

**Should we be doing more than teaching
general surgery? The looming shortage
of general surgeons and resident
involvement in the recruitment into
general surgery**



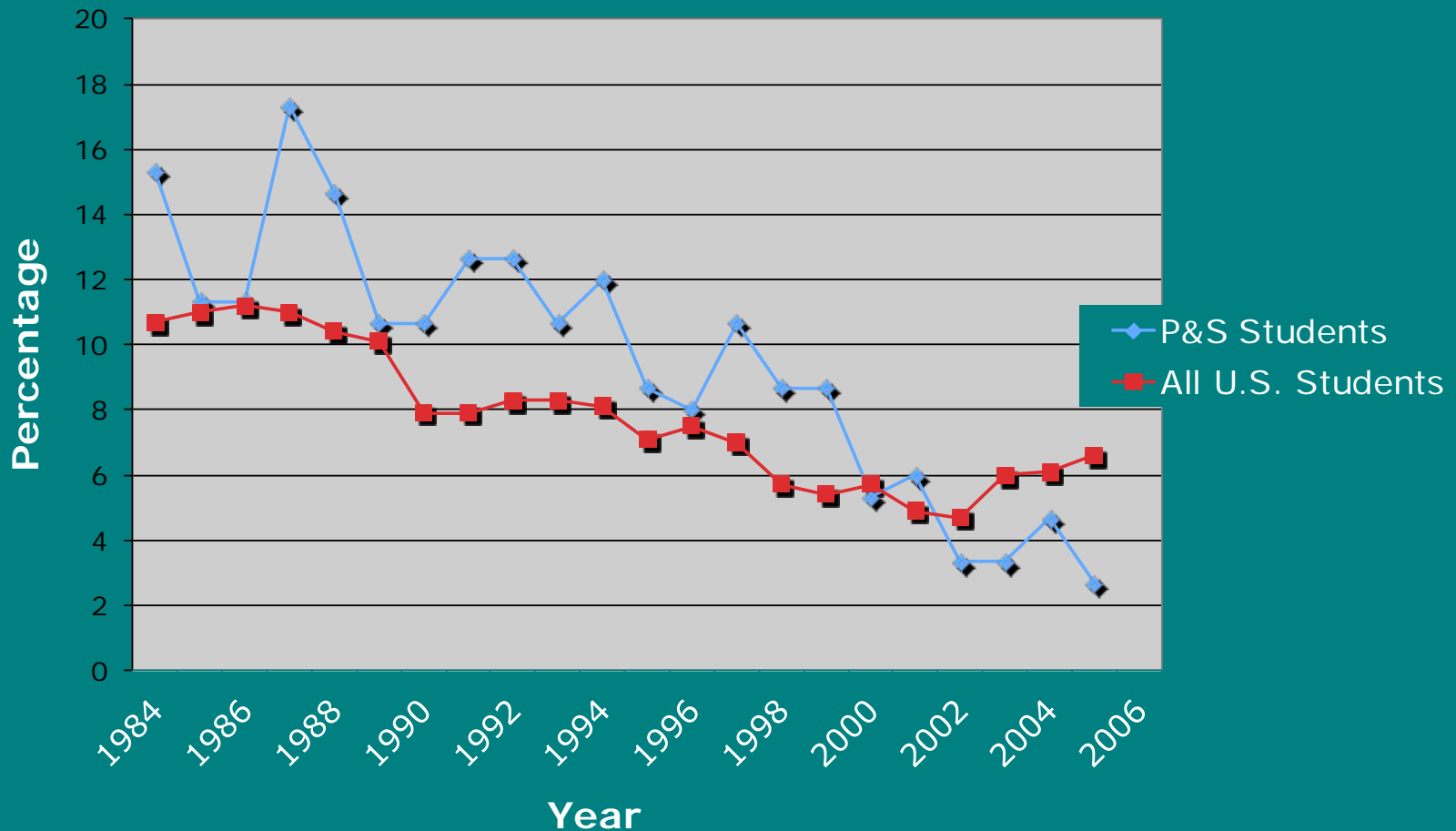
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Recruitment of Medical Students for Careers in General Surgery

- **Has there been a decline of interest in careers in general surgery?**
- **Does it matter?**
- **What have been the proposed reasons for the decline of interest?**
- **What have we did at Columbia?**
- **Were the changes durable?**
- **What future issues need to be addressed?**

National and Local Decline of Interest in General Surgery

Percentage of Medical Students Pursuing a General Surgery Residency



Take a closer look

- The per cent of medical students entering surgery has fallen but is remaining stable--
-that is a problem with the number of slots available having been static by federal decree (Balanced Budget Act) since 1997 and since then has remained at about 6%
- But.....the per cent of students interested in surgery at Columbia fell more drastically

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Data Specific to Surgeons

Table 5

Summary of GMENAC Update requirements and supply projections
[15]

| Year | Requirements: (total no./PR) | Supply | Oversupply (%)* |
|------|---------------------------------|--------|-----------------|
| 1990 | 27,896/11.1 | 28,989 | 3.8 |
| 2000 | 31,911/— | 30,671 | (4.0) |
| 2010 | 37,022/13.1 | 32,105 | (15.3) |

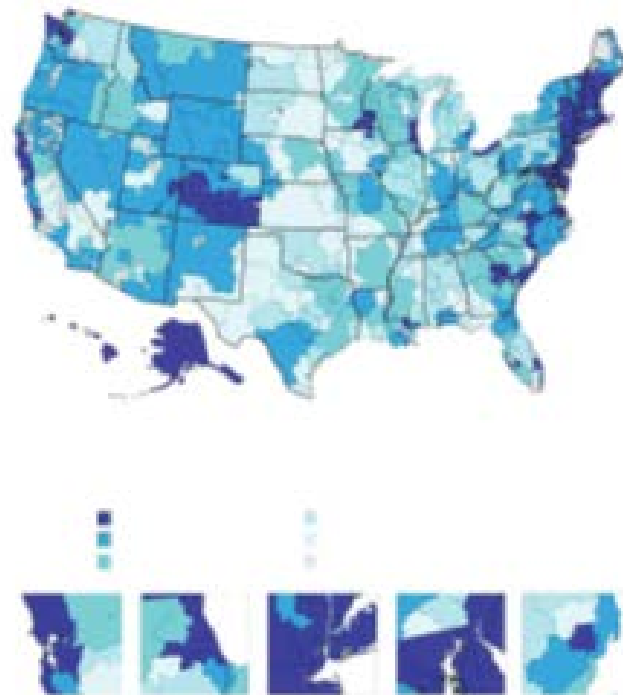
Note: GMENAC and the GMENAC Update both consider requirement and supply to be in balance when these numbers are within $\pm 15\%$ of each other.

* Undersupply noted in parentheses.

GMENAC = Graduate Medical Examination National Advisory Committee; PR = population ratio.

Getting the science right on the Surgeon Workforce Issue

Etzioni et al, Arch Surg 146:2011



There is another argument

- A “think-tank” approach says the patient outcomes and satisfaction are the same in areas of “over supply” of physicians--- (Dartmouth group, Wennberg, Etzioni et al)
- However, when focusing just on surgeons and not physicians in general, there is a marked increase in deaths from trauma in regions with a shortage of general surgeons (General Surgeon Shortage in the United States: Fact or Fiction, Causes and Consequences Richardson, Social Work in Public Health, 2011)

Data Specific to New York

| <u>Specialty Group*</u> | <u>Change in Physician Supply, 2000-2004</u> | | | |
|-------------------------------|--|-------------|---------------------------|-------------|
| | <u>Counts</u> | | <u>% Per 100,000 Pop.</u> | |
| | <u>Physicians</u> | <u>FTEs</u> | <u>Physicians</u> | <u>FTEs</u> |
| Primary Care | 190 | 59 | 5% | 1% |
| Non-Primary Care | 543 | 365 | 3% | 2% |
| <i>Ob/Gyn</i> | 36 | 19 | 3% | 1% |
| <i>IM Specialties</i> | 269 | 207 | 11% | 11% |
| <i>General Surgery</i> | -34 | -53 | -14% | -21% |
| <i>Surgical Specialties</i> | 34 | 41 | 0% | 1% |
| <i>Facility Based</i> | 103 | 104 | 5% | 5% |
| <i>Psychiatry</i> | -58 | -65 | -4% | -5% |
| Total (All Physicians) | 508 | 244 | 2% | 0% |

*Other physician specialties are not displayed but are included in the non-primary care total.

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- **What have been the proposed reasons for the decline of interest?**

Why the Numbers Are Dropping in General Surgery?

The Answer No One Wants to Hear

LIFESTYLE

From Hennington, JA Why the Numbers Are Dropping in General Surgery: The Answer No One Wants to Hear—
Lifestyle!

Archives of Surgery 137:255, 2002



Lifestyle

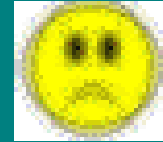


Table 4

Responses to "When you were considering general surgery, what influence did the following have on you?"

| | Surgery respondents, mean \pm SD | Nonsurgery respondents, mean \pm SD | <i>P</i> |
|-------------------------------------|--|---|----------|
| Attending lifestyle | 2.5 \pm 0.9* | 1.9 \pm 0.9* | <.001 |
| Resident lifestyle | 2.1 \pm 0.8* | 1.5 \pm 0.8* | <.001 |
| Attending workload | 3.3 \pm 2.3* | 2.3 \pm 1.0 | <.001 |
| Resident workload | 2.5 \pm 0.9* | 1.7 \pm 0.9* | <.001 |
| Length of training | 2.8 \pm 0.5* | 2.3 \pm 0.9* | <.001 |
| Family or social demands | 3.1 \pm 0.7 | 2.8 \pm 0.7* | .032 |
| Indebtedness | 2.8 \pm 0.6 | 2.9 \pm 0.5* | .545 |
| Personality fit with the job | 4.6 \pm 0.6* | 2.6 \pm 1.3* | <.001 |
| Identification of a surgical mentor | 4.4 \pm 0.7* | 3.2 \pm 1.2* | <.001 |

* *P* < .05 versus neutral value of 3.

An Internet-based survey of factors influencing medical student selection of a general surgery career. A Cochran, MD, S Melby, MD, LA Neumayer, MD, FACS. The American Journal of Surgery 189:744-5, 2005



Lifestyle

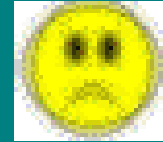


Table 5

Responses of students entering non-general surgery residency to various factors influencing specialty selection

| | When considering a general surgery career | When considering their selected specialty |
|------------------------------|---|---|
| Attending lifestyle | 1.9 ± 0.9* | 4.2 ± 0.9* |
| Resident lifestyle | 1.5 ± 0.8* | 4.0 ± 0.9* |
| Attending workload | 2.3 ± 1.0* | 4.0 ± 1.0* |
| Resident workload | 1.7 ± 0.9* | 3.7 ± 0.9* |
| Length of training | 2.3 ± 0.9* | 3.6 ± 0.8* |
| Family or social demands | 2.8 ± 0.7* | 3.5 ± 0.8* |
| Indebtedness | 2.9 ± 0.5* | 3.1 ± 0.7* |
| Personality fit with the job | 2.6 ± 1.3* | 4.7 ± 0.5* |
| Identification of a mentor | 3.2 ± 1.2* | 4.5 ± 0.7* |

All *P* values for paired *t* test are <.05.

* *P* < .05 versus neutral value of 3.

An Internet-based survey of factors influencing medical student selection of a general surgery career. A Cochran, MD, S Melby, MD, LA Neumayer, MD, FACS. The American Journal of Surgery 189:744-5, 2005

And now getting to risk being politically correct

- Of all surgeons, only 7% of men but 12% of women work part-time (Satiani, JACS, 2011)
- Within 5 years of residency, 50% more women surgeons anticipate taking extended leaves greater than 8 weeks (Hudkins, American Journal of Surgery, 2009)

And the workloads vary greatly

- Average number of cases performed

| Type | Men | Women |
|--------------|-----|-------|
| Abdomen | 117 | 38 |
| Alimentary | 75 | 38 |
| Breast | 34 | 114 |
| Laparoscopic | 80 | 23 |

Valentine, Annals of Surgery, 2011

Is the glass half empty or half full?

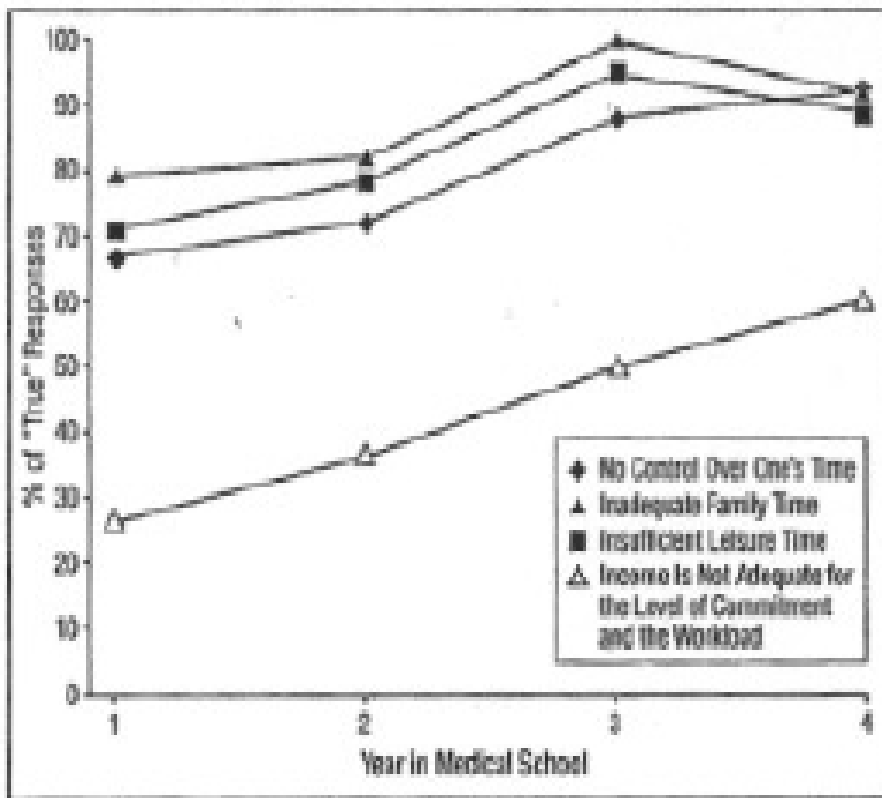


Figure 1. Responses increasing from medical residency years 1 through 4 ($P < .05$).

No control over one's time

Inadequate family time

Insufficient leisure time

Income not adequate for level of
commitment and workload

Misunderstanding the Scope of Surgery

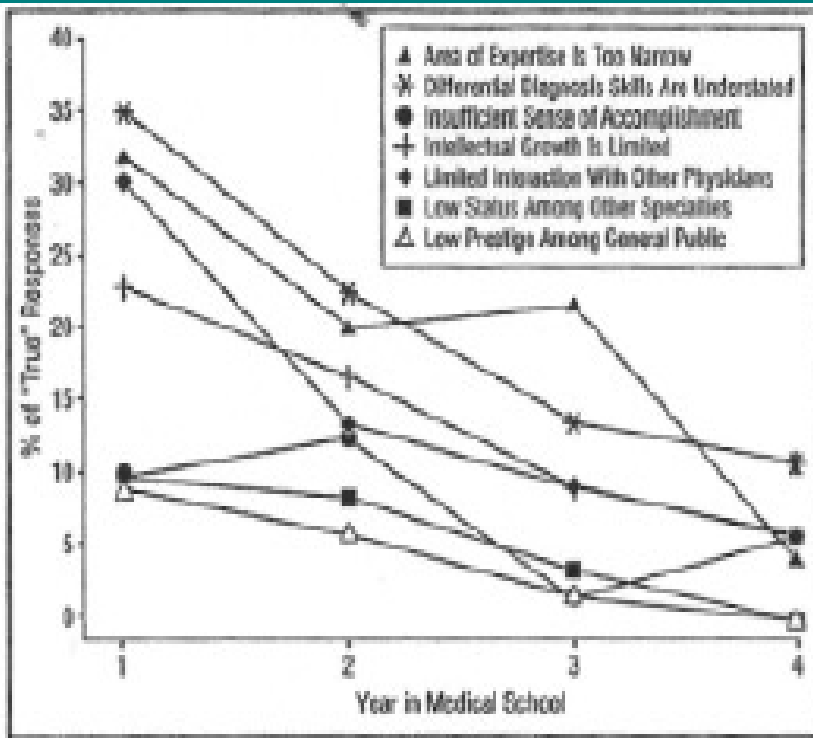


Figure 2. Responses declining from medical residency years 1 through 4 ($P < .05$).

Area of expertise too narrow

Differential diagnosis skills are understated

Insufficient sense of accomplishment

Intellectual growth is limited

Limited interaction with other physicians

Low status among other specialties

Low prestige among general public

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- **What was done at Columbia ?**

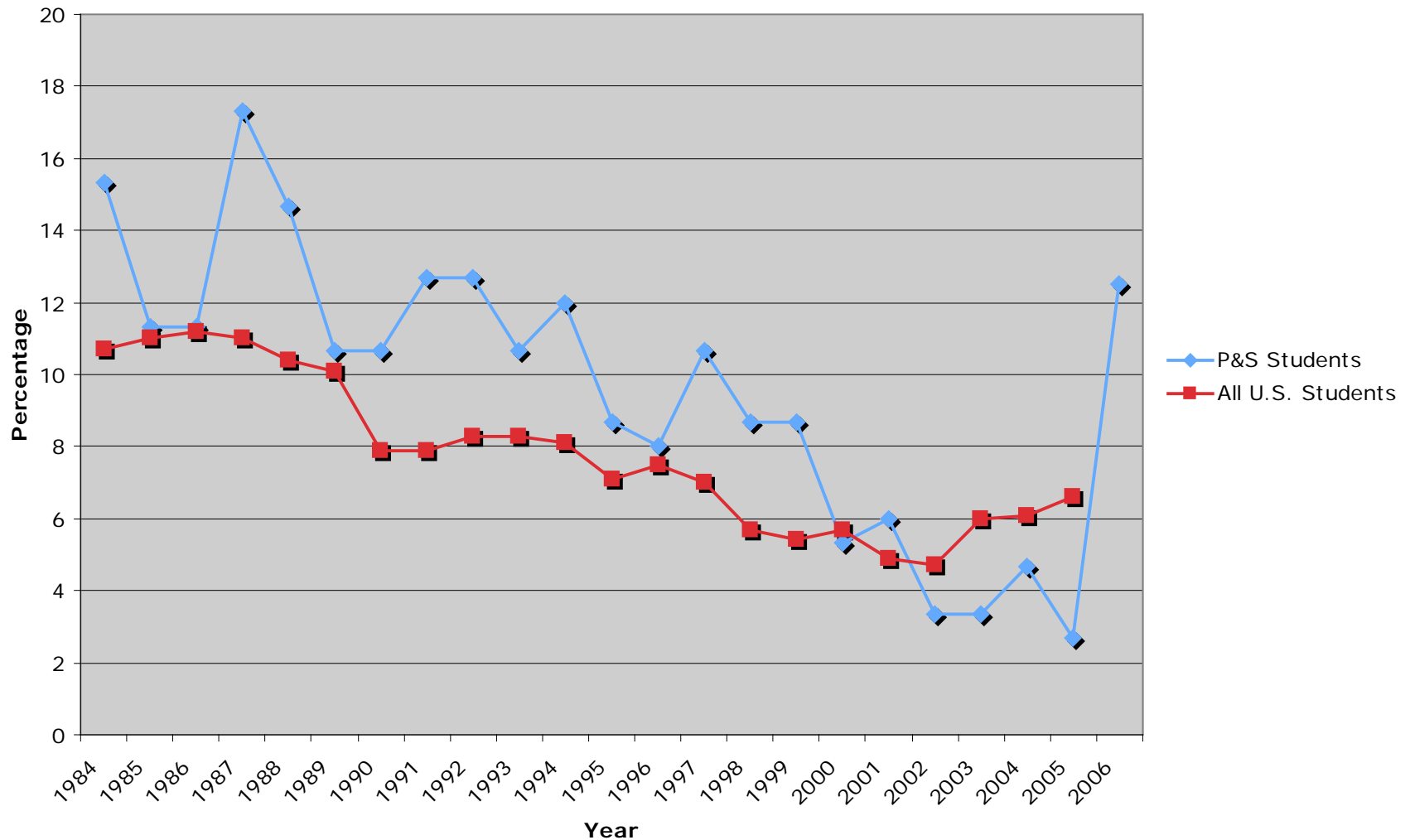
Columbia Programs

- Meet the Surgeons Panels
- Spend a Day with a Surgeon
- Join Organ Procurement teams on Organ recoveries
- Transplant to Life – Shadowing patient and transplant surgeon pre-op, during, and post renal transplantation
- Women in Surgery – Panel discussion
- Suture Course
- Whipple Student Surgical Society



Results of the Columbia Effort

Percentage of Medical Students Pursuing a General Surgery Residency



- Adding Exposure to Endoscopy with Simulators
- Adding Exposure to Laparoscopy with Simulators and Animal Surgery
- Adding Training on Mannequins to include Intubation, CVP lines, Arterial Punctures, Resuscitation etc

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Attrition

TABLE 1. General Surgery Residency Attrition

| Institution | Method | Results |
|-------------------------------------|--|---------------|
| St. Louis University ⁹ | 15-year review | 23% attrition |
| Mt. Sinai/New York ¹⁰ | 14-year review (1982-1996) | 22% attrition |
| Texas/Southwestern ¹¹ | 12-year review (1984-1996) | 14% attrition |
| Mayo Clinic/Rochester ¹² | review of ranked General Surgery applicants in 1996 (total number: 53) | 23% attrition |
| Emory University | 13-year review (1990-2003) | 17% attrition |

ATTRITION by GENDER

TABLE 2. Gender-Related Attrition

| Institution | Method | Results |
|-------------------------------------|--|--|
| Mt. Sinai/New York ¹⁰ | 14-year review (1982-1996) | 17% attrition males 32% attrition females |
| Texas/Southwestern ¹¹ | 12-year review (1984-1996) | 11% attrition males 24% attrition females |
| Mayo Clinic/Rochester ¹² | review of ranked General Surgery applicants in 1996 (total number: 53) | 20% attrition males 43% (3/7) attrition females |
| Emory University | 13-year review (1990-2003) | 13% attrition males 27% attrition females |

Are we getting the best and the brightest in our applicant pool?

TABLE 3

The Number of Students in the Top One Third of the Class

| | <i>n</i> |
|----|----------|
| GS | 7 (6%) |
| SS | 23 (21%) |
| NS | 81 (73%) |

Note. GS, general surgery; SS, surgical subspecialty; NS, Nonsurgical residencies ($P = 0.006$).

Candidates from Columbia in 2013

- 19/159 (12.5%) applied for Categorical Positions in General Surgery
- 3 were AOA
- High USMLE scores
- Half were women
- All but one matched into categorical programs
- They got 'em early
- They kept 'em interested

How About getting Residents Involved?

- Get surgical residents into the anatomy lab-gives students a realization that anatomy matters on a practical basis—and helps our residents to review anatomy at the same time
- Residents are great skills lab instructors for the basics!!!

Pay attention to Confidential Surveys

- Resident dissatisfaction can lead to discouraging medical students from entering general surgery
- Pay attention to confidential surveys geared to resident satisfaction
- Advocate for institutional change, do not just “accept problems”

The Biggest Factors in Resident Satisfaction

- Patients on the surgical service receive very good quality of care
- The ancillary staff in this hospital work to their full potential
- The nurses show empathy for the residents' working conditions
- **The biggest turn-off** I have to work around the system in order to give my patients adequate care

Davenport, Surgery, 2008

Be aware of “Operating Theatre Syncope”

- It can turn off students to surgery if it occurs
- It can be avoided by attention to having them coached by the residents—making sure they are not fasting and dry, that they move their legs while otherwise standing still

Residents as Teachers

- Two presentations at the ASE meeting by surgical residents on the value of having the medical students as “teachers” as well as having the residents be teachers (one from Downstate, one from Columbia)

A final word

- Look at your residency program's website
- Do you have a “mission statement” for the surgical residency?

- Look at your surgery clerkship's website
- Do you have a “mission statement”

Are your “goals” purely educational?

- Should our mission include educational goals AND societal issues—like addressing the looming shortage of general surgeons and adding to our mission the goal of increasing the supply of well trained general surgeons?

Thank you