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Special Topic

Conceptual Framework for a Plastic Surgery Residency Leadership Curriculum

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Background: Leadership development remains an overlooked component in the plastic surgery residency curriculum. Through a mixed-methods assessment of physician perceptions, this study aims to establish the value and structure of a formal leadership course for trainees.

Methods: Qualitative interviews were conducted with plastic surgery residents to identify common themes concerning the current state of leadership training and goals for improvement. These themes then guided the design of a quantitative assessment, which surveyed faculty and residents regarding their perceived need for a curriculum, the domains that should be included, and the format of delivery.

Results: Six residents underwent interviews, which yielded the following themes: (1) surgical residents require a distinct set of leadership skills that warrants more intensive training and (2) leadership training should assume a more structured format. The survey achieved a 76% (29/38) response rate, with residents comprising 55% of respondents. Participants were neutral to slightly satisfied with current resident leadership and "learning on the job" (4.62 and 4.03 on a 7-point Likert scale, respectively). Respondents reported a moderate need for formal leadership training (2.97 on a 5-point scale). Availability was ranked as the greatest barrier to curriculum implementation. Topics considered most important included effective communication, self-awareness/emotional intelligence, and strategic thinking. Formats considered most effective included in-person lectures, small group exercises, and case studies.

Conclusion: This study presents a conceptual framework for the implementation of a leadership curriculum for plastic surgery residents that may empower the development of stronger physician leaders. *(Plast Reconstr Surg Glob Open 2020;8:e2852; doi: 10.1097/GOX.0000000000002852; Published online 14 July 2020.)*

INTRODUCTION

Strong leadership is imperative to the development of a physician.[1] In the academic setting, resident physicians are expected to be the frontline leaders of care delivery, leading operating teams, overseeing junior residents, and facilitating multidisciplinary discussions.[2,3] Optimized resident leaders can positively influence clinical outcomes and systems redesign.[3] However, many are not adequately prepared for new roles due to an emphasis on clinical and academic pursuits over achieving managerial competencies.[3]

The Accreditation Council for Graduate Medical Education has identified leadership as a competency that requires more attention.[4] Few clinical programs provide structured, evidence-based leadership training. Most learn "on the job" through observed behavior.[3] Although this model of "accidental leadership" is moderately effective,[5] several studies found that surgical residents did not feel confident in their managerial skills and desired further instruction.[5–7]

As evidenced by organizations such as General Electric and Boeing, effective leadership development produces high-performing teams.[3] Cohesive team performance improves patient outcomes by increasing efficiency and reducing errors.[3,8,9] We conducted an assessment of physician perceptions toward formal leadership training to

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determine the value and structure of a tailored curriculum for plastic surgery residents.

METHODS

This study, deemed exempt by our Institutional Review Board, used a combination of qualitative interviews and quantitative surveys.

Qualitative Interview

All plastic surgery residents at MedStar Georgetown University Hospital were eligible to participate. A semi-structured interview guide was developed to broadly explore the participants' experiences with leadership during residency and their suggestions for improvement. (**See appendix, Supplemental Digital Content 1,** which displays the resident interview template. A standardized, semi-structured template was used to explore residents' experiences with leadership and their goals for improvement, **http://links.lww.com/PRSGO/B428**.) Each 20-minute interview was recorded, transcribed, and imported into NVivo 12 (Version 10; QSR International, Melbourne, Victoria, Australia) software. Through open, axial, and selective coding,[10–12] we identified the most common themes expressed by residents.

Quantitative Survey

Based on the identified themes, a modified version of the Walter Reed Leadership Needs Assessment[5] was created and distributed to all faculty and residents in the MedStar Plastic Surgery Program via Qualtrics (Qualtrics XM, Provo, Utah; https://www.qualtrics.com). (**See appendix, Supplemental Digital Content 2,** which displays the Modified Walter Reed National Military Medical Center Graduate Medical Education Leadership Needs Assessment. A validated survey published by the Walter Reed Department of Internal Medicine[5] was modified based on the results of the qualitative survey to fit the needs of the MedStar Georgetown Plastic Surgery Program. The survey was distributed to all residents and faculty to assess their perceptions about the need for a formal leadership curriculum, **http://links.lww.com/PRSGO/B429**.)

The survey evaluated respondents' satisfaction with current residency leadership, desire for a formal curriculum, and suggestions for curriculum execution. Seven-point Likert scales (extremely unsatisfied, extremely satisfied) were used for bipolar responses, and 5-point scales (none, extreme amount) were used for unipolar responses.

RESULTS

Six residents (postgraduate years 2–6) participated in qualitative interviews. The themes that emerged were as follows: (1) surgical residents require a distinct set of leadership skills that warrants more intensive training and (2) leadership training should assume a more structured format (**Table 1**).

The quantitative leadership assessment achieved a 76% (29/38) response rate, with 55% from residents (**Table 2**). When asked about current resident leadership abilities, respondents were overall neutral to slightly satisfied [mean (M) = 4.62, SD = 1.82],

Table 1. Qualitative Themes Identified from In-person Resident Interviews

Themes	Response Excerpts
Surgical residents require a distinct set of leadership skills that warrants more intensive training	"Patient care involves so many different facets—inside the OR, outside the OR, on the floor... We throw a lot of smart physicians together and expect them to be natural leaders. You have to learn that often through trial and error, and it is very, very painful… Some people just yell [or use] public humiliation. It works sometimes, but it doesn't work all the time and could add to burnout."—PGY5
	"As a surgeon, you have to be a leader, but you are also in charge of people's lives. So, it's not as though if you screw up, the company loses a bit of money… people can die."—PGY5
	"We are dealing with lives. We are given this unique opportunity to touch patients' lives in such a unique way, and our [leadership] training is inadequate compared to other fields."—PGY2
	"Being a surgeon leader is very high stakes. Often, we are asked to lead situations where we may not be sure of the answer. We have to be confident [even] when we don't know the right answer or when there may not be a right answer… Since the beginning I have been non-committal about [leadership] strategies because I recognized that I did not know what I was doing as far as leadership goes."—PGY4
	"We have a more dynamic team structure than most industries. It's difficult to adapt to working with a team that changes on a daily basis (different residents are post-call on different days, different interns are on every month). You barely have time to truly get to know your team members, to understand each person's strengths and weaknesses, before they move on to a different rotation."—PGY3
Leadership training should assume a more structured format	"I think early on in residency, we can teach concepts. These are core principles that are not subjective. They can be taught...through lecture or interactive group discussions early in residency and during each academic year."—PGY6
	"Interactive workshops would be great—limited didactics where people read something and come prepared. I think if we all developed a repository of experience through this curriculum (didactic workshops, scenario simulations like team members being late, resident not completing tasks), then when the situation happens, you have already dealt with it and thought about it."—PGY5
	"Having someone with a business background come and teach us the skills, tell us about the research and the science behind leadership would be great. For us, right now it is trial by fire… But how do we get people to participate, show up, and take this [curriculum] seriously? That's why I think if we partner up with someone who teaches these skills to MBA students, it will be more successful and well received."—PGY5
	"Right now, it is a trial by fire. As junior residents, we want to develop these skills. The way leadership is currently taught to us is by online modules, but a lot of people turn the sound off and just click through the slides. If we had in-person discussions that people want to go to, it would be a lot more useful."—PGY2

Multiple trainees reported a desire for more leadership training in a more structured format.
MBA, Master of Business Administration; OR, operating room; PGY, postgraduate year.

Table 2. Quantitative Survey Participant Demographics

	Resident (%)	Faculty (%)	Total (%)
Role	16 (55)	13 (45)	29
Sex			
Male	10	10	20 (69)
Female	6	3	9 (31)
Age			
25–30	5	2	7 (24)
31–40	11	6	17 (59)
41–50	0	2	2 (7)
>50	0	3	3 (10)
Postgraduate year		—	—
1	3		
2	4		
3	2		
4	3		
5	3		
6	1		

Survey response rate reached 76%, with 55% from residents.

although trainees (M = 4.38) were less satisfied than faculty (M = 4.92). With regard to "learning on the job/by observation," the overall response rate was neutral (M = 4.03, SD = 1.97), but again, trainees (M = 3.75) were less satisfied than faculty (M = 4.38) (Fig. 1). When asked how much formal leadership training is needed, both groups (trainee M = 3.13, faculty M = 2.77) chose a moderate amount (M = 2.97, SD = 1.21) [**see figure, Supplemental Digital Content 3**, which displays how much formal leadership training is "needed" in your residency program? Both trainees (M = 3.13) and faculty (M = 2.77) reported a moderate need (M = 2.97, SD = 1.21 on a 5-point Likert scale), **http://links.lww.com/PRSGO/B430**].

Trainee (M = 2.76, SD = 1.46) and faculty availability (M = 2.72, SD = 1.22) were considered the greatest barriers to curriculum implementation (Fig. 2). For both faculty and residents, the most important curriculum topics were effective communication, self-awareness/emotional intelligence, and strategic thinking. The most effective formats were in-person lectures, small group exercises, and case studies.

DISCUSSION

Sound leadership skills are instrumental for optimal delivery of patient care.[1] Clinical outcomes are highly dependent on organizational performance. Hospitals with higher-rated management practices deliver better care and garner higher patient satisfaction.[9]

In most professions, leadership positions are awarded to those who demonstrate strong management skills as they progress through their careers. In medicine, however, residents begin to manage people early on, and their progression through the ranks is not leadership competency based.[9] Survey studies in dermatology and family medicine found that up to 66% of residents desired further leadership training, but <15% of programs had a formal curriculum.[13,14] Similarly, the Walter Reed Department of Medicine demonstrated that the majority of residents and faculty were only moderately satisfied with their leadership skills, and both groups reported at least a moderate need for more training.[5]

Although sparse literature on the subject exists in the surgical specialties,[15] Bent et al[7] found that the majority of their faculty and residents believe leadership ability could be taught. These perceptions are supported by business and military research, which have demonstrated significant positive correlations between strength of leadership and degree of formal leadership training.[16,17]

To date, no such leadership assessments have been published in plastic surgery. Our study used qualitative interviewing to identify residents' leadership goals, which then directed the design of a quantitative survey. The themes identified from resident responses indicated a clear desire for more structured leadership training. Our survey results revealed that although 62% of faculty were moderately

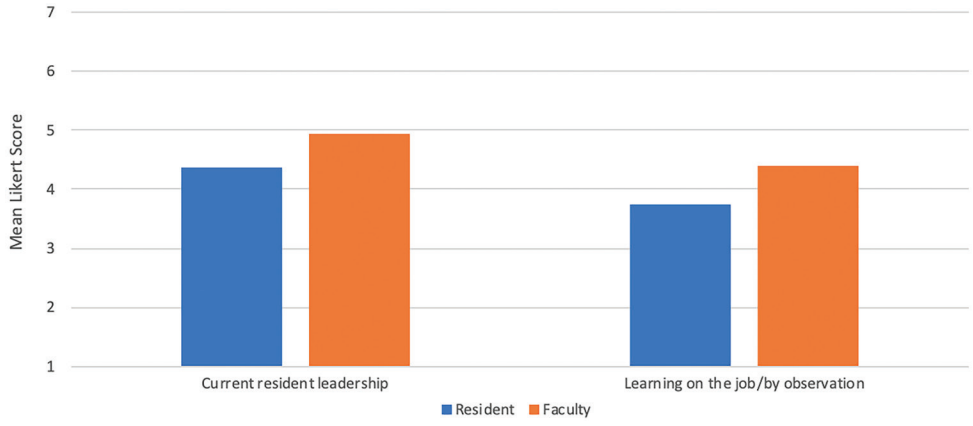

Fig. 1. How satisfied are you with residents' current leadership abilities and the training model of learning on the job/by observation? Overall respondents were neutral to slightly satisfied with current resident leadership (M = 4.62, SD = 1.82 on a 7-point Likert scale), although trainees (M = 4.38) were less satisfied than faculty (M = 4.92). Overall respondents were neutral toward "learning on the job/by observation" (M = 4.03, SD = 1.97 on a 7-point Likert scale), but again, trainees (M = 3.75) were less satisfied than faculty (M = 4.38).

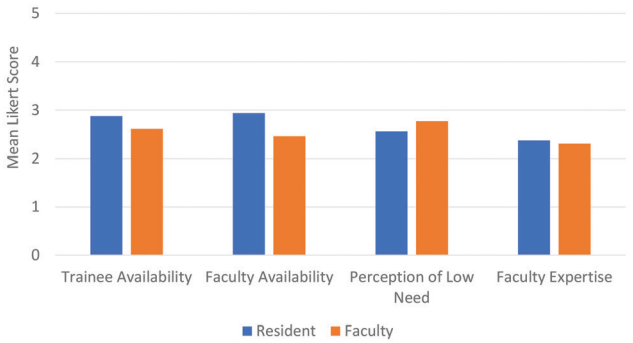

Fig. 2. How great are the following barriers to implementing a formal leadership curriculum? Trainee (M = 2.76, SD = 1.46) and faculty availability (M = 2.72, SD = 1.22) were considered the greater barriers to curriculum implementation.

satisfied with their residents' current leadership skills, the average trainee was only neutral to slightly satisfied. Furthermore, 69% of all respondents reported at least a moderate need for formal training. Similar to Hartzell et al,[5] our respondents found trainee and faculty availability to be the greatest barriers to course implementation.

Although other studies identified the most desired course topics to be conflict resolution, team building, and giving feedback,[5,14,18] our respondents preferred instruction in effective communication, self-awareness/emotional intelligence, and strategic thinking. These differences reflect the importance of an assessment before curriculum execution to tailor the course to the needs of the learners. Finally, the majority of respondents preferred small group and case study formats for course delivery, which are cited as the most effective, especially when given in longitudinal or serial sessions.[5,15]

The limitations of our study include a small sample size and single-institution bias inherent to the study purpose and design. However, the process of using a broad system of inquiry to develop a focused assessment tool should be applicable to any training program. We believe the Walter Reed Leadership Assessment serves as a good template from which programs can develop their own quantitative evaluation. The results of this study will be used to implement a 2-month leadership curriculum for the MedStar Georgetown plastic surgery residents, with the goal of developing stronger, more confident physician leaders. (**See table, Supplemental Digital Content 4,** which shows the proposed curriculum for MedStar Georgetown University department of plastic surgery residents based on topics and formats considered most important from the mixed-methods analysis, **http://links.lww.com/PRSGO/B431**.)

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