

ORIGINAL ARTICLE

Assessment of Emergency and Trauma Stabilization Training in Family Medicine Residency Programs: A CERA Study

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ABSTRACT

Background and Objectives: Family physicians are central to the national emergency department workforce, especially in rural communities. However, the number of family physicians working in emergency departments is decreasing, perhaps due to lack of training.

Methods: We assessed emergency medicine and trauma stabilization curricula in US family medicine residencies to identify barriers to training in these areas. Council on Academic Family Medicine Educational Research Alliance (CERA) program directors' surveys were administered between September 26, 2023 and October 30, 2023. We stratified data according to community size (<30,000; 30,000–74,999; 75,000–149,999; 150,000–499,999; 500,000–1,000,000; and >1,000,000) to explore whether training differed based on training program rurality.

Results: Of the 715 program directors, 271 responded (37.9%). Of the program directors who responded, nearly 76% reported that residents spend 100 to 299 hours training in emergency rooms, and more than 86% reported that residents lead 0 to 5 trauma stabilizations by the time their training is complete, which did not differ according to rurality. Only 3.0% reported that all their graduates were prepared to work independently in emergency rooms, and 3.4% reported that all their graduates were prepared to lead trauma stabilizations, which also did not differ according to rurality. Barriers to training included Accreditation Council for Graduate Medical Education (ACGME) emphasis on other practice requirements (58.3%) and a lack of emphasis on trauma stabilization (69.7%).

Conclusions: Most program directors reported that few of their residents were prepared to independently work in emergency departments. If ACGME wishes to increase family medicine graduates' entry into the emergency medicine workforce, system changes may be required to increase emphasis on emergency training and its core component of trauma stabilization.

INTRODUCTION

Family physicians have long had a role in supporting the emergency medicine workforce in both urban and rural settings.^{1,2} In our current climate, the American Board of Emergency Medicine promotes the goal to staff all emergency departments with board-certified emergency physicians, and many urban departments restrict hiring to those with board certification.³ However, a dramatic shortage remains in the number of board-certified emergency physicians working in rural areas, and the population density of physicians working in the rural emergency workforce has dropped since 2008.⁴ This reality makes family physicians a critical part of the emergency medicine workforce in America, both today and in the future.^{1,2,5–7}

The American Academy of Family Physicians (AAFP) strongly supports full-scope family physicians and the idea that their full-scope training makes them ideal clinicians to work in emergency departments.⁸

Family physicians working in rural emergency departments face the unique challenges of practicing in lower resource areas with socially and economically vulnerable populations, prolonged transportation times, weather delays, and staffing challenges that have been demonstrated to lead to higher patient mortality rates in critically ill and trauma patients.^{6,9–12} Additionally, maintenance of trauma stabilization skills due to infrequency of events can remain a challenge.¹³ Subsequently, the number of family physicians

working in emergency medicine has been declining, which leaves patients living in rural locations at greater risk of suboptimal care.^{1,4,14}

Currently, no published research details the rate of family physician retirement relative to that of new family physician entrance into the emergency medicine workforce. However, we do know that the median age of rural emergency physicians has increased from 56 to 62, suggesting that fewer young doctors (new graduates) are entering this workforce as its current physicians age toward retirement.⁴ Additionally, emergency family physicians, with a median age of 65, are older than their emergency physician colleagues, and this difference is more pronounced in rural areas.¹

Unfortunately, little is known about how family medicine residents are educated in emergency medicine and whether graduating family medicine residents are adequately prepared to work in this workforce. The American Board of Family Medicine's postresidency survey does not address emergency medicine preparation as a category, as it does for other major disciplines of care (eg, obstetrics, inpatient and outpatient care).¹⁵ Since 2023, the Accreditation Council for Graduate Medical Education (ACGME) requirements for emergency medicine training in family medicine programs have decreased; training requirements now include only 100 hours and 125 patient encounters (decreased from 200 hours [or 2 months] and 250 encounters).^{16,17} Furthermore, ACGME does not provide a framework for training requirements needed for independent emergency practice to guide program directors and residency curricula. Additionally, trauma stabilization, a designated core procedure in emergency medicine residencies, is not discussed in the ACGME requirements.¹⁴

Understanding the current state of emergency medicine training in family medicine residencies will help us determine whether our current training models are preparing graduates to fill the gaps left by retiring family and emergency medicine physicians in rural areas. To address this issue, we participated in a national survey of program directors in family medicine.

METHODS

Survey Development and Administration

In spring 2023, we submitted a question set proposal to the Council on Academic Family Medicine (CAFM) Educational Research Alliance (CERA)¹⁸ to gather data from program directors about their residency educational hours and requirements, their views on whether their residents are adequately trained for independent practice and trauma stabilization care, their residency's exposure to trauma stabilization, barriers to emergency medicine training and trauma stabilization experiences for their residents, and their estimated rate of graduate entry into the emergency workforce.

The proposal was accepted, and we developed a set of 10 questions that we submitted to CERA in August 2024. Questions included (1) the number of hours residents work in the emergency department by the time they graduate from your program; (2) how residents approach getting Advanced

Trauma Life Support (ATLS) training; (3) how often residents have the opportunity to lead trauma stabilizations; (4) the average number of trauma stabilizations residents led by the completion of their training; (5) the extent to which graduates are prepared to independently lead trauma stabilizations; (6) the percentage of graduates prepared to work independently in emergency departments; (7) the percentage of graduates who take a job that includes regular emergency room coverage; (8) their view of which family medicine residents should be fully prepared to work in an emergency department and manage trauma stabilizations; (9) what institutional barriers they think family medicine residents face that prevent them from gaining hands-on leadership experience in trauma stabilization; and (10) whether they believe any of these barriers affect residents' decisions about working in emergency departments after graduating. CERA surveys are reviewed by the AAFP's Institutional Review Board prior to administration. The survey was administered to 715 program directors between September 26, 2023 and October 30, 2023.

Data Analyses

We stratified the data according to community size (<30,000; 30,000–74,999; 75,000–149,999; 150,000–499,999; 500,000–1,000,000; and >1,000,000) because we were interested in whether training differed according to rurality of the training program. These categories were chosen based on the distribution of the data for the number of programs in each category to avoid a skewed dataset producing unstable findings. We also stratified selected variables according to the percentage of graduates prepared to work independently in emergency departments. When doing this, we collapsed the "None" and "Few" categories into a single category (n=153), and collapsed "Some," "Nearly all" and "All" into a second category (n=108). We used χ^2 to analyze categorical data; because of the nonparametric shape of the data, we used the Kruskal-Wallis test for assessment of continuous data. Cell sizes of less than five were censored because they may have made participants identifiable. All tests were two-tailed, and we set α at 0.05 to determine statistical analyses. P values reported are omnibus values, indicating that they consider the significance of several parameters in a model at once, which allows us to identify the primary drivers in a complex multivariable dataset.

RESULTS

Out of 715 program directors, 270 completed the survey (37.9% response rate). Program directors tended to be female (53.9%), White (75.6%), have an MD degree (78.9%), and had been in their current role as program director for an average of 4.9 years (See Appendix Table A). No characteristics were associated with the rurality of the community where the programs were located. Most respondents were from community-based, university-affiliated programs (57.4%). This finding was especially true for rural communities. University-based programs tended to be in urban areas (P=.009). Most programs had between 19 and 31 residents (total complement as of July

2022), with rural programs having a smaller residency size compared to urban programs ($P=.001$).

More than 40% (41.2%) of program directors reported that residents spent between 200 and 299 hours of training in emergency rooms, 34.6% reported residents spent between 100 and 199 hours of training in emergency rooms, and the remainder spent more or less than the amounts in this range (See Appendix Table B). Nineteen percent required Advanced Trauma Life Support (ATLS) training in either postgraduate year PGY-1 (14.8%) or PGY-2 (4.2%). Neither hours spent in emergency room training nor ATLS training differed according to rurality of the program (Appendix Table B).

While 57.6% of respondents reported that residents take part in trauma stabilizations, they don't typically lead them; and 86.6% reported that residents lead 0 to 5 trauma stabilizations by the time their training is complete. This finding also did not differ according to rurality. Only 3.0% reported that all their graduates were prepared to work independently in emergency rooms, and 3.4% reported that all their graduates were prepared to lead trauma stabilizations (See Appendix Table C).

When asked about their beliefs regarding trauma training in family medicine, the majority felt that only residents who plan to work in emergency departments (74.9%) or those who work in rural areas (50.2%) should get this training (Table 1). Again, this finding did not differ according to rurality. When asked about institutional barriers that prevent residents from gaining trauma stabilization experience, most felt this was due to ACGME's emphasis on other practice requirements (58.3%) and a lack of emphasis on trauma stabilization (69.7%; Table 1). The only institutional barrier that differed according to rurality was competition from other specialties (eg, emergency medicine or surgery), which was 53.0% overall but 42.3% in the most rural locations (<30,000) and 65.6% in the most urban locations (>1,000,000; $P=.02$), and this barrier was perceived to affect residents' decisions about working in emergency departments after training (See Appendix Table C).

When examining stratification according to the percentage of graduates prepared to work independently in emergency departments, those whose program directors believed that their graduates had higher levels of preparedness were more likely to get ATLS training, perform and lead more trauma stabilizations during training, and take a job that includes emergency department coverage (Table 1). Program directors were also more likely to believe that all family physicians should receive trauma stabilization training (9.6% in the low preparedness group vs 27.5% in the high preparedness group; $P<0.001$; Table 2).

DISCUSSION

This paper, based on a national survey, evaluated how family medicine program directors feel about their emergency medicine training curriculum and whether their residents are prepared to work independently in emergency departments upon entering independent medical practice. To the best of our

knowledge, this is the first paper that performs a national evaluation of emergency medicine training in the family medicine curriculum. We found that most program directors (59.1%) felt that few, if any, of their residents were adequately prepared to work independently in emergency departments upon graduation. Most (85.3%) also reported that less than 20% of their graduates take jobs that include emergency medicine coverage.

Trauma stabilization is a critical component of emergency care, and this study demonstrates how little trauma stabilization experience currently exists in most family medicine programs. Importantly, ATLS, the foundation of trauma stabilization education, is not required in more than 80% of programs. Trauma stabilization experience is rare for residents. Eighty-three percent of program directors reported that their residents participated in 0 to 5 trauma stabilizations, and 30% of program directors reported that their residents never had the opportunity to lead a trauma stabilization. As a result, only 3.3% of program directors felt they fully prepared graduates to independently lead trauma stabilization. These numbers support published research that shows that family medicine residency graduates feel uncomfortable working in rural emergency departments and list trauma stabilization as the area in which they feel least prepared for in practice.¹⁹

Additional studies and data are needed to evaluate, at the graduating resident level, what is affecting new family physicians' decisions to not enter the rural emergency medicine workforce. With this study showing that more than half of program directors do not feel that their residents are prepared to work independently in emergency medicine, inadequate training for family medicine residents is likely contributing to graduating residents' decisions to not work in rural emergency departments.

Also worth noting are the barriers program directors reported regarding providing adequate emergency and trauma stabilization training. The most frequent barriers included competition from other specialties and the perception that emergency care is not in the scope of family medicine. These are difficult barriers to overcome without systemic changes. Notably, many program directors felt that ACGME's lack of emphasis affected emergency and trauma training, which impacted the learning of emergency medicine to the point of affecting career decisions; and nearly 70% felt that the lack of ACGME emphasis was a barrier for trauma stabilization training. We therefore wonder whether an increased emphasis on trauma stabilization and emergency training by ACGME and family medicine programs would impact graduate preparation.

Family medicine has played a critical role in health care access in rural communities, and we expect rural programs to place a higher emphasis on emergency and trauma training. However, our findings did not support this expectation; program rurality did not reflect increased trauma stabilization experience, ATLS training completion, or more hours of emergency medicine experience. We also found no significant difference in how rural program directors felt about their residents' preparedness to work independently in emergency

TABLE 1. Trauma Training Characteristics According to Percentage of Graduates Prepared to Work Independently in Emergency Departments

Trauma training characteristics	Total n (%)	None/few n (%)	Some/nearly all/all n (%)	P value
Average number of hours residents in your program work in the emergency department by program completion	(n=260)	(n=152)	(n=108)	.065
<100 hours	4 (1.5)	3 (2.60)	1 (<1.0)	
100–199 hours	90 (34.6)	60 (39.5)	30 (27.8)	
200–299 hours	107 (41.2)	61 (40.1)	46 (42.6)	
300–399 hours	36 (13.8)	21 (13.8)	15 (13.9)	
400–499 hours	13 (5.0)	5 (3.3)	8 (7.4)	
500–599 hours	4 (1.5)	1 (<1.0)	3 (2.8)	
≥600 hours	6 (2.3)	1 (<1.0)	5 (4.6)	
How residents approach getting Advanced Trauma Life Support (ATLS) training, if at all	(n=264)	(n=156)	(n=108)	<.001
Our program requires ATLS certification in PGY-1.	40 (15.2)	16 (10.3)	24 (22.2)	
Our program requires ATLS certification in PGY-2.	11 (4.2)	3 (1.9)	8 (7.4)	
ATLS is optional in our program (>50% take ATLS).	12 (4.5)	3 (1.9)	9 (8.3)	
ATLS is optional in our program (<50% take ATLS),	72 (27.3)	40 (25.6)	32 (29.3)	
ATLS is not offered/required in our program.	129 (48.9)	94 (60.3)	35 (32.4)	
Frequency that residents have the opportunity to lead trauma stabilizations	(n=265)	(n=156)	(n=109)	<.001
Never, this is not a program requirement.	81 (30.6)	67 (42.9)	14 (12.8)	
They occasionally take part in trauma stabilizations, but don't lead them.	127 (47.9)	73 (46.8)	54 (49.5)	
They routinely take part in trauma stabilizations, but don't lead them.	25 (9.4)	10 (6.4)	15 (13.8)	
They occasionally lead trauma stabilizations.	20 (7.5)	2 (1.3)	18 (16.5)	
They routinely lead trauma stabilizations.	2 (<1.0)	0	2 (<1.0)	
They participate in trauma stabilization only during elective rotations.	10 (3.8)	4 (2.6)	6 (5.5)	
Average number of trauma stabilizations residents led by training completion	(n=263)	(n=155)	(n=108)	<.001
0–5	227 (86.3)	147 (94.8)	80 (74.1)	
6–10	23 (8.7)	7 (4.5)	16 (14.8)	
11–20	9 (3.4)	1 (<1.0)	8 (7.4)	
21–30	3 (1.1)	0	3 (2.8)	
>30	1 (<1.0)	0	1 (<1.0)	
Extent graduates are prepared to independently lead trauma stabilizations	(n=265)	(n=156)	(n=109)	<.001
They are fully prepared.	9 (3.4)	0	9 (8.3)	
They are moderately well-prepared.	19 (7.2)	0	19 (17.4)	
They are somewhat well-prepared.	62 (23.4)	17 (10.9)	45 (41.3)	
They are not well-prepared.	175 (66.0)	139 (89.1)	36 (33.0)	
Percentage of graduates from your program that take a job that includes regular emergency room coverage?	(n=265)	(n=156)	(n=109)	<.001
0%–20%	226 (85.3)	155 (99.4)	71 (65.1)	
21%–40%	25 (9.4)	1 (<1.0)	24 (22.0)	
41%–60%	9 (3.4)	0	9 (8.3)	
61%–80%	4 (1.5)	0	4 (3.7)	
81%–100%	1 (<1.0)	0	1 (<1.0)	

Abbreviation: PGY, postgraduate year

TABLE 2. Program Director Attitudes According to Percentage of Graduates Prepared to Work Independently in Emergency Departments

Program director attitudes	Total (n=265) n (%)	None/few (n=156) n (%)	Some, nearly all/all (n=109) n (%)	P value
Who should be fully prepared to work in an emergency department and manage trauma stabilizations? (Responses are % Yes)				
All family medicine residents	45 (17.0)	15 (9.6)	30 (27.5)	<.001†
Only residents who plan to work in emergency departments	203 (76.6)	126 (80.0)	77 (70.6)	.076†
Only residents who plan to work in rural locations	136 (51.3)	80 (51.3)	56 (51.4)	1.00†
Institutional barriers family medicine residents face that prevent them from gaining hands-on leadership experience in trauma stabilization (Responses are % Yes)				
Competition from other specialty residents (eg, emergency medicine, surgery)	141 (53.2)	86 (55.1)	55 (50.5)	.456†
Perceptions that emergency medicine is not within the scope of family medicine	128 (48.3)	80 (51.3)	48 (44.0)	.263†
Resident scheduling challenges	70 (26.4)	44 (28.2)	26 (23.9)	.480†
ACGME emphasis on other practice requirements (eg, 80 deliveries for independent practice, clinic requirements)	111 (41.9)	89 (57.1)	65 (59.6)	.706†
Lack of ACGME emphasis (trauma stabilization experience is not required for independent practice)	184 (69.4)	116 (74.4)	68 (62.4)	.043†
Perceived effect these barriers have on residents' decisions about working in emergency departments after graduating (Responses are % Yes)				
Competition from other specialty residents (eg, emergency medicine, surgery)	127 (47.9)	81 (51.9)	46 (42.2)	.134†
Perceptions that emergency medicine is not within the scope of family medicine	152 (57.4)	93 (59.6)	59 (54.1)	.380†
Resident scheduling challenges	60 (22.6)	32 (20.5)	28 (25.7)	.371†
ACGME emphasis on other practice requirements (eg, 80 deliveries for independent practice, clinic requirements)	94 (35.5)	48 (30.8)	46 (42.4)	.068†
Lack of ACGME emphasis (trauma stabilization experience is not required for independent practice)	115 (43.4)	71 (45.5)	44 (40.4)	.451†

†Fisher's exact test

Abbreviation: ACGME, Accreditation Council for Graduate Medical Education

medicine compared to urban program directors. Also, no differences in the percentage of graduates working in emergency medicine were identified. This deficit could be seen as a missed opportunity by rural family medicine programs to adequately prepare residents to fill the growing need for physicians in rural emergency departments. It also may suggest that rural family medicine programs are falling short of ACGME requirements to conduct programs consistent with the needs of the community.¹⁶ This realization may be a moment for rural programs and rural training tracks to evaluate whether their curricula may require more emergency medicine emphasis.

Our research also provides information about how programs have changed since July 2023 when ACGME decreased emergency medicine training requirements for family medicine residents from 200 hours to 100 hours.^{16,17} When our survey was conducted in August 2024, 35% of programs reported requiring fewer than 200 hours of emergency training. Though we have no prior data, likely safe to assume is that 35%

of programs would not have reported providing fewer than the required hours prior to this change. Clearly, family medicine programs respond to ACGME requirement emphases when the requirements involving emergency medicine change. How this change has affected resident education remains unknown, but one could suspect that it has led to decreased resident preparedness to provide emergency care and, we fear, even lower rates of entry into this workforce.

Assuming that the family medicine training community wishes to increase the rate of graduating residents entering the emergency workforce, more must be done to prepare residents for independent practice in emergency medicine. The program directors that answered that “Some,” “Nearly all,” or “All” of their residents were prepared to work in emergency departments reported providing significantly higher rates of ATLS trainings, trauma stabilization leadership opportunities, and trauma stabilization cases. Interestingly, training hour requirements did not reach a statistically significant difference,

though they tended to be higher in this group of residencies. These areas of emphasis not only appeared to affect how program directors felt about their trainees' preparation but also affected the percentage of their residents entering the workforce, as residents from this cohort were reported to join the emergency medicine workforce at significantly higher rates.

We faced several limitations in this study. First, a 10-question limit, as is the case for all CERA studies, affected our ability to fully investigate differences in emergency medicine curricula and help us understand what programs can do to improve emergency medicine training. Our response rate was 37.9%, which limited the generalizability of our findings across all family medicine training in the United States. We were, however, satisfied with the diversity of programs that responded. Survey studies also are limited by self-selection bias, social response bias, and recall bias, which may have affected the accuracy of program directors' views on emergency medical training. Lastly, this CERA survey of program directors did not include responses from core residency faculty nor residents, who may have provided more data on the adequacy of the emergency medicine curricula within family medicine training.

Further research into the emergency medicine training curriculum and requirements for family medicine residents is needed. Important to investigate will be how ATLS training, trauma stabilization training, emergency medicine didactic training, and hours of emergency medicine requirements affect resident education, competency, and willingness to enter the emergency medicine workforce. Also important to examine is how rural training programs might increase their emergency medicine preparation. Research into workforce opportunities for family medicine graduates is needed to understand where opportunities exist and how family medicine programs should adjust to prepare residents to fill these needs. Further investigation into the role of family medicine fellowships and emergency medicine–family medicine dual programs for solving the workforce shortage is also needed.

CONCLUSIONS

In conclusion, a concerning lack of emergency medicine and trauma stabilization training appears to currently exist in family medicine education, and this could lead to suboptimal care in rural underresourced settings. If ACGME and the family medicine training community wish to increase family medicine graduates' entry into the emergency medicine workforce, system changes to family medicine education regarding emergency-specific medicine education, trauma training, and increased emergency medicine exposure may be required.

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