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A SWOT Analysis of Hot Topics in Plastic Surgery Resident Education: Consensus From the ACAPS 10th Annual Winter Meeting

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Background: With the aim of facilitating a critical self-reflection on how to align plastic surgery education with making excellent plastic surgeons, a rotating small-group session followed by live interactive audience polling was used to perform a SWOT (strengths, weaknesses, opportunities, and threats) analysis at the 10th Annual American Council of Academic Plastic Surgeons Winter Meeting.

Methods: The final day of the conference included a 3-hour session of rotating small groups followed by live interactive audience polls discussing the following six relevant educational topics: the Plastic Surgery Common Application and resident selection, aesthetic surgery education, leadership development and business education, embedded fellowships and focused training, mentorship, and faculty retention.

Results: A total of 60 individuals participated in the activity. A SWOT analysis was successfully performed for each educational topic, and a minimum of four opportunities were identified per topic to help guide future endeavors. Examples of opportunities include releasing recommendations for the implementation of holistic review; developing formal guidelines for aesthetic surgery education in residency via collaboration between ACAPS, American Society of Plastic Surgeons, and The Aesthetic Society; creating extended focused elective rotations; integrating business education into formal curricula for all training levels; enforcing transparency regarding position expectations and offerings including salary, call schedule, and current challenges; and more.

Conclusion: The results of this study will help guide future initiatives by the ACAPS to improve resident education and academic retention. *(Plast Reconstr Surg Glob Open 2023; 11:e5461; doi: 10.1097/GOX.0000000000005461; Published online 14 December 2023.)*

INTRODUCTION

The theme of the American Council of Academic Plastic Surgeons (ACAPS) 10th Annual Winter Meeting was "Deconstructing the Excellent Plastic Surgeon." In the current paradigm, the majority of surgeons who are involved in resident selection and training are academic surgeons, most of whom are not aesthetic surgeons. Although plastic surgery residency training occurs in an academic setting, 70% of graduating residents pursue careers in private practice.[1] Therefore, it is critical to include insight from plastic surgeons of both academic and private practices to come to a consensus on opportunities to improve recruitment and training.

SWOT (strengths, weaknesses, opportunities, and threats) analyses are a business strategy tool that assess how an organization compares to its competition. This strategy assesses both internal and external elements that

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are benefiting or threatening the success of the matter at hand. In this case, to facilitate a critical self-reflection on recruitment and training in plastic surgery, the ACAPS 10th Annual Winter Meeting included a formalized small group SWOT analysis of six different domains of plastic surgery recruitment, training, and retention. Effort was made to specifically recruit private practice surgeons to participate in the conference. The purpose of this study was to use the SWOT analysis to summarize current paradigms in plastic surgery education and propose opportunities for growth.

METHODS

To facilitate a critical self-reflection on the field of plastic surgery, ACAPS attendees participated in a rotating small-group session followed by interactive audience polling to execute a SWOT analysis (Fig. 1). Six different domains of plastic surgery training and retention were included in this exercise. Each of the six small groups had two faculty moderators and a scribe, who reported upon the most common recurring themes (Figs. 2 and 3). The results were presented to the entire audience using a summative slide, and further discussion and consensus voting ensued on the most promising opportunities for growth (Fig. 4). These recommendations were then presented to the ACAPS board to approve an action plan for concrete action items (Table 1). This study was not deemed necessary for institutional review board review because there was no identifiable information collected about respondents, and the data were not trackable to individual respondents.

RESULTS AND DISCUSSION

A total of 60 individuals participated in the small group activity, of whom 35 participated in the voting. The majority of respondents were attending plastic surgeons, of whom at least 20% were in nonacademic settings. Academic surgeons were considered those who worked at hospitals or institutions with an integrated or independent plastic surgery residency program or affiliated university.

Plastic Surgery Common Application and Resident Selection

The groups discussed pros and cons of the Plastic Surgery Common Application (PSCA) as well as the current framework for assessing applicants.

Plastic Surgery Common Application: The PSCA was piloted in the 2020–2021 residency application cycle as a novel application that aimed to eliminated financial barriers to applicants and improve reviewer satisfaction.[2,3] In the years following, the majority of programs have adopted its use, although many still use the Electronic Residency Application Service as well.[4] The perceived strengths of the PSCA are that it provides more meaningful information about an applicant and allows for the easier integration of holistic review. Also, it is free to students, which helps limit socioeconomic barriers to applying into plastic surgery. However, the group described that the PSCA does not provide reviewers a clear timeline of a student's education and time spent for research.

Takeaways

Question: What are weakness and opportunities for improvement in current plastic surgery resident education and faculty retention?

Findings: The final day of the 10th Annual American Council of Academic Plastic Surgeons Winter Meeting included a 3-hour session of rotating small groups with live interactive audience polls discussing the following topics: the Plastic Surgery Common Application and resident selection, aesthetic surgery education, leadership development and business education, embedded fellowships and focused training, mentorship, and faculty retention. Consensus was made as to the opportunities for growth in each of the above.

Meaning: The results of this study demonstrate an in-person process for gaining consensus on difficult and nuanced educational topics, and will help guide future initiatives by the American Council of Academic Plastic Surgeons.

Standardized Letter of Recommendation: The ACAPS Plastic Surgery Recommendation Form is a standardized letter of recommendation (SLOR) that has been used in the resident selection process since 2012.[5,6] The form has been modified since its creation, with the goal of providing a more objective scale for letter writers to describe applicants. Unfortunately, the form is subject to significant score inflation and gender bias.[7] The group noted that the SLOR is susceptible to inflation and inconsistent scoring dependent on the author and suggested that the SLOR be revised to minimize score inflation and make ranking of students more granular.

Holistic Review. Holistic review is a process of applicant review that emphasized attributes and experiences over traditional metrics in resident selection.[8] Programs note that the increasing use of holistic review is a strength of the resident selection process but that practical implementation of holistic review is still limited by time and inability to review all applications thoroughly, especially as the number of applicants continues to increase each year. The PSCA, endorsed by ACAPS, has undergone iterative improvement over the past application cycles as a result of implementing applicant and program feedbacks. Currently, ACAPS encourages all programs to use the PSCA, considering the application focuses on information that reflects a comprehensive evaluation of an applicant's qualifications and fit for a plastic surgery residency.[4] Additionally, applicants who have used the PSCA before prefer use of the PSCA alone as opposed to together with the general Electronic Residency Application Service.[9] However, despite the use of the PSCA, there is increasing prioritization of research output, such that students often participate in research at the cost of acquiring clinical knowledge, which is augmented by the pass/fail nature of Step 1 of the USMLE.[10] Opportunities for improvement include the following: (1) Programs should supply "value statements" to emphasize their values and who they are looking for, and perhaps de-emphasize research

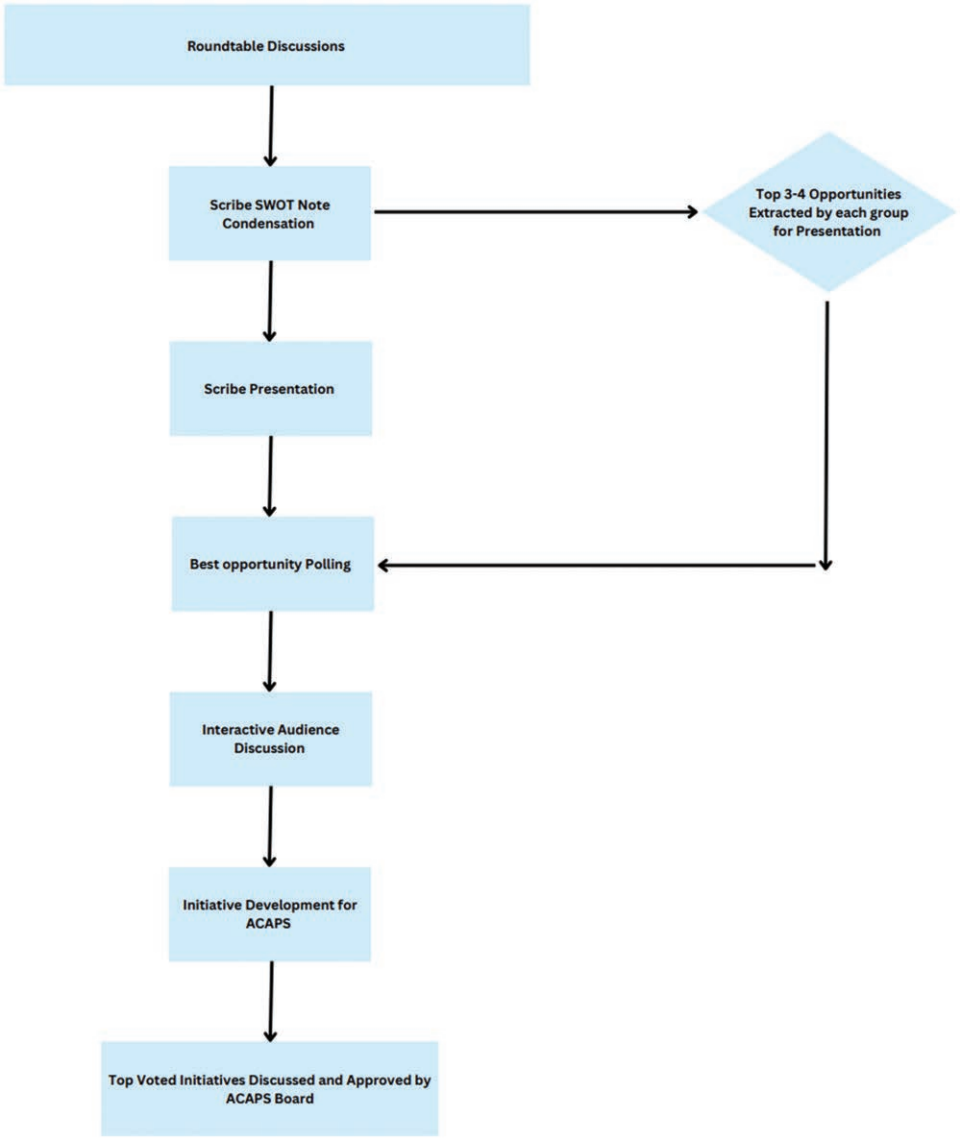

Fig. 1. Structure of small group and live audience response. This demonstrates the process by which consensus was achieved for challenging educational topics at a society meeting.

in some circumstances. (2) Recommendations released by ACAPS on how to implement holistic review would aid programs. (3) Providing more mentorship opportunities for students could allow programs to know them more as people and de-emphasize traditional metrics and research (Fig. 4). Despite the promise of holistic review and the evolving landscape of resident selection, there are multiple threats to achieving success. The recent change of Step 1 USMLE to pass/fail can limit the ability of students of under-represented minorities (UIM) to stand out via their score and encourages the research arms race.[11,12] The ability to take a research year is limited for many students by socioeconomic circumstances, as most research years are unfunded. For students who dual apply to general surgery, often their general surgery application suffers due to bias on the behalf of general surgery programs of a more "plastic surgery" tailored application. Ultimately, the bottleneck of plastic surgery residency applicants to spots will continue to leave a large proportion of students unmatched.[13,14] Figure 3 depicts an example of the presentation slide created by the small-group scribe summarizing the results of the discussion for resident selection.

Aesthetic Surgery Education

The majority of graduate plastic surgery residents pursue private practice positions, and many of those practice aesthetic surgery as part or all of their practice.[1,15] Among the 41% of trainees who pursue fellowship, only 15% pursue an aesthetic surgery fellowship.[1] The vast majority of individuals who practice some aesthetic surgery rely on their residency training for adequate preparation for practice.[16] In 2014, recognizing the need for improved aesthetic surgery education, the ACGME (American Council of

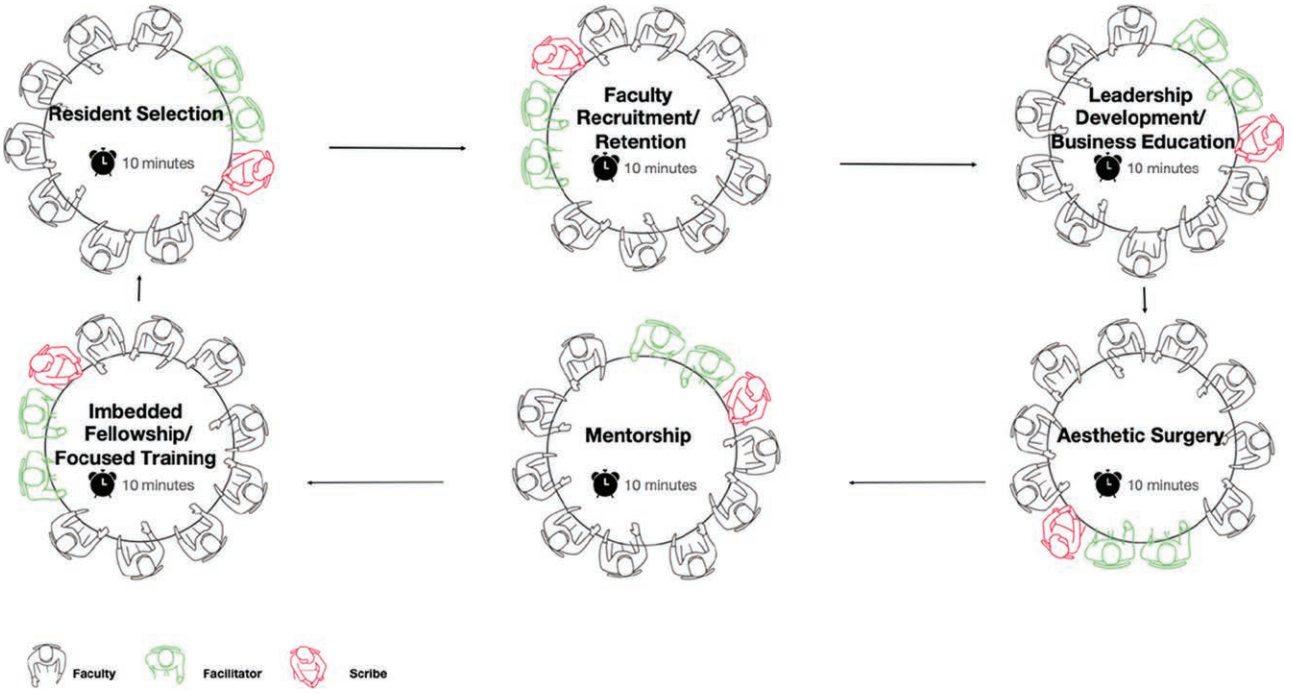

Fig. 2. Structure of small group discussion. This figure demonstrates the structure of the small group discussions, which included two expert faculty facilitators and a dedicated scribe per group.

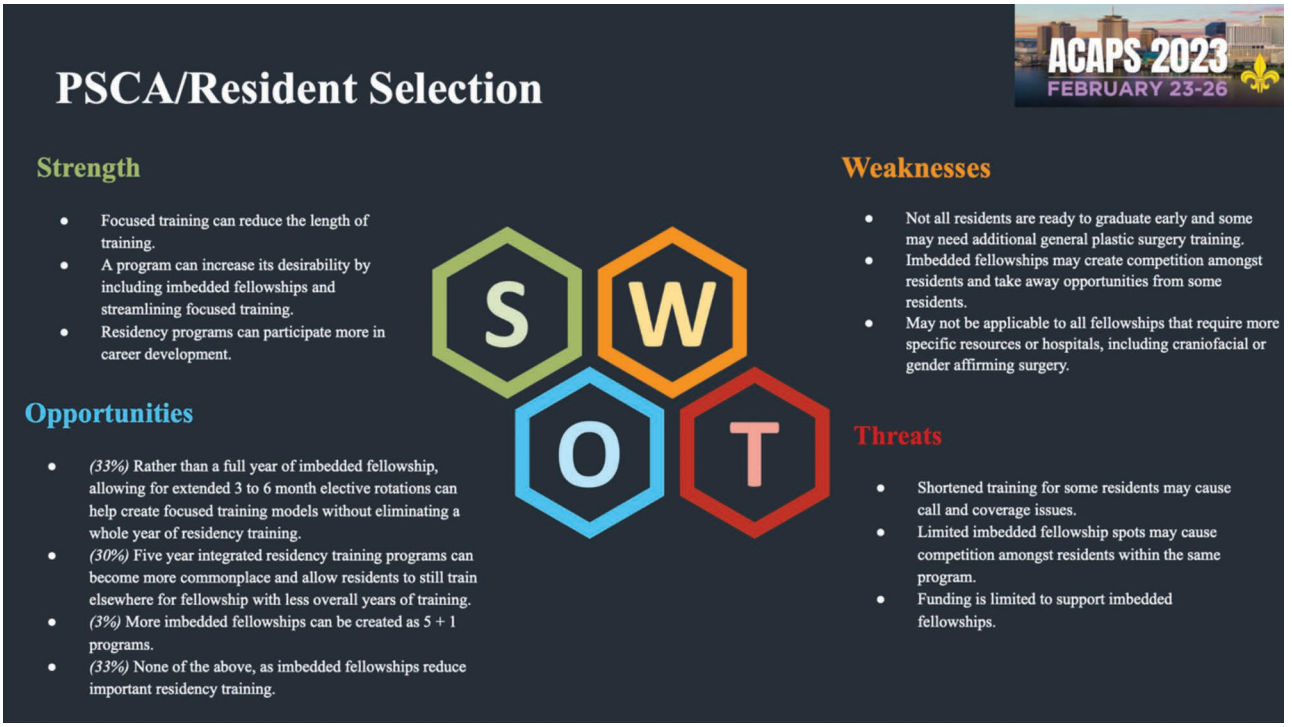

Fig. 3. Example SWOT analysis. This demonstrates an example of how the scribe summarized the take-away points from each small group, after which the audience participated in a live audience poll to select which opportunity they would like to pursue.

Graduate Medical Education) increased the case requirement for aesthetic cases from 50 to 150.[17–19] However, the current literature demonstrates that there are significant gaps in aesthetic surgery education, including facial and neck surgery and nonsurgical interventions, as well as a scarcity of resident cosmetic clinics.[16,20,21]

The groups identified that aesthetic surgery education has major room for improvement in residency training.

Fig. 4. Summary of most popular opportunities. This graphic summarizes the most promising opportunities for enhancing education in each respective topic. If no true majority was reached, the top two voted opportunities are included.

Table 1. Action Items Approved by the ACAPS Board

Resident Selection:
a. Each program provides a value statement that would be posted on the ACAPS website to help align with applicant values
b. ACAPS releasing recommendations for the implementation of holistic review. These will also be hosted on the website
Aesthetic Surgery:
c. Task force with two representatives from The Aesthetic Society, ASPS, and ACAPS for the development of formal guidelines for aesthetic surgery education in residency Goals: 1.Assistance with development of community aesthetic practice partnerships with all residency programs. 2.Recruitment of aesthetic educators and board examiners 3.Development of joint programming for resident aesthetic and business education
Leadership Development and Business Education:
d. Integrate business education into formal curricula for all training levels
e. Work with the Curriculum Committee for resources and update EdNet modules
Focused Training:
f. Post information about models for integrating focused training on ACAPS website
Mentorship:
g. Create structured resources for how to be a good mentor and mentee
h. Work with the Curriculum Committee for resources and create EdNet Module to teach residents how to be mentors
i. Align mentorship opportunities within and between societies
j. Propose coordination with ACAPS Mentorship Committee
Faculty Recruitment/ Retention:
k. Recommendations to improve childcare and family leave
l. Creation of the ACAPS task force on assessment of childcare resources for residents and faculty

This table summarizes the consensus items agreed upon as initiatives by the ACAPS board.

Training programs are aware of the need for improved aesthetic surgery education, and the increase in ACGME-required aesthetic cases did positively correlate with the creation of more resident aesthetic clinics and resident comfort with aesthetic procedures.[18,19,22] Although academic aesthetic surgery practices exist, they are still few and far between.[23] It is difficult for academic institutions to recruit aesthetic plastic surgeons as core faculty, given limited income amongst other factors. However, many private practice surgeons are happy and willing to accommodate resident aesthetic education in their practices. Despite this, it is difficult for private practitioners and residents to develop comfort and autonomy without providing longitudinal opportunities between the residents and community partners, and frequently, aesthetic education is introduced only in the latter years of residency.

The group suggested that ACAPS, ASPS (The American Society of Plastic Surgeons), and The Aesthetic Society should partner to develop standardized guidelines on the implementation of aesthetic surgery education in residency. Opportunities for residency programs include partnering with local private practice aesthetic surgeons to staff resident aesthetic clinics, provide residency didactic education, and educate residents starting at more junior levels. This will encourage more trust and operative autonomy by the time the residents are in their senior years. It was also suggested that The Aesthetic Society should start a junior resident program modeled after the MEDSIPS (Medical Students Interested in Plastic Surgery) program, to normalize interest in aesthetic surgery and expand career opportunities (Fig. 4).

Unfortunately, plastic surgery education in aesthetic surgery continues to face threats. Nurse practitioners, physician assistants, and nonplastic surgeons are encroaching upon the plastic surgeon's scope of practice. Hospital systems need to continue recognizing the importance of aesthetic surgery education and continue funding educational/resident cases. Traditional aesthetic surgery

meetings, excluding for-profit meetings, may require more funding than is available for trainees to attend.

Leadership Development and Business Education

All physicians, including surgeons, are leaders; surgeons lead both the operating room and clinic staff. Yet leadership and business development is lacking in most residency training experiences.[24–26] Only 43% of residents report inclusion of any business training in their plastic surgery residency.[26] Robust leadership education can facilitate more physicians becoming institutional leaders, of which plastic surgeons are especially underrepresented.[27] Additionally, both private practice and academic plastic surgeons need sufficient business education to review job opportunities, maximize reimbursement, and optimize time efficiency. However, both plastic surgery residents and program directors do not believe that trainees graduate with the necessary business knowledge to manage a successful practice.[26,28] Furthermore, both groups agree that formal didactics on business principles are an essential component of resident education.[26,28] Despite these positive attitudes towards business education, most plastic surgery residency programs have not implemented structured business curricula.[26,28] Therefore, we explored why such a discrepancy exists between the importance and delivery of business education and leadership development as well as how to address this discrepancy within the specialty.

Compared with other specialties, more plastic surgeons are private practitioners, leading to more opportunities for trainees to rotate in this environment.[1] This represents a relative strength of the specialty. However, for those residency programs that have integrated business or leadership education into their formal curricula, it is often reserved for chief or senior residents and therefore not introduced early enough in training.[28] The group suggested that a curriculum for business education be standardized via a collaboration between ACAPS, ASPS, and The Aesthetic Society and that it be implemented at *all* training levels. Leadership training should also be offered in a similar manner (Fig. 4). Threats to these efforts include the stigma associated with talking about finances and business practices during residency. Furthermore, program leaders must view business and leadership education as critical for success if they are to allocate appropriate time for these topics in resident education.

Embedded Fellowships/ Focused Training

About 70% of academic plastic surgeons have completed a fellowship, of which hand surgery is the most common (31%–35%), followed by microsurgery (27%–28%), and craniofacial surgery (22%–32%).[29,30] A few programs have recently created embedded fellowships, in which residents are given the opportunity to use their sixth year of residency to complete a fellowship. This is more commonly done at the small numbers of programs that have adopted competency-based education,[31] which allows residents to complete their residency within 5 years if they achieve sufficiency milestones as defined by the ACGME. Even for programs that cannot offer embedded fellowships, some programs do offer "focused training," or provide a 3-month to 6-month window in which residents can focus a part of their chief year on a specific area of interest.[32,33] This does not provide formal certification of fellowship training but is an opportunity for residents to dive deeper into subspecialties of their interest. An example of this is a 6-month embedded subspecialty training program done at Cleveland Clinic.[34]

A program can certainly increase its desirability by including embedded fellowships and streamlining focused training, and this may allow programs to participate more in early career development. However, many expressed concerns that not all residents are ready to graduate early and may need the time to improve their general plastic surgery skills. Some were concerned that embedded fellowships may create competition amongst trainees at the same program and may not be applicable to all fellowships that require more specific resources of hospitals, including craniofacial or gender-affirming surgery.

Opinions were split regarding whether embedded fellowships and/or focused training present a positive opportunity for plastic surgery education. Most individuals agreed that rather than a full year of embedded fellowship, allowing for extended 3-month to 6-month elective rotations can help create focused training models without eliminating a whole year of residency training. Some thought that 5-year training models should become more commonplace, whereas others opined that embedded fellowships reduce critical residency training (Fig. 4). Some concerns included that shortened training for residency may cause call and coverage logistical issues, and that funding may be limited to support embedded fellowships. In response to this discussion, ACAPS plans to make resources to build focused training in resident programs and add these resources to the ACAPS website.

Mentorship

Mentorship is an essential tool for professional development, especially in a smaller field such as plastic surgery.[35] In academic medicine, mentorship correlates with higher job satisfaction and academic productivity.[36,37] Mentorship can protect against burnout and attrition. However, both UIM and women report decreased mentorship opportunities.[35] Despite 4% of plastic surgeons believing that mentorship is critical, 85% of plastic surgeons report not having access to structured mentorship systems.[35] Mentorship is important along all points in the pipeline, from medical school, to residency, to careers and beyond. In plastic surgery, some structured mentorship programs do exist along these different levels.[35,38–41] Medical students can participate in the West Coast Plastic Surgery Diversity, Equity, and Inclusion Mentorship Program, in which they get matched to a resident mentor for a year and a workshop at the end of the program.[38] The Aesthetic Society Education and Research Foundation matches qualified underrepresented minority medical students with a member of The Aesthetic Society for mentorship, observership, and research opportunities.[41] At the resident level, ASPS

offers PROPEL (Professional Resource Opportunities in PRS Education and Leadership), a mentorship program that brings together varying levels of residents and attending surgeons, both locally and internationally.[40] The Plastic Surgery Research Council offers a mentorship program to its members for both medical students, residents, and junior faculty.[39] Even with the opportunity for mentorship, not all mentors are *good* mentors.[42–44] The discussion focused on how to incorporate education into residency on how to teach residents to be an effective mentor and improve upon existing mentorship opportunities.[44]

People noted that the topic of mentorship has been gaining momentum and interest in the field of plastic surgery.[43] However, despite the opportunities listed above, the mentorship opportunities do not reach far enough, especially for more junior students or UIM students.[45] Mentors and mentees are also inadequately prepared on how to best fulfill their respective roles. Consensus agreed that opportunities for improvement include the consolidation of resources on how to be a good mentee/mentor, aligning the mentorship opportunities within different societies via a representative council, and centralizing these opportunities to be listed at a single resource to help students and residents find these opportunities (Fig. 4). Success may be threatened by the increasing burden of mentees (with more interest in the field) and the inadequate valuation of time and effort involved in high quality mentorship (people overcommit themselves).

Faculty Retention

Recruiting and retaining talented plastic surgeons is challenging in academic plastic surgery, especially with the difference in annual income amongst various other challenges related to academic careers.[46,47] In the past 10 years, the academic unit, division, or department has lost 3.7±11.8 faculty members; on average, the turnover rate is about 20% in 5 years.[47] Plastic surgeons' employment satisfaction is dependent on a myriad of factors, including lifestyle, location, salary/incentive structure, case mix, and desire or lack of desire to teach residents.[48] Over 70% of academic programs are divisions or sections within the department of surgery, making it difficult for even program leadership to make significant changes in compensation and hiring.[47] Gender, race, partner/spouse employment, work autonomy, research support, and community support have all been shown to impact turnover.[47,49]

There is an awareness of the challenge to faculty retention and interest in improving it.[50] Academic positions can strengthen their appeal by offering case diversity, administrative support, protected research time, teaching opportunities, and opportunities for professional development.[50] Faculty retention is threatened by the lack of adequate family support, in the form of childcare, maternity/paternity/family leave, spousal support, and community support.[47,49,50] Leadership often exchanges hands between a select few individuals and struggles to have adequate growth in diversity. Frequently, there is a lack of transparency with promotion opportunities and jobs.[49] Unfortunately, private practice remains more attractive in compensation, flexibility, and work-life balance, and often individuals struggle to find academic jobs in locations that offer support for their partners.

Consensus was that transparency should be enforced regarding job expectations and offerings including salary, call schedule, and current challenges. Programs should strive to offer more family/personal support and offer opportunities for personal development (Fig. 4). In response to this discussion, the ACAPS Childcare Task Force was created to focus on childcare related issues and creating change in this arena.

CONCLUSIONS

The 10th Annual ACAPS Winter Meeting provided an excellent opportunity to assemble as a specialty and reflect on the critical issues of resident education and faculty retention. The small group format and use of a SWOT analysis allowed for reflection on how, as a specialty, we can turn our strengths into opportunities to improve the quality of education and training. As opposed to a survey, interactive small groups allowed for discussion, immediate reflection, and consensus building. Due to the live discussion and "real-time" response nature of this study, it is unfortunately limited in its sample size. Nonetheless, the results of this study demonstrate a process for gaining consensus initiatives on challenging and nuanced topics in surgical education. Table 1 summarizes the actions approved by the ACAPS board based on this activity.

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DISCLOSURE

The authors have no financial interest to declare in relation to the content of this article.

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