of the study (2001-2011). Study investigators initiated contact with graduates by telephone to conduct the interviews. Graduates who could not be reached by telephone were sent surveys through the mail, along with pre-addressed, postage-paid envelope to return the completed survey. If a graduate did not return the initial survey, he or she was sent a second survey.

**Table 3:** Reasons for Attrition (Multiple reasons allowed per respondent).

| | |
|---|---|
| Lifestyle issues | 15 |
| Marriage, children, pregnancy, health, are, spouse's goals | |
| Physical demands of Residency | 11 |
| Work is too demanding, length of residency is too long, | |
| Work hours are too long each day, unable to do the work | |
| Did Not Like Operating | 8 |
| Difficulty Making Surgical Decisions | 0 |
| Unsure about General Surgery as a Career from the Start | 4 |

**Table 4:** Additional Written Reasons for Attrition in the Survey (Paraphrased).

| |
|---|
| Took off time to spend with a parent with cancer |
| Could not complete a rigorous residency |
| Wanted primary care rather than technical work of surgery |
| Interns were on call every night in my program |
| Upper level residents were for the most part helpful but some would not answer at night |
| Saw unnecessary procedures performed so chiefs could flesh out the totals |
| Very disappointing |
| I was at the low end of the totem pole fixing other specialties' mistakes |
| Not fulfilling enough |
| Did not know what I wanted to do |
| All 8 interns in my surgery residency quit |
| Too many subspecialists resulting in less procedures |
| Residents do not know what real life is about practicing surgery |
| Changed my personality |
| I loved surgery but did not love the OR |
| Liked general surgery and planned to do it but liked colorectal even better |
| Discovered during training there were research options in head and neck oncology |
| Planned academic all along |
| Negative experience with a medical school attending—told me I would never be a surgeon |
| Working with cancer patients is important |
| You sacrifice your life for nothing |
| Lack of practice control |
| Compensation is less |
| Decreased autonomy and reimbursement |
| Little interest in the full spectrum of general surgery cases |
| Quit residency to take care of sick grandparents |
| Work and call expectations after finishing training do not get a lot better |
| Did not enjoy clinical work or long term patient care |

## Results

In Phase 1, 30 graduates assigned to the Tuscaloosa Regional Campus from 1974 to 2015 changed from general surgery. Twenty-

nine of the graduates were either interviewed by telephone or mailed surveys and 20 (69.0%) of the 29 graduates responded. One graduate had died. Phase 2 involved medical student surgery clerkship evaluations for the past 10 years and these are discussed in a different publication. In Phase 3, 54 graduates from the Birmingham campus, four graduates from the Tuscaloosa Campus and six graduates from the Huntsville campus were identified as having withdrawn from general surgery from 2001 to 2011. For residents completing a surgery residency in 2015, they would have matriculated in 2011. Thirty-nine (60.9%) of the 64 graduates responded. Four of the Tuscaloosa graduates were included in Phase 1. Data were reported together for Phases 1 and 3 because the numbers were small.

Ninety residents were identified from the combined study that changed from general surgery. Fifty-eight residents (65.2%) responded to the survey. Eighteen residents matched into non-5 year categorical positions before other surgical specialties like urology, ENT, etc. and were excluded from the calculations. Nineteen (47.5%) residents changed to another specialty. Fourteen (35%) residents changed to surgical subspecialties by completing subspecialty fellowships after general surgery. Three residents (7.5%) pursued early specialization into integrated residencies. Two residents (5%) quit medicine altogether. One resident (2.5%) was dismissed from his residency program. One resident (2.5%) did not specify a specialty. Results are shown in Table 2.

Reasons for attrition from general surgery are shown in Table 3. Fifteen residents (37.5%) reported lifestyle issues (e.g., marriage, children, pregnancy, health, and spouse's goals) as the reason for attrition. Eleven residents (27.5%) reported physical demands (work is too demanding, length of residency is too long, work hours are too long each day, unable to do the work) as reasons for attrition. Eight residents (20%) did not like operating. Four residents (10%) reported that they were unsure about general surgery as a career from the start of their training. No resident reported difficulty making surgical decisions as a reason for attrition (Figure 1). Additional participant comments (e.g., inadequate supervision, unnecessary procedures, discouragement, and feeling that general surgery is unfulfilling) are listed in Table 4. Two additional residents notified the medical school of changes in residency from general surgery to radiology as the study was begun. One disclosed health reasons as the reason for change; another did not disclose a reason. Neither was available for telephone interview and new addresses were not yet available to send surveys. Neither was included in the calculations.

## Discussion

General surgery has the highest rate of attrition of any residency [1-4]. Attrition of surgery residents is a major concern because of the existing shortage of general surgeons and even greater projected shortage in the near future [13]. The attrition rate of general surgery residents in this study is 44%. Consistent with the literature reviewed, uncontrollable lifestyle remains the number one reason residents quit general surgery residencies [6,10,12,17]. The physical demands of a general surgery residency were the second most common reason residents quit general surgery. The response rate to the survey was higher than expected and is probably related to the overall surgical specialty concern of the shortage of general surgeons and also the brief amount of time required completing the survey. The written survey could be completed in less than two minutes.

Lifestyle issues relating to marriage, children, pregnancy, health, age, spouse's goals are an opportunity for improvement. Of particular concern are the reports that the study participants felt the work of general surgery was too demanding, the training is too long, and/or there are too many work hours in the day. Also of concern are the responses that indicate participants did not enjoy operating, were unable to do the work, or they were undecided about pursuing general surgery from the start of their training. The graduate who left medicine altogether, having endured the challenges of medical school and some residency training, is also concerning. Perhaps these individuals were inadequately counseled about the expectations of general surgery residencies and career practices. Nevertheless, this study offers an opportunity for improved, more comprehensive medical school career counseling.

This study did not identify residents who completed subspecialty surgical fellowships after general surgery residencies and went on to practice primarily general surgery. Residents changing to other general surgery programs are likewise not identified in this study.

Number _____ Do not put a name on this form.

Please complete the following questions:

1. Did you match into General Surgery for PGY1?
2. Did you change to another specialty?
3. What were the reasons for changing from general surgery?

- o Work is too demanding
- o Length of residency
- o Work hours are too long each day
- o Do not like operating
- o Unable to do the work
- o Lifestyle issues—marriage, children, pregnancy, health, age, spouse's goals
- o Have difficulty making surgical decisions
- o Unsure about general surgery as a career from the start
- o Not adequately trained to perform the procedures
- o Early specialization into an integrated program like thoracic or plastic surgery
- o Dismissal from the program
- o Decision to leave medicine altogether
- o Decision to change to another medical specialty like anesthesia or radiology
- o Had planned on another specialty like ENT, urology or plastics
- o Other_____

_____

4. Email or address if you wish to have the results from this study

**Figure 1:** Survey.

## References


1. Avery DM, Wallace JC, Avery DM, Harrell AG, Burkhardt J, Henderson C, et al. Attrition of General Surgery Residents during Training. Jacobs J Surg. 2017.
2. National Residency Match Program. Residency Match Results by NRMP Year for UAB SOM Graduates by Campus. 2015.
3. Fischer JE. The impending disappearance of the general surgeon. JAMA. 2007;298(18):2191-3.
4. Newton DA, Grayson MA. Trends in Career Choice by US Medical School Graduates. JAMA. 2003;290(3):1179-82.
5. Bachert A. Residents Continue to Quit General Surgery. Journal of Medicine. 2017.
6. Dodson TF, Webb ALB. Why Do Residents Leave General Surgery? The Hidden Problem in Today's Programs. Curr Surg. 2005;62(1):128-31.

7. Cogbill TH, Cofer JB, Jarman BT. Contemporary issues in rural surgery. Curr Probl Surg. 2012;49(5):263-318.

8. Barone JE. More Than Half of General Surgery Residents Think About Quitting. Healthy Living.

9. Foster KN, Neidert GPM, Brubaker-Rimmer R, Artalejo D, Caruso DM. A Psychological Profile of Surgeons and Surgical Residents. J Surg Educ. 2010;67(6):359-70.

10. Morris JB, Leibrandt TJ, Rhodes RS. Voluntary Changes in Surgery Career Paths: A Survey of the Program Directors in Surgery. J Am Coll Surg. 2003;196(4):611-6.

11. Yeo H, Bucholz E, Sosa JA, Curry L, Lewis FR, Jones AT, et al. A National Study of Attrition in General Surgery Training—Which Residents Leave and Where Do They Go. Ann Surg. 2010;252(3):529-36.

12. Sullivan MC, Yeo H, Roman SA, Ciarleglio MM, Cong X, Bell RH, et al. Surgical Residency and Attrition: Defining the Individual and Programmatic Factors Predictive of Trainee Losses. J Am Coll Surg. 2013;216(3):461-71.

13. Contessa J, Kyriakides T. Surgical Resident Attrition and the Menninger Morale Curve. Surgical Science. 2011;2:397-401.

14. Whellen TV. Training Surgeons for Tomorrow. AAMC. 2006.

15. Phillips D. 'Alarming' Burnout Rate in General Surgery Residents. Medscape. 2016.

16. Longo WE, Seashore J, Duffy A, Udelsman R. Attrition of Categoric General Surgery Residents: Results of a 20-Year Audit. Am J Surg. 2009;197(6):774-8.

17. Leibrandt TJ, Pezzi CM, Fassler SA, Reilly EF, Morris JB. Has the 80 Hour Work Week Had an Impact on Voluntary Attrition in General Surgery Residency Programs? J Am Coll Surg. 2006;202(2):340-4.

18. Evans S, Sarani B. The Modern Medical School Graduate and General Surgery Training. Arch Surg. 2002;137(3):274-7.

19. Barshes NR, Vavra AK, Miller A, Brunicardi FC, Goss JA, Sweeney JF. General Surgery as a Career: A Contemporary Review of Factors Central to Medical Student Specialty Choice. J Am Coll Surg. 2005;199(4):792-9.

20. Brooks JV, Bosk CL. Bullying is a Systems Problem. Social Science & Medicine. 2012;77:11-2.

21. Berman L, Rosenthal MS, Curry LA, Evans LV, Gusberg RJ. Attracting Surgical Clerks to Surgical Careers: Role Models, Mentoring and Engagement in the Operating Room. J Am Coll Surg. 2008;207(6):793-800.