Analysis of the Emergency Medicine Clinical Learning Environment

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ABSTRACT

Background: Residencies are grappling with ways to identify methods to internally monitor and improve their learning environments. Building on prior work, the objective of this study was to determine emergency medicine (EM) internal evaluations of perceived organizational support and psychological safety and compare to the results from the Accreditation Council for Graduate Medical Education (ACGME) Resident Survey for the purpose of program improvement and to explore factors affecting residents' perception of their learning environment.

Methods: In 2017, the Virginia Commonwealth University School of Medicine Office of Graduate Medical Education and Office of Quality and Safety conducted an in-person, anonymous safety survey of the residents across 19 residency programs on the Short Survey of Perceived Organizational Support (SPOS) and Psychological Safety Scale (PSS). These were compared to the ACGME Resident Survey for 19 programs. Resident interviews and open response evaluation data informed content analysis on program experiences.

Results: Institutional response rates were 63% for the internal learning environment survey and 96% for ACGME Resident Safety Survey. EM residents responded positively on the SPOS and PSS compared to other programs (ranked second highest scores on both scales). One-hundred percent of respondents agreed or strongly agreed on SPOS items: "Help is available from my department when I have a problem." "My department really cares about my well-being." "My department values my contribution to its well-being." Furthermore, EM had the highest overall training experience score (mean = 4.83) on the ACGME survey compared to the 18 other training programs. Qualitative responses suggest program strengths included supportive program leadership, positive working relationships with faculty, and emphasis on trainee wellness.

Conclusions: Compared to other programs, EM has created a positive environment of safety and support as perceived by their residents. Internal surveys of the learning environment can help programs understand their culture for purposes of improvement and align with the ACGME survey.

In 2012, the Accreditation Council for Graduate Medical Education (ACGME) as part of the Next Accreditation System began evaluating learning environment with the Clinical Learning Environment Review (CLER) Program in six areas. In addition, ACGME Resident Survey provides information to monitor graduate medical education and warnings of potential noncompliance with ACGME standards. However, it is not clear if this evaluation provides

adequate information on trainees' perceptions of their clinical learning environment. Thus, residencies are struggling with how to monitor and improve their own environments.

Drawing on the organizational psychology literature, cultural facets of the clinical learning environment include residents' perceptions of perceived organizational support (POS) and psychological safety (PS). POS is the belief that an employee has that their work

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organization values their contribution and cares about their well-being.¹ This perception is based on fairness, supervisor support, organizational rewards, and job conditions. The importance of POS is that it is a reciprocal relationship whereby if the resident perceives a favorable organizational environment, the resident has an increased commitment to give back positively to the organization.¹ With increased commitment and performance to the organization, there is less individual withdrawal and burnout.¹

Psychological safety, the belief that one can speak up without fear on a team, has been identified as another critical factor in enabling performance and collaboration to accomplish shared work because it creates a climate that mitigates interpersonal risks when trying to raise concerns in learning hierarchies.² High levels of psychological safety allow for increased creativity, increased collaboration, admitting mistakes, asking for help, providing feedback, challenging the status quo, identifying problems or opportunities for improvement, and offering ideas to improve their organization's well-being.²

Goals of This Investigation

Building on prior work,³ the objective of this study was to evaluate emergency medicine (EM) internal assessments of perceived organizational support and psychological safety and compare with results from the Accreditation Council for Graduate Medical Education (ACGME) Resident Survey and then focus on factors that may affect residents' perception for the purpose of program improvement. By identifying how these relate to overall program experience score on the ACGME resident survey, we may then be able to target interventions to the items that positively or negatively influence the clinical learning environment for EM residents.

METHODS

Our health system internally surveyed residents across 19 residency training programs between May 2017 and June 2017.³ A non-EM research faculty member administered the paper survey during resident specific conferences to allow confidentiality in responses. The 19 ACGME Resident Survey results for FY17 were downloaded from ACGME's online reporting system.

The Short Survey of Perceived Organizational Support⁴(SPOS) and the Psychological Safety Scale⁵ (PSS) were selected to operationalize the clinical learning

environment from a cultural lens. SPOS and PSS, validated in prior studies, have been utilized in studies across numerous industries to explain the dynamics between people and the organizations in which they work and learn. The two scales were embedded into a longer survey regarding resident handoffs and event reporting. Our institutional review board approved the resident survey.

The SPOS consists of 16 items measured on a 5-point agreement Likert scale (1 = strongly disagree, 5 = strongly agree). The PSS has seven items similarly measured. Items were adapted so the words "team" and "organization" were replaced with "department" considering that residents primarily associate their clinical learning environment with their department. The ACGME Resident Survey^{6,7} for FY17 provided an overall experience item to evaluate each training program on a 5-point Likert scale (1 = very negative, 5 = very positive).

Data Analyses

Department-level frequency statistics and mean scores were calculated for SPOS and PSS (SPSS Version 24) were compared against the overall training experience score at the departmental level (ACGME survey). For the ACGME Resident Survey, we converted the percentages into an overall mean experience score for each department based on response rate information.³ Inter-rater agreement (r_{wg}) was calculated to support aggregation to the departmental level for SPOS and PSS.⁸

To understand the results and give context to the survey findings, we reviewed with content analysis recent internal annual EM program evaluation where residents provided free-text responses. In addition, we discussed with residents in small group settings their impressions of the program.

RESULTS

Across 19 programs 322 residents (63% response rate) completed the learning environment survey and 496 residents (96% response rate) completed the FY17 ACGME Resident Survey. Within EM, there was a 63% response rate ($n = 19$) for the learning environment survey and a 100% response rate ($n = 30$) for the ACGME Resident Survey. There was support to aggregate SPOS ($r_{wg} = 0.80$) and PSS ($r_{wg} = 0.79$) scores to the departmental level based on inter-rater reliability calculations.⁸

Table 1
Mean Scores of Residents' Perceived Support, Psychological Safety, and Overall Training Evaluation by Department

Department	Perceived Organizational Support	Psychological Safety	ACGME Overall Training Experience
EM	4.01	3.93	4.83
Department B	3.99	3.75	4.76
Department C	3.92	3.53	4.75
Department D	4.24	4.09	4.67
Department E	3.89	3.56	4.63
Department F	3.51	3.22	4.50
Department G	3.60	3.66	4.47
Department H	3.75	3.65	4.36
Department I	3.14	3.22	4.35
Department J	3.23	3.35	4.32
Department K	3.63	3.51	4.30
Department L	3.83	3.83	4.28
Department M	3.50	3.44	4.20
Department N	3.12	3.01	4.18
Department O	3.64	3.40	4.07
Department P	3.37	3.46	3.98
Department Q	3.18	3.38	3.85
Department R	3.11	3.21	3.82
Department S	3.44	3.41	3.79

Within our institutional sample, EM had the highest overall training experience score on the ACGME Resident Survey (mean = 4.83 out of 5) compared to the other 18 programs (Table 1). In addition, EM was

rated second highest on perceived organizational support (mean = 4.01 out of 5) and psychological safety (mean = 3.93 out of 5).

The perceived organizational support items (Table 2) revealed that 100% ($n = 19$) of the EM residents agreed/strongly agreed that their department values residents' contributions to its well-being and cares about residents' well-being. All ($n = 19$; 100%) of the EM respondents also agreed/strongly agreed that help is available from the department when they have a problem. For psychological safety (Table 3), the majority of EM respondents disagreed/strongly disagreed that if they made a mistake in the department, it is often held against them ($n = 15$, 79%) or that it is difficult to ask other members of the department for help ($n = 19$, 100%). Upon review of the annual ACGME EM residency program evaluation, there were 105 comments three themes that emerged (Table 4) in relation to the learning environment: program leadership, teamwork, and work-life balance.

DISCUSSION

It is important for residency programs to focus on their learning environments with internal surveys but also in response to external ACGME surveys. We found that the POS, PS, and ACGME responses were high for our EM program. The items on the POS and

Table 2
Perceived Organizational Support

	Strongly Disagree/Disagree	Neutral	Agree/Strongly Agree
My department values my contribution to its well-being.	0 (0)	0 (0)	19 (100)
*If my department could hire someone to replace me at a lower salary it would do so.	11 (58)	4 (21)	4 (31)
*My department fails to appreciate my extra effort from me.	12 (63)	3 (16)	4 (21)
My department strongly considers my goals and values.	1 (5)	2 (11)	16 (84)
*My department would ignore any complaint from me.	17 (90)	1 (5)	1 (5)
*My department disregards my best interests when it makes decisions that affect me.	15 (79)	4 (21)	0 (0)
Help is available from my department when I have a problem.	0 (0)	0 (0)	19 (100)
My department really cares about my well-being.	0 (0)	0 (0)	10 (100)
*Even if I did the best job possible, my department would fail to notice.	14 (74)	4 (21)	1 (5)
My department is willing to help me when I need a special favor.	0 (0)	5 (26)	14 (74)
My department cares about my general satisfaction at work.	1 (5)	4 (21)	14 (74)
*If given the opportunity, my department would take advantage of me.	12 (63)	4 (21)	3 (16)
*My department shows very little concern for me.	19 (100)	0 (0)	0 (0)
My department cares about my opinions.	0 (0)	5 (26)	14 (74)
My department takes pride in my accomplishments at work.	2 (11)	2 (11)	15 (79)
My department tries to make my job as interesting as possible.	0 (0)	3 (16)	16 (84)

Data are reported as n (%). *Item is reverse coded.

Table 3
Psychological Safety

	Strongly Disagree/ Disagree	Neutral	Agree/ Strongly Agree
*If you make a mistake in my department, it is often held against you.	15 (79)	1 (5)	3 (16)
Members of my department are able to bring up problems and tough issues.	0 (0)	3 (16)	15 (84)
*People in my department sometimes reject others for being different.	18 (95)	1 (5)	0 (0)
It is safe to take a risk in my department.	0 (0)	7 (37)	12 (63)
*It is difficult to ask other members of my department for help.	19 (100)	0 (0)	0 (0)
No one in my department would deliberately act in a way that undermines my efforts.	4 (21)	2 (11)	13 (69)
Working with members of my department, my unique skills and talents are valued and utilized.	0 (0)	5 (26)	14 (74)

Data are reported as *n* (%). *Item is reverse coded.

Table 4
Example Resident Responses on the Annual EM Residency Program Evaluation

Theme	Example Quotes
Program leadership 19 comments (includes comments that mention program director, assistant program director, or leadership)	<p>"I feel like our residency leadership advocated for us as residents fiercely and consistently."</p> <p>"EM residency administration is focused and adaptable to change."</p> <p>"Appropriate autonomy that progresses as time goes on. Leadership is a <i>huge</i> advocate for us."</p> <p>"Program leadership heavily invested in resident educations and needs."</p>
Teamwork 22 comments (Includes comments that mention faculty, teaching, support, supervisor, mentor or attending.)	<p>"Faculty are always happy to supervise and answer questions when needed."</p> <p>"Faculty being great teachers and very supportive."</p> <p>"Faculty involvement and dedication to our education."</p>
Work-life balance 3 comments (includes comments that mention duty hours and work-life balance)	<p>"After seeing multiple residencies, VCU offers the best work/education/life balance."</p> <p>"Emphasis on wellness, fun place to work."</p>

PS also help us identify areas of strengths and improvements of our residency.

High POS and PS may also contribute to enhanced work performance, job satisfaction, positive mood, and commitment.^{1,2} With the ACGME showing a heightened emphasis on resident burnout and wellness there are opportunities for shared learning between those programs that are performing well in the domains of POS and PS, such as EM, and those that are less successful. However, for such shared learning to be successful, greater investigation is needed to learn what features of the program create a more positive learning environment.

There are lessons learned of how to improve the learning environment from the qualitative results. Our preliminary qualitative analysis suggests focusing on behaviors of program leadership, teamwork dynamics between residents and attendings, and approach to wellness. Residents have taken note of changes with rotations, conference activities, teaching time during shifts, and residency retreats. Many of these revisions to the program stemmed from active feedback sessions

done by the leadership team. This not only addresses the root problem voiced but also enhances the perception that a resident's opinion is valued by the leadership team and empowers them to speak up about other concerns.⁹

A second theme that arose related to the EM environment was the strong emphasis on teamwork. The resident-attending team interactions encourage discussion of patient care, interpersonal relationships, and teaching. This positive close-knit interaction also allows for a nonthreatening environment in which questions can be posed and potential mistakes can be addressed.

A final factor that may relate to the scores on the ACGME survey is a healthy work-life balance.¹⁰ The ability to control one's work schedule and have the necessary time off for significant life events is a priority.¹¹ The perception of control over one's life is a basic tenet of POS. We implemented a wellness committee, annual residency retreat, and wellness strategies such as "anchor sleep" and "clockwise shift rotation" have also been maintained.^{12,13} All¹³ residents are

given a Dictaphone and senior residents are able to use a scribe. This benefit also allows residents to complete their shifts in a timely fashion.

LIMITATIONS

There are several limitations to this study. First, survey methodology is subject to potential response biases, in particular social desirability bias. The steps taken to protect respondent identity during data collection efforts were meant to reduce this bias. Furthermore, while our data suggest a favorable clinical learning environment in EM, we cannot know whether our residents' responses were driven by features of our program or whether other aspects impacted their perceptions of support and safety in speaking up. Finally, the study was at a single institution, limiting generalizability. Future research would tackle prospective evaluation of interventions aimed to increase residents' perceptions of support and ability to speak up and extend the study to other programs.

CONCLUSIONS

With increased focus on the clinical learning environment, residency programs need to understand the inputs into perceptions of that environment. The ACGME, SPOS, and PSS survey tools may be used to quantify that environment,¹⁰ and this study has attempted to describe some strategies that may help other residency programs consider ways to improve their own learning environment.

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