

# Medical Student Mentorship in Plastic Surgery: The Mentor's Perspective

Jeffrey E. Janis, M.D.  
Jenny C. Barker, M.D., Ph.D.  
Columbus, Ohio

**Background:** The reproducible benefits of mentoring to mentees have been studied extensively. However, insights from the mentor perspective are less well described. This study evaluates mentorship of plastic surgery medical students from the attending surgeon's perspective. A comparison is made with a previous publication evaluating mentorship from the medical student's perspective.

**Methods:** An electronic survey was sent to 1025 active members of the American Council of Academic Plastic Surgeons (ACAPS) and the American Association of Plastic Surgeons (AAPS), with a combined response rate of 23 percent. For individual organizations, the response rate was 40 percent for ACAPS and 24 percent for AAPS.

**Results:** Eighty-three percent of attending surgeons reported participation in medical student mentoring. Mentor demographics and preferences were defined. The majority of mentors are men, older than 50 years, with a clinically focused, academic practice. Although scheduled, one-on-one meetings were the most preferred form of interaction, mentors generally favored group activities. Mentors also preferred to meet less frequently and in less personalized formats than mentees. Mentors perceived enhanced job satisfaction and a sense of "giving back" as most important. The most common barriers included mentor time constraints and lack of exposure to medical students. The presence of plastic surgery involvement in the medical school curriculum correlated directly with the formation of mentoring relationships.

**Conclusions:** By comparing the perspectives on mentoring between attending surgeons and medical students, discrepancies and similarities were identified. These findings can be used to increase efficacy and strengthen mentoring efforts for medical students in plastic surgery. (*Plast. Reconstr. Surg.* 138: 925e, 2016.)

Mentorship is most commonly studied through the perception of the mentee. It has been reproducibly demonstrated that mentorship benefits the mentee by increasing productivity and promoting career advancement, resulting in higher numbers of research publications and grant funding, and reducing physician burnout.<sup>1-4</sup> The importance and value of mentorship is also commonly discussed in the plastic surgery literature, albeit in editorial form.<sup>5-7</sup>

What has not been as thoroughly evaluated and reported, however, are the views on mentorship specifically from the mentor's perspective. How does

mentorship affect, impact, or benefit the mentor? What are the most successful strategies as reported by seasoned, experienced veterans? What are some of the barriers that prevent surgeons from incorporating a culture of mentoring into their practice? These questions are largely unanswered in plastic surgery, especially as they pertain to the mentorship of medical students. The transition from medical school to residency is one of the greatest points of impact in a physician's career where specialty choice, geographic location, and career trajectory are established. For those who will ultimately become the future of plastic surgery, the presence of plastic

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surgery mentors during this transition is critical. To address these questions, we surveyed the membership of the American Council of Academic Plastic Surgeons (ACAPS) and the American Association of Plastic Surgeons (AAPS) about their perspective on mentorship of medical students in plastic surgery.

A direct comparison of the viewpoints on mentoring from a student's perspective and from an attending physician mentor's perspective has not been addressed, in any specialty, to our knowledge. This comparison allows for a unique opportunity to see what does and does not work from each party's perspective, potentially increasing the efficacy, strength, and prevalence of mentoring relationships. To address this question, we have compared the results of the present study to a complementary study evaluating medical student experiences with mentorship in plastic surgery.<sup>8</sup>

## MATERIALS AND METHODS

An anonymous 25-question SurveyMonkey (Palo Alto, Calif.) electronic survey was sent to all active members of ACAPS and AAPS regarding their experience with mentorship of medical students. A total of 1025 surgeons were surveyed with 242 responses, for a combined maximal response rate of 23 percent. Duplicate membership in both ACAPS and AAPS was accounted for in calculation of the combined response rate. When broken down by individual organizations, the response rate for ACAPS was 159 of 398 members surveyed, for a response rate of 40 percent. For AAPS, 206 replied of 838 surveyed, for a response rate of 24 percent.

The survey consisted of five general areas of questions that included the following: (1) mentee and mentor demographic information, (2) how mentor-mentee relationships are formed, (3) how mentor-mentee relationships are maintained, (4) qualities sought in a mentee and the benefits to the mentor, and (5) barriers to mentorship from the mentor's perspective. Specific survey questions are listed in Appendix 1.

Survey responses were collected and analyzed using spreadsheet software (Excel; Microsoft Corp., Redmond, Wash.). Duplicate submissions were excluded through the survey software. Data are presented as frequencies, percentages, or in a forced rank series. Where applicable, groups were compared with a *t* test.

## RESULTS

### Mentor Demographics

The majority of survey respondents were members of both ACAPS and AAPS (50.8 percent),

whereas 34.3 percent were members of AAPS only and 14.9 percent were members of ACAPS only. Eighty-four percent of all respondents were men. Most respondents were older than 50 years, with 34.8 percent in the 51- to 60-year age range and 35.2 percent older than 60 years.

Demographically, 81.4 percent of respondents were from an academic clinically oriented practice. Fifty-five percent endorsed a practice composition that was "90 percent clinical effort with 10 percent research effort." General plastic surgery was the most commonly represented clinical area (30.6 percent), followed by microsurgical reconstructive surgery (22.3 percent), pediatric/craniofacial surgery (17.8 percent), aesthetic surgery (15.3 percent), and hand surgery (13.2 percent) in descending order (Table 1).

### Establishment of Mentor-Mentee Relationships

When provided with the definition of a mentor-mentee relationship, as opposed to the act of "role modeling" (below), 83.5 percent of survey respondents identified having at least one true medical student mentee. Interestingly, 36.4 percent of respondents stated that they had mentored greater

**Table 1. Mentor Characteristics**

Characteristic	%
Mentor practice type	
Academic	81.4
Private practice	18.6
Mentor organizational affiliation	
ACAPS	14.9
AAPS	34.3
Both	50.8
Mentor sex	
Male	84.2
Female	15.8
Mentor age range	
31–40 yr	9.3
41–50 yr	20.6
51–60 yr	34.8
≥60 yr	35.2
Mentor subspecialty	
General plastic surgery	30.6
Microsurgery and reconstructive surgery	22.3
Pediatric and craniofacial surgery	17.8
Aesthetic surgery	15.3
Hand surgery	13.2
Research faculty	0.8
Mentor clinical/research effort	
100% clinical	25.2
90% clinical, 10% research	55.0
75% clinical, 25% research	13.6
50% clinical, 50% research	3.3
25% clinical, 75% research	1.7
10% clinical, 90% research	0
100% research	1.2

ACAPS, American Council of Academic Plastic Surgeons; AAPS, American Association of Plastic Surgeons.

\*Data are presented as percentage of survey respondents (*n* = 242).

than 20 medical students in their career, allowing for many “points on the curve” from which to draw expertise (Table 2). Survey respondents were provided with the following definitions:

**Mentor-mentee relationship:** A dynamic, reciprocal relationship in a work environment between an advanced career incumbent (mentor) and a beginner protege (mentee), aimed at promoting the development of both.

**Role model:** A person who serves as a model in a particular behavioral or social role for another person to emulate. You *do not* necessarily have a reciprocal relationship with this person.”<sup>2</sup>

**Table 2. Mentor Experiences with Mentoring\***

	%
Mentors with student mentees	
Have mentees	83.5
Do not have mentees	16.5
Mentoring relationships by gender	
Men	
Have mentees	86.5
Do not have mentees	13.5
Women	
Have mentees	67.6
Do not have mentees	32.4
No. of mentees during career	
<5	13.6
5–10	28.3
11–15	13.6
16–20	8.1
>21	36.4

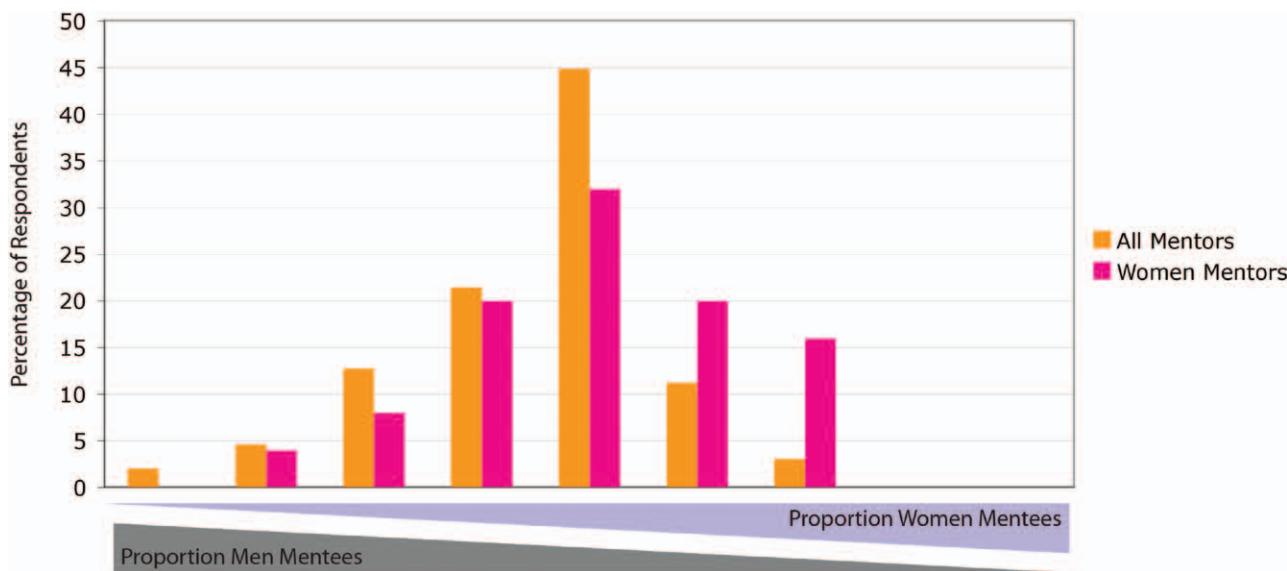
\*Data are presented as percentage of survey respondents ( $n = 198\text{--}242$ ).

When broken down by sex, 86.5 percent of men versus 67.6 percent of women respondents had mentored medical students. Thus, approximately one-third of women attending physicians do not report mentoring medical students (Table 2). Respondents were asked about the sexes represented within their mentee population. The majority of all respondents reported mentoring 50 percent men and 50 percent women. When further broken down by mentor sex, however, female respondents were responsible for a greater proportion of mentoring to female students (Fig. 1).

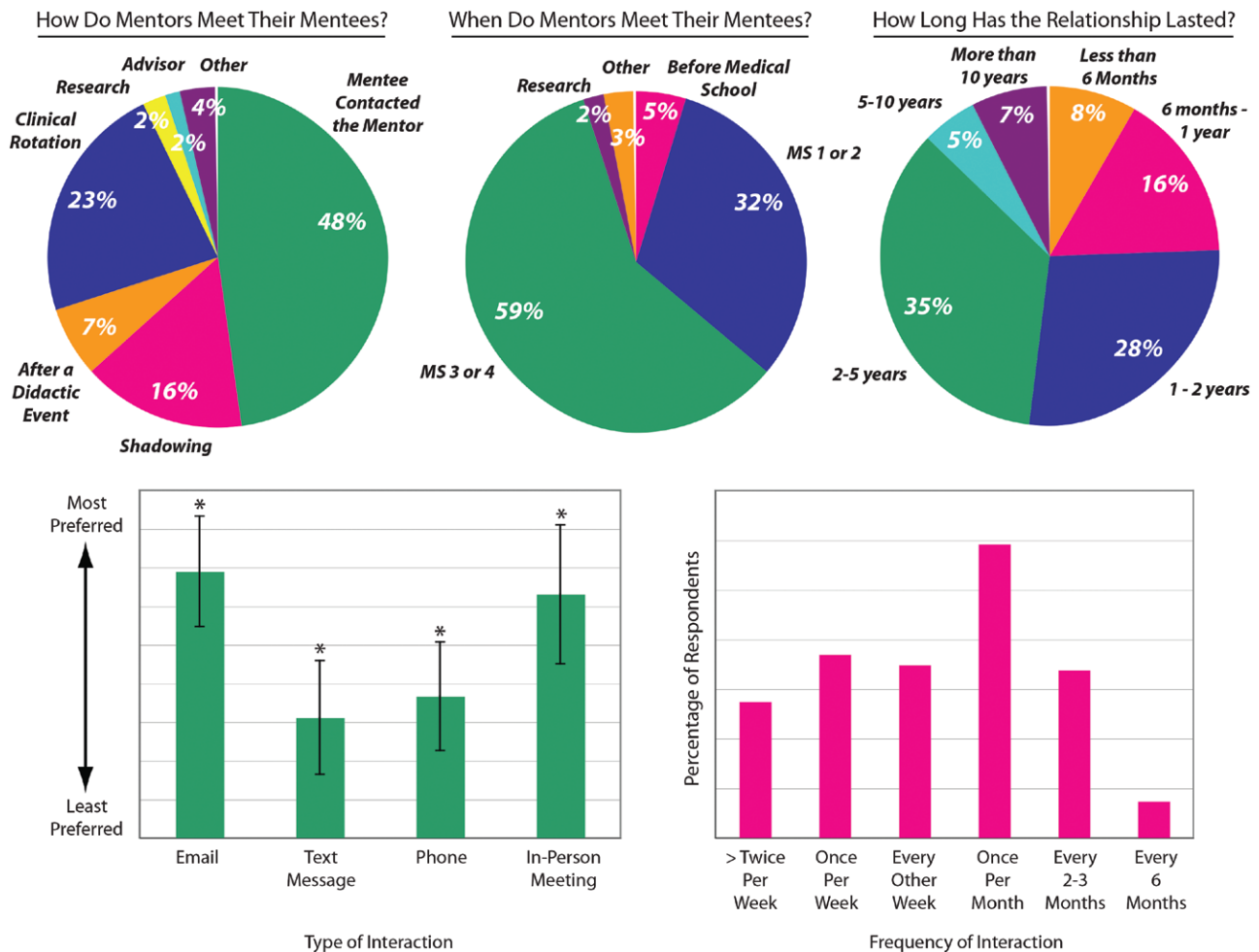
Eighty-eight percent of mentors endorsed having a medical school affiliated with their practices. Mentors most commonly met their mentees during the third or fourth year of medical school (59 percent), with the relationship often initiated by the mentee contacting the mentor (48 percent), followed by interaction on a clinical rotation (23 percent) or through shadowing opportunities (16 percent), and the relationship typically lasted 2 to 5 years (Fig. 2, *above*). Eighty-nine percent of mentors preferred to have a mentoring relationship that was not “assigned” (data not shown).

### Maintenance of Mentor-Mentee Relationships

Survey respondents were asked to list their most preferred form of communication in a forced rank series. E-mail communication topped the list, followed by “in-person” meetings, phone calls, and text messaging, respectively. The most



**Fig. 1.** Mentoring relationship comparison by gender. All mentors most commonly mentor 50 percent men and 50 percent women mentees (orange). Women mentors are responsible for mentoring a greater proportion of women students (pink). Data are presented as percentage of survey respondents ( $n = 196$ ).



**Fig. 2.** How mentoring relationships form and are maintained. Mentors were asked how they met their mentees (*above, left*) ( $n = 197$ ), when they met their mentees (*above, center*) ( $n = 196$ ), the duration of their relationship (*above, right*) ( $n = 189$ ), and how often they interacted with their mentees (*below, right*) ( $n = 189$ ). Data are presented as percentage of respondents. Mentors were also asked how they most preferred to communicate with their mentee, with e-mail being the most common (*below, left*) ( $n = 193$ ). Data are presented as a forced rank series  $\pm$  SD, and the  $t$  test was used to compare average ranks with values of  $p < 0.0004$  (asterisks).

common frequency of interaction was once per month (Fig. 2, *below*).

Mentors were then asked in a forced rank series about their preferred methods for facilitating mentorship. Respondents listed “scheduled one-on-one meetings to discuss career and personal goals” as the most useful form of mentorship, followed by other, less personal interactions including technical teaching in the operating room, teaching rounds, or didactic lectures (Fig. 3).

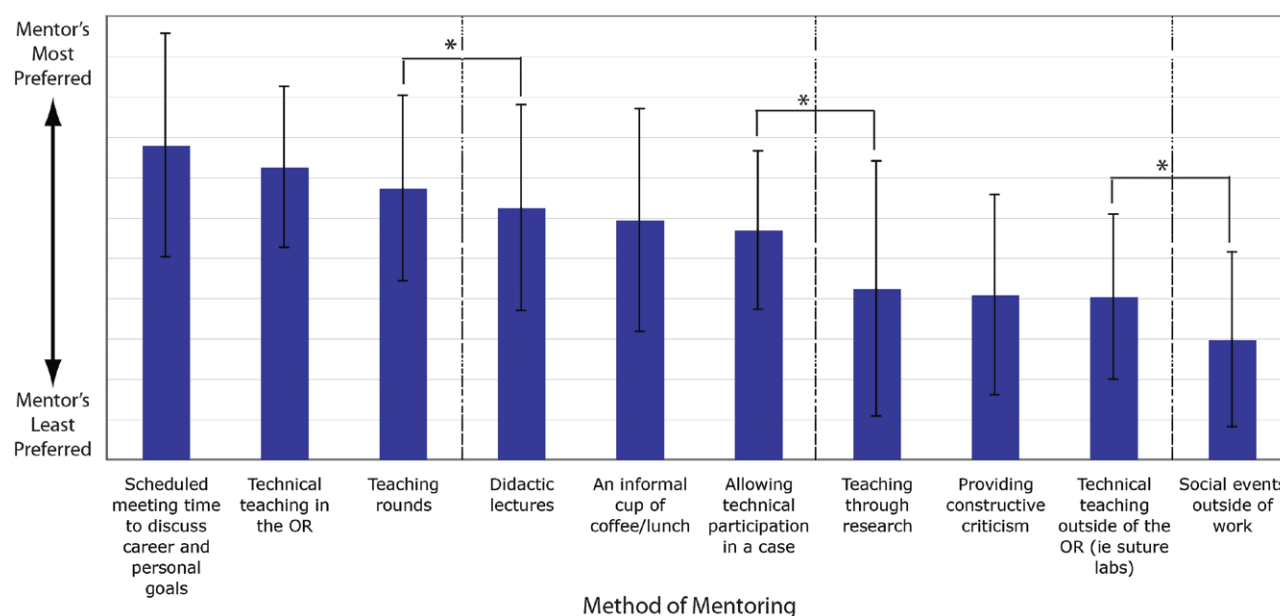
### Mentee Qualities and Perceived Mentor Benefits

When asked to rank the value of different mentee qualities, survey participants listed “honesty, integrity and trustworthiness” as the most important, followed by “passion for the specialty,” “teachability,”

“commitment and follow-through,” and “work ethic.” Other items, such as “intelligence,” “amiable personality,” and “patient care skills” ranked much farther down the list (data not shown).

Survey respondents were provided 10 items and asked to “select all of the ways in which they perceived personal benefit from mentoring relationships.” The most commonly selected items included an opportunity to meet younger generations (79.6 percent), enhanced job satisfaction (75.9 percent), and a sense of “giving back” (68.5 percent). The least commonly selected items included succession planning for the specialty (26.5 percent) and understanding pressures associated with residency match (23.5 percent) (Table 3).





**Fig. 3.** Mentors' preferred methods for mentoring. Mentors were asked about their preferred methods for facilitating mentorship. "Scheduled one-on-one meetings to discuss career and personal goals" was most preferred, followed by other, less personal interactions including technical teaching in the operating room, teaching rounds, or didactic lectures. Data are presented as a forced rank series  $\pm$  SD, where  $n = 179$ , and the  $t$  test was used to compare average ranks with a value of  $p < 0.05$  (asterisks). OR, operating room.

**Table 3. Perceived Benefits of Mentoring for the Mentor\***

Benefit	%
Opportunity to meet future plastic surgeons and gain insight into perspective of younger generations	79.6
Enhances job satisfaction	75.9
Gives sense of "giving back"	68.5
Enjoy helping younger person develop professionally and personally	63.0
Gives sense of altruism and helping others	48.8
Improves mutual research productivity	47.5
Younger perspective can impact change for national and departmental goals	41.4
Enjoy developing long-term, career relationship	40.7
Enables succession planning for the specialty	26.5
Provides better understanding for pressures around the Match	23.5

\*Data are presented as percentages of survey respondents ( $n = 162$ ).

### Barriers to Mentorship

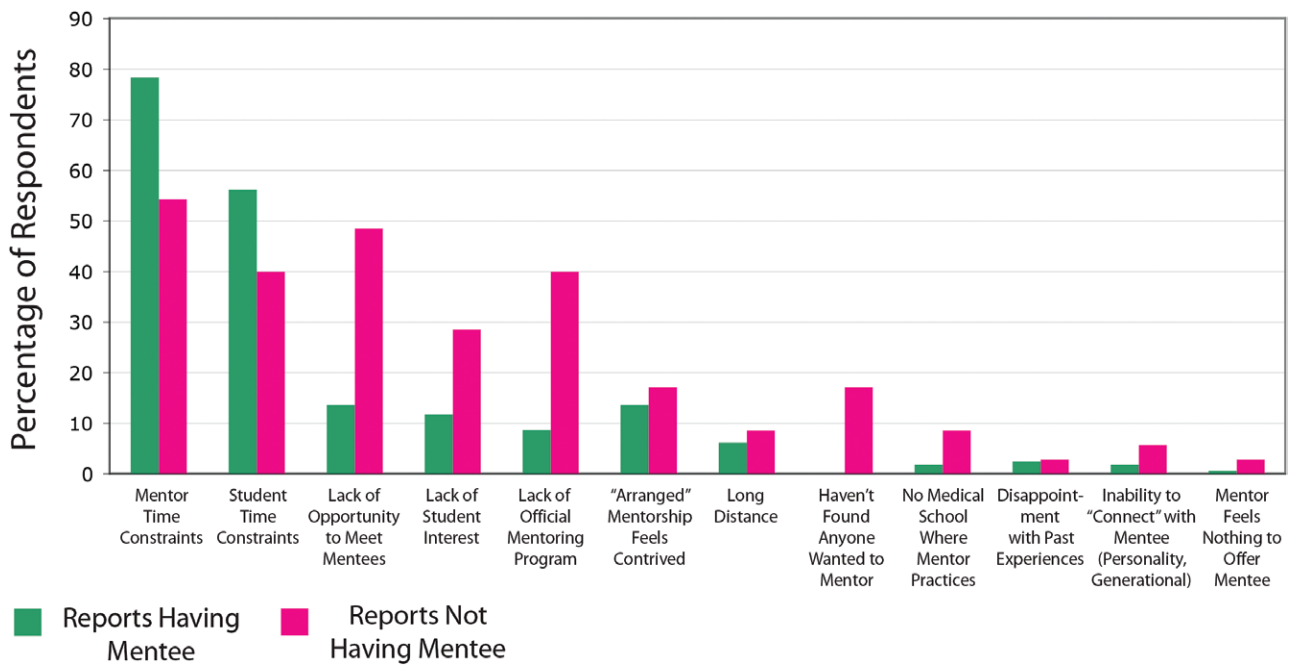
Perceived barriers to mentorship were analyzed. For those with mentees, the primary barriers consisted of "mentor time constraints," followed by "student time constraints." There were very few other significant barriers reported by those who had mentoring relationships. For those who did not have mentees, however, the perceived barriers were distributed more equally between "mentor time constraints," "student time constraints," "lack of opportunity to meet mentees," and "lack of a formal mentoring program" (Fig. 4).

The involvement of respondents in their medical school's curriculum was also evaluated. Interestingly, the lack of involvement in the formal course curriculum correlated with a decrease in

the presence of mentoring relationships (Fig. 5). When asked about the perception of departmental support for mentoring of medical students, there was a statistically significant difference between those who had mentees versus those who did not (Fig. 6). Respondents were not specifically asked whether they were a part of a plastic surgery department or division, which may have implications for the level of involvement and contribution in the curriculum.

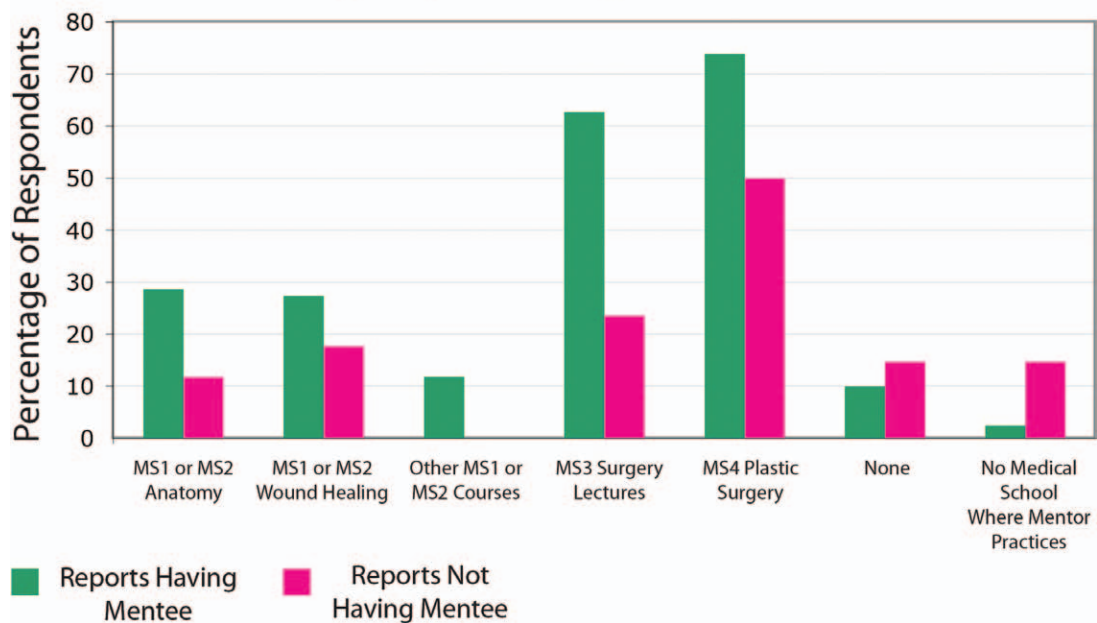
In an open-text, optional question survey, participants were asked for suggestions to improve the medical student mentoring experience. One hundred six surgeons of 242 respondents participated in this optional question. Surprisingly, the results of this question, although open-text, could be

## Perceived Barriers to Mentorship: Mentor's Perspective

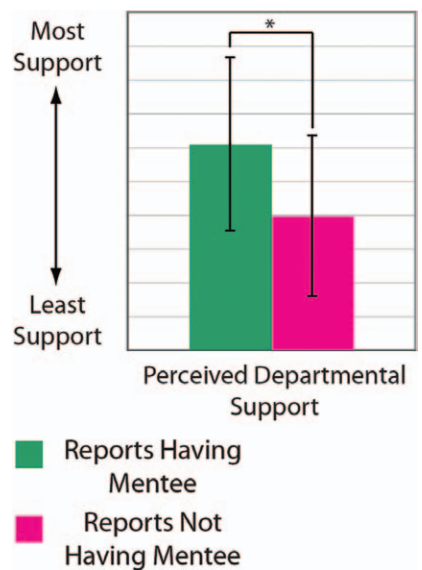


**Fig. 4.** Perceived barriers to mentorship. For mentors with mentees (*green*), the most common barrier to mentorship was "mentor time constraints." For mentors without mentees (*pink*), the most common barrier included not only time constraints but also problems with access to mentees ( $n = 197$ ).

## Courses Taught by Plastic Surgeons at Mentor's Institution



**Fig. 5.** Participation in the medical school curriculum by the plastic surgery program at all levels was more commonly found for mentors with mentees compared to those without ( $n = 195$ ), suggesting the importance of involvement in the curriculum for the establishment of mentoring relationships. Data are presented as percentage of respondents. *MS*, medical school.



**Fig. 6.** A statistically significant difference existed for perceived departmental support for those with mentees versus those without ( $n = 187$ ). Data are presented as an average  $\pm$  SD and the  $t$  test was used with values of  $p < 0.00003$  (asterisk).

condensed into just a few categories. The most predominant recommendation was for increased exposure to medical students (21.7 percent) and earlier exposure to medical students (17.0 percent). Other respondents called for increased departmental support and protected or incentivized faculty time (15.1 percent), whereas 10.4 percent recommended instituting a formal mentoring program. It was also commonly stated that no improvement in mentorship was needed (14.2 percent) (Table 4).

**Table 4. Mentor Suggestions for Improvement of the Mentoring Experience\***

Category of Open-Text Response	%
Increased exposure to students and student awareness	21.7
Earlier exposure in curriculum	17.0
Increased departmental support; protected or incentivized faculty time	15.1
No improvement needed	14.2
Formal mentoring program	10.4
Modulation of institutional or medical school politics	5.7
Increased faculty interest	4.7
Increased student interest	4.7
Increased student protected time	2.8

\*Mentors were asked how mentoring could be improved at their institution in an open-text question format. Responses were categorized into common themes. Data are presented as percentage of survey respondents ( $n = 106$ ).

## DISCUSSION

In a prior publication dedicated to mentoring, mentorship from the mentee's perspective was explored, and several key findings were identified from this study.<sup>8</sup> In the present study, when similar questions were posed to attending surgeon mentors, some similarities existed between the two perspectives, and some discrepancies were highlighted (Table 5).

Medical student mentees demonstrated clear preferences when interacting with their mentors. Frequent, in-person meetings and interactions that favored one-on-one time instead of group activities were emphasized. Establishing a true mentoring relationship requires a commitment

**Table 5. Comparison of Mentor and Mentee Perspectives**

Issue	Mentor Perspective	Mentee Perspective*
How do relationships most commonly form?	Mentee contacts mentor	Mentee contacts mentor
When do relationships most commonly form	Medical school year 3–4	Medical school year 3–4
Prefer assigned relationships?	No	No
Preferred form of communication	E-mail	In-person meetings
Preferred frequency of interaction	Once per month	Once every 1–2 wk
Types of interactions	More group activities than mentees	More one-on-one activities than mentors
Mentor's focus in plastic surgery	General plastic surgery	General plastic surgery
Mentor average age	$\geq 60$ yr	41–50 yr
Greatest benefits of the relationship	Meeting younger generations, enhanced job satisfaction, giving back	Career guidance
Most common barrier to mentorship	Mentor time constraints	Mentor time constraints
Most common suggestion for improvement	Increased and earlier exposure to students	Formal mentoring program
Does the percentage of mentors involved in junior medical school curriculum correlate with the presence of mentoring relationships?	Yes	Yes
Does the percentage of mentors involved in senior medical school curriculum correlate with the presence of mentoring relationships?	Yes	Yes

\*Barker J, Janis J. Medical student mentorship in plastic surgery: The mentee's perspective. *Plast Reconstr Surg*. 2016;137:1934–1942.

of time and personalized interaction to build necessary trust. This is perhaps the greatest and only prerequisite. This concept, however, is one of the discrepancies highlighted between the two studies. Mentees called for greater frequency and more personalized interaction than attending surgeon mentors preferred or perhaps were able to give. The reasons for this are obvious, with ever-increasing emphasis placed on work productivity, administrative and academic time obligations, and difficult work-life balance issues. However, the benefits to mentors in terms of career satisfaction, faculty retention, and reduction of physician burnout are emerging in the literature,<sup>9,10</sup> with the data described here contributing to this growing body of knowledge. Interestingly and perhaps paradoxically, despite the fact that mentors prefer less frequent and less personal interactions, over two-thirds of survey respondents reported enhanced job satisfaction and a sense of “giving back” as their perceived benefits for mentoring medical students interested in plastic surgery. With ever-increasing demands that place plastic surgery faculty at risk for burnout and lack of faculty retention, perhaps it is equally as important to emphasize, promote, and support activities, such as mentoring and teaching, that are proven to reduce these risk factors. Simply put, our data suggest that it is a “win-win” for both the mentor and mentee.

Perhaps the most important similarity identified between the two studies was a problem of exposure between medical students and attending surgeon faculty. In both studies, a comparison was made between students with and without mentors and mentors with and without student mentees. Plastic surgery involvement in the core medical school curriculum dramatically correlated with the presence of mentoring relationships for both the mentor and mentee. Furthermore, the majority of plastic surgery exposure occurred late in medical school training, typically in the fourth year of medical school for both populations. When both groups were queried about suggestions for improving the culture of mentoring at their institution, increased and earlier exposure between students and faculty was unanimously voiced. Some suggested the establishment of formal opportunities to increase exposure, without the actual assignment of mentors, as neither group preferred these types of “contrived” relationships.<sup>11,12</sup> Others called for increased departmental support, protected or incentivized time, or a stronger presence in decision-making regarding the medical school curriculum. Regardless of the solution, the

importance of establishing these mentoring relationships cannot be overstated.<sup>3,13–17</sup> In the medical student population, 80 percent of students felt that their mentor influenced their decision to pursue plastic surgery, which is an eye-opening and powerful statistic.

In both studies, women mentors were underrepresented. One-third of women students reported a lack of female mentors as a barrier to mentorship. Two potential problems related to women mentorship were identified. First, the pool of women attending surgeons is small. In the student population, 40 percent of respondents were women. However, in the attending surgeon mentor population, women were only 15 percent of those surveyed. The second problem identified is that within the small pool of women faculty, many fewer appear to serve as mentors to medical students than their male counterparts. Specifically, 86.5 percent of men reported mentoring medical students and only 67.6 percent of women attending physicians reported the same. Despite this fact, when broken down by mentee gender, women attending surgeons do mentor a greater proportion of women students than men, suggesting recognition of the importance of mentoring relationships between women students and women faculty. It is likely that systemic obstacles exist that prevent a larger number of women from participating in mentorship, and identification of these issues may result in the unveiling of an untapped resource for mentoring in plastic surgery.

Although the impact and importance of mentorship has been discussed at length, tangible suggestions for the improvement of mentoring programs are equally as valuable. It is apparent from survey responses that mentors and mentees are interested in meeting each other but do not necessarily know how. Based on survey data, we propose the following suggestions when considering medical student mentorship in plastic surgery:

1. Provide early exposure: Instruction of anatomy; suture technique; or the basic science of tissue, wounds, and healing could be excellent opportunities for the introduction of plastic surgery faculty to junior medical students. Heylings investigated the spectrum of anatomy instructor appointments and found that either full-time gross anatomists or part-time clinically qualified physicians provide the majority of anatomy instruction.<sup>18</sup> What is not known is the representation of different clinical specialties



among those serving as anatomy instructors for medical students. Our data demonstrate that participation in a junior anatomy course directly correlates with the presence of mentoring relationships with students. Departmental encouragement for these endeavors is critical to sustainable success, however, based on attending surgeon survey responses. Furthermore, many medical school curricula now include small group learning communities that rely on volunteer physician mentors from all specialties for instruction on topics such as mock clinical scenarios, ethics discussions, and advice on entering the practice of medicine. The latter could provide an excellent opportunity for volunteer physicians who may be practicing in the community and are not otherwise affiliated with an academic department or division.

2. Provide formal opportunities for career exploration: When early exposure provides a window of opportunity for initial introductions, follow-up with formal mentoring availability could encourage relationship development. For example, if a student develops an interest in plastic surgery by encountering a faculty member through the medical school curriculum, availability of the same faculty member through a plastic surgery mentoring program could facilitate a potential relationship. In the mentee survey, many students endorsed hesitancy, intimidation, and feeling “unsure” when approaching faculty about mentoring. Both students and faculty offered suggestions such as “providing the contact information of willing mentors to students,” “informal meet-and-greet activities,” “providing information about shadowing opportunities,” and “increased faculty involvement in plastic surgery interest groups” as solutions. Both mentors and mentees felt that increasing structure would facilitate relationship formation, but did not favor “assigned” relationships.
3. Tailor the content of interactions toward personal and career development: Mentorship is most effective when it is personalized and individualized. Although didactic and clinical activities may allow for higher yield exposure to students, the content of these interactions is not congruent with the goals and needs of a mentoring relationship, based on survey responses. The

present data suggest that the deliberate availability of mentors for one-on-one guidance tailored toward career and personal growth results in the most effective mentoring relationships.

4. Nothing substitutes for the investment of time: Although early exposure and formal mentoring programs may facilitate relationship formation, mentoring is ultimately a personal commitment of time and effort for both the mentor and mentee. Not surprisingly, “time” was listed as the greatest barrier to mentorship from both perspectives, although this was alleviated some by departmental encouragement. Simply put, initiative and prioritizing mentoring on an individual level yield the greatest mentoring relationships.

The data presented here are the first of their type to evaluate mentorship of medical students from an attending surgeon’s perspective. Despite this fact, the present study is not without limitations. As there is no currently validated survey to address mentoring methods and efficacy, the present study carries this inherent limitation. Furthermore, the combined response rate for this study was 23 percent of ACAPS and AAPS members, with some attrition of responses as the 25-question survey progressed. The respondent population was largely biased toward faculty with academic practice types, and may more likely reflect the perspective of ACAPS membership, overall, given the differential response rate (40 percent for ACAPS members and 24 percent for AAPS members). This may be an unavoidable bias because those with academic practice types have the predominant exposure to medical students, which facilitates the formation of mentoring relationships. Nonetheless, the remaining 76 percent of members and those with community or private practices likely possess valuable attributes that are not represented in this study.

In the final question of the survey sent to ACAPS and AAPS members, an optional, open-text question was posed regarding suggestions for improvement of the mentoring process in plastic surgery. Although the details of the responses were helpful in identifying solutions to potential barriers, the number of attending surgeons who took the time to provide detailed and thoughtful responses was perhaps more impressive. One hundred six faculty members participated in this question, with lengthy paragraphs, sharing their perspectives and ideas for innovation, which serves as a testament to

the importance of this topic. It is our hope that the details provided in these two surveys are enough to further stimulate thought and fuel conversation about ways to improve medical student mentoring and medical student access to plastic surgery.

## CONCLUSIONS

Mentorship is a critical and powerful element for both the mentor and the mentee. For the mentor, it increases job satisfaction and professional fulfillment and decreases turnover and burnout. For the mentee, quality mentorship alters career trajectory, both in the decision to pursue plastic surgery and in what subspecialty interests the mentee might develop. Early exposure is necessary, often facilitated through plastic surgery involvement in a medical school curriculum and through formal time set aside to introduce mentors and mentees, which is further nurtured and cultivated by dedicated time investment on both sides. It is an investment with a return on investment that far exceeds the quantity of time and the expectation level of both sides.

We make a living by what we get, but we make a life by what we give.

—Winston Churchill

**Jeffrey E. Janis, M.D.**

Department of Plastic Surgery  
The Ohio State University Medical Center  
915 Olentangy River Road  
Suite 2100, Room 2114  
Columbus, Ohio 43212  
jeffrey.janis@osumc.edu

## APPENDIX A

1. What is your gender?
2. What is your current age?
3. Are you a member of ACAPS, AAPS, or both?
4. Describe what fits closest to your practice, academic vs. private practice?
5. Describe what fits closest to your practice, clinical vs. research time?
6. What is your primary clinical focus within plastic surgery?
7. Is there a medical school at your institution?
8. Considering the definition of a mentor and not a role model, have you served as a mentor to a medical student before beginning their career in plastic surgery?
9. How many medical students have you worked closely with in your career?
10. How do you most commonly meet the students that you have mentored?
11. At what stage of training have you most commonly met the students that you mentored?
12. What percentage of your medical student mentees have been men vs. women?
13. How do you communicate with medical student mentees?
14. How often do you interact with your medical student mentees by one of these means?

15. Is the frequency with which you interact with your mentees sufficient, or would you prefer greater frequency?
16. How long does your relationship most commonly last with the students that you have mentored?
17. What are your preferred methods for facilitating mentorship with medical students?
18. If anything, what have you had in common with your mentees outside of plastic surgery?
19. Do you prefer to have assigned mentees or relationships that develop independently?
20. What qualities do you value the most in a medical student mentee?
21. How has your relationship with your medical student mentee(s) benefited you?
22. What barriers have you encountered to establishing a mentor-mentee relationship with medical students?
23. What subjects/lectures are taught by plastic surgeons at your medical school?
24. On a scale of 1–10, how much does your department prioritize medical student mentorship?
25. How do you think medical student mentorship could be improved at your institution?

ACAPS, American Council of Academic Plastic Surgeons; AAPS, American Association of Plastic Surgeons.

## REFERENCES

1. DeLong MR, Hughes DB, Tandon VJ, Choi BD, Zenn MR. Factors influencing fellowship selection, career trajectory, and academic productivity among plastic surgeons. *Plast Reconstr Surg*. 2014;133:730–736.
2. Sambunjak D, Straus SE, Marusic A. Mentoring in academic medicine: A systematic review. *JAMA*. 2006;296:1103–1115.
3. Zetrenne E, Wirth GA, Kosins AM, Evans GR, Wells JH. Profiling the Association of Academic Chairmen of Plastic Surgery. *Plast Reconstr Surg*. 2008;121:328e–332e.
4. Rudnicki PA, Liang F, Prince NH, Lipsitz S, May JW Jr, Guo L. What made them successful: An introspective survey of AAPS members. *Plast Reconstr Surg Glob Open*. 2015;3:e327.
5. Franzblau LE, Kotsis SV, Chung KC. Mentorship: Concepts and application to plastic surgery training programs. *Plast Reconstr Surg*. 2013;131:837e–843e.
6. Holt GR. Idealized mentoring and role modeling in facial plastic and reconstructive surgery training. *Arch Facial Plast Surg*. 2008;10:421–426.
7. Rohrich RJ. Mentors in medicine. *Plast Reconstr Surg*. 2003;112:1087–1088.
8. Barker J, Janis J. Medical student mentorship in plastic surgery: The mentee's perspective. *Plast Reconstr Surg*. 2016;137:1934–1942.
9. Taherian K, Shekarchian M. Mentoring for doctors: Do its benefits outweigh its disadvantages? *Med Teach*. 2008;30:e95–e99.
10. Wagner JM, Fleming AE, Moynahan KF, Keeley MG, Bernstein IH, Shochet RB. Benefits to faculty involved in medical school learning communities. *Med Teach*. 2015;37:476–481.
11. Flint JH, Jahangir AA, Browner BD, Mehta S. The value of mentorship in orthopaedic surgery resident education: The residents' perspective. *J Bone Joint Surg Am*. 2009;91:1017–1022.
12. McNamara MC, McNeil MA, Chang J. A pilot study exploring gender differences in residents' strategies for establishing mentoring relationships. *Med Educ Online*. 2008;13:7.
13. Drolet BC, Sangisetty S, Mulvaney PM, Ryder BA, Cioffi WG. A mentorship-based preclinical elective increases exposure, confidence, and interest in surgery. *Am J Surg*. 2014;207:179–186.

14. Ravindra P, Fitzgerald JE. Defining surgical role models and their influence on career choice. *World J Surg*. 2011;35:704–709.
15. Greene AK, May JW Jr. Applying to plastic surgery residency: Factors associated with medical student career choice. *Plast Reconstr Surg*. 2008;121:1049–1053; discussion 1054.
16. Ko CY, Whang EE, Karamanoukian R, Longmire WP, McFadden DW. What is the best method of surgical training? A report of America's leading senior surgeons. *Arch Surg*. 1998;133:900–905.
17. McCord JH, McDonald R, Sippel RS, Levenson G, Mahvi DM, Weber SM. Surgical career choices: The vital impact of mentoring. *J Surg Res*. 2009;155:136–141.
18. Heylings DJ. Anatomy 1999-2000: The curriculum, who teaches it and how? *Med Educ*. 2002;36:702–710.