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Differences in Self-Reported Entrustability in Regional Students vs Academic Health Center Students at the End of the Clerkship Year

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Abstract

Purpose: Over one-third of medical schools in the United States have at least one regional medical campus (RMC). As the largest medical school in the nation, Indiana University has nine campuses across the state, with its main campus located in Indianapolis. The primary objective of this study was to assess differences in student self-reported efficacy performing acute care competencies among rising fourth-year medical students who trained at the main campus versus those who trained at regional campuses.

Methods: A 10-question survey was developed to evaluate students' self-efficacy in and judgment of their ability to perform tasks relevant to the acute care competencies. This survey was administered to rising fourth year medical students at Indiana University School of Medicine to assess differences in students at different training locations.

Results: A total of 332 rising fourth year medical students completed the survey. Of these, approximately 20% trained at a regional campus. When comparing responses, as a group, regional students reported statistically significant higher self-reported entrustability scores for 2/10 questions and had a higher mean self-reported score on 7/10 questions.

Conclusions: Our study illustrates that medical students who trained at a RMC perceived themselves either similarly or better prepared across the acute care competencies compared to Indianapolis students. Additionally, our study supports suggestions of potential advantages to training at a RMC as described in the literature and adds to current data by Kochhar et al (2019).

Keywords: regional medical campus, medical students, medical education

INTRODUCTION

Regional medical campuses (RMCs) are characterized as instructional locations that are separate from the primary medical school campus. RMCs saw increased development and enrollment in 2006 in response to the AAMC's call to increase medical student enrollment by 30% due to concerns about a looming physician shortage. As a result, as of 2023, about one-third of medical schools in the United States have at least one RMC.¹ Currently 133 RMCs exist in the United States, with a national average of 2.4 campuses per medical school.^{2,3} These are classified into four different models: basic science, clinical, longitudinal/distributed, and combined. Despite this classification system, RMCs can vary significantly in key components such as mission and educational experiences.⁴ Given this potential variation, some question if RMCs adequately prepare learners.

As the largest medical school in the nation, Indiana University School of Medicine (IUSM) has nine campuses across the state with its main campus located in Indianapolis. In 2020, enrollment for the first-year class was up to 365 students, with 62% of those students enrolled at a regional campus.⁵ When the regional campuses were first created, regional students completed only their preclinical years at their respective campuses before completing their final two years at the main campus. Now, regional students have the opportunity to remain at their primary campuses to complete their clerkship training. To ensure comparable educational experiences across the state, IUSM regularly reviews student satisfaction scores, NBME shelf exam scores, preceptor evaluation scores of students, and grade distributions throughout the 9-campus system. These

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comparability analyses have demonstrated no significant differences among the campuses. Other published reports note that regional campus students frequently reported early hands-on clinical exposure and closeness with their classmates and professors that enhanced their learning.⁵ Various aspects of RMCs have been studied previously, including differences in the type of applicants/matriculants, specialty choice, and residency training outcomes. RMCs have been reported to have a higher likelihood of attracting and admitting less academically competitive applicants (lower GPA and MCAT scores) from nonurban residence as compared to main campus students.⁶ Despite this, no significant differences have been observed comparing RMCs and main campus student board scores (USMLE Step 1 and Step 2 CK) or scholarly output.⁷ Studies have shown that training on a regional campus increases the likelihood of students entering primary care specialties and practicing in local communities.^{8,9} Family medicine residents who trained at a RMC more frequently perceived themselves to be fully competent in core ACGME competencies as compared to residents who attended the main campus.¹⁰

No other studies to our knowledge have evaluated the efficacy of the varying educational experiences at regional and main campuses in preparing students for clinical practice. Our study aims to evaluate the efficacy of IUSM's multi-campus system to clinically prepare learners for their fourth year by assessing differences in self-reported entrustability performing acute care competencies across regional and main campus students following the clerkship year.

METHODS

A 10-question survey was developed to evaluate students' self-efficacy in and judgment of their ability to perform tasks relevant to the acute care competencies. It was developed based upon the AAMC's Entrustable Professional Activities (EPA) for Entering Residency. These describe expected skills and abilities for physicians beginning residency. The AAMC defines entrustment as "trustworthiness in applying knowledge, skills, and attitudes in performance of an EPA" and states a learner must consistently demonstrate characteristics such as conscientiousness, discernment, truthfulness, and

awareness of one's limits to be considered entrustable.¹¹ In this study, we specifically used EPA 10, the ability to "Recognize a Patient Requiring Urgent or Emergent Care and Initiate Evaluation and Management" to devise our questions. This survey was not sampled before use and was administered to rising fourth year medical students to assess differences among students at different training locations as a course requirement through each student's personal Canvas page and was therefore not anonymous. (Figure 1).

Survey Questions Asked of Rising Fourth-Year Medical Students
Question 1: Initiate stabilizing interventions for a patient in shock
Question 2: Initiate stabilizing interventions for a patient with respiratory failure
Question 3: Initiate stabilizing interventions for a patient with altered mental status
Question 4: Initiate stabilizing interventions for a patient with seizures
Question 5: Initiate stabilizing interventions for a patient with chest pain
Question 6: Communicate effectively with other team members during an emergent or urgent situation
Question 7: Help my patients make an informed decision about their medical care and invasive procedures
Question 8: Transition the direct care of my patient to another clinician (e.g. "handoff," "changeover")
Question 9: Discharge a patient from the hospital to appropriate outpatient care
Question 10: Admit a patient to the appropriate hospital setting

Figure 1: Survey questions asked of rising fourth-year medical students

Survey results were pooled and summarized. Responses were re-coded on a numerical scale (Figure 2) and statistically analyzed using t-tests which compared responses to each survey question between students at the Indianapolis (main campus) and regional campuses. For the purpose of analysis, medical students who completed >50% of their third-year clerkships at a regional campus were considered a regional student. P-values <0.05 were considered statistically significant.

Survey Responses and Numerical Scale

I could not do it = 1

I could do it with someone talking me through the task = 2

I could do it with occasional reminders or direction on the difficult steps = 3

I could do it nearly independently = 4

I could do it without supervision = 5

Figure 2: Numerical scale for survey responses

RESULTS

A total of 332 rising fourth year medical students completed the survey and were included in data analysis. Approximately 20% of survey respondents completed >50% of their third-year clerkships at a regional campus and were considered regional students for analysis (n=79). Survey results are presented in Table 1. When comparing survey responses, regional students consistently rated themselves to be at least as high as main campus students on the acute care competency EPA questions. Regional students' responses to question 2, "initiate stabilizing interventions for a patient with respiratory failure" and 5, "initiate stabilizing interventions for a patient with chest pain," were significantly higher than main campus students (2.72 vs 2.47, $p=0.01$ and 3.27 vs 3.0, $p=0.009$). These responses also represented the largest differences observed ($\Delta=0.25$ and 0.27). Regional students rated themselves slightly lower on questions 7, 9, and 10 ($\Delta=0.01$, 0.03 , and 0.11 respectively) though these differences were not statistically significant.

Acute Care EPA	Attended Main Campus Mean Response (n=253)	Attended Regional Campus Mean Response (n=79)	P-value
Shock	2.46 (n=253)	2.67 (n=79)	0.06
Respiratory Failure	2.47 (n=243)	2.72 (n=76)	0.01
Altered Mental Status	2.76 (n=318)	2.84 (n=77)	0.4
Seizures	2.72 (n=245)	2.93 (n=76)	0.052
Chest Pain	3 (n=241)	3.27 (n=74)	0.009
Communicate	3.64 (n=241)	3.65 (n=75)	0.9
Help	3.58 (n=245)	3.57 (n=76)	0.87
Transitions	3.63 (n=246)	3.79 (n=75)	0.17
Discharge	3.04 (n=247)	3.01 (n=79)	0.84
Admit	3.06 (n=241)	2.95 (n=78)	0.32

Table 1: Self-reported entrustability performing acute care competencies for medical students who completed clerkship year at main vs regional campuses

DISCUSSION

In recent years, there has been discussion about the quality of medical education administered at regional medical campuses (RMCs) versus main medical campuses. RMCs bolster schools' ability to provide medical education by using existing medical institutions and resources in multiple regions to increase medical school enrollment overall. This is beneficial because it may help stave off physician shortages. At Indiana University School of Medicine, care has been taken to ensure that students across all nine of its campuses get a comparable, quality education. Outcome measures are regularly reviewed and assessed by the centralized curriculum steering committee to ensure comparability.

Our study supports this comparability, demonstrating that rising fourth-year medical students who trained at a regional medical campus felt at the least equally prepared to appropriately handle acute medical situations when compared against their main campus counterparts. While these findings are self-reported by students, it aligns with results from recent Resident Readiness Surveys administered by the AAMC annually to residency program directors; when asked if a resident was able to recognize a patient requiring urgent or emergent care and initiate

evaluation or management, 97% of program directors noted that IUSM graduates in their first year of residency met or exceeded expectations.

Regional students in our study occasionally reported higher levels of self-efficacy performing acute care competencies as compared to Indianapolis students demonstrating potential advantages in training at a RMC. This was similar to a previous study where family medicine residents who trained at a RMC more often perceived themselves to be better prepared performing core competencies compared to those who trained at the main campus.¹⁰

These findings may be attributed to differences in training environments at RMCs. Although the cities in which regional campuses are located may expose students to smaller populations (average 100,000 vs 800,000), they may offer unique opportunities to engage in patient-centered care related to social determinants of health, as evidenced by the lower median household incomes (average \$46,276 vs. \$62,995) and higher poverty rates (average 27% vs. 16%) consistently observed across these sites.¹² The city of Indianapolis has well over 50 Health Resources and Services Administration (HRSA) funded clinic sites compared to the average eight sites across the regional campuses caring for these underserved populations.¹³ However, when adjusted for total city population, these numbers are about equivalent. At the main campus, students have long been able to interact with underserved populations through their student outreach clinic providing primary care services. Three of the eight regional campuses now have this opportunity as well, allowing students to engage further with their surrounding communities and explore barriers to care these underserved populations face.

Interestingly, all four of the level one trauma centers in Indiana are located in Indianapolis with the regional sites harboring level two and level three trauma centers.¹⁴ Despite this, regional students more frequently reported higher levels of self-entrustment performing acute care competencies. We pose this may be related to the increased hands-on experience that is frequently cited by regional students.⁵ Regional students also report appreciation for the direct access to attendings in the absence of

resident physicians and the opportunity to form closer bonds with their colleagues given the smaller class sizes.¹⁵ All of which may enhance the learning and training experience of regional students.

Regardless of what the reasons may be, our study supports that at Indiana University School of Medicine, students that trained at RMCs are equally well-trained during their third-year clerkships, as evidenced by their self-reported efficacy in the acute care competencies which aligns with recent Residency Readiness Surveys. RMCs are valuable and prepare students well for clinical practice. Furthermore, RMCs may alleviate the shortage of physicians in underserved areas as these trainees are more likely to practice primary care within their local communities.⁸

LIMITATIONS

This study was performed at a single institution with a limited sample size of 332 students which may limit the generalizability of its findings to a larger population. Institutional culture, curriculum structure and quality, and student demographics may vary widely across medical schools with regional campuses, and these factors may influence and confound both the development of student competencies and students' perceptions of their abilities. Additionally, the data collected in this study relied on student self-evaluation and therefore, may be affected by each students' own self-awareness and/or self-image; it is possible that students might overestimate or aggrandize their abilities on a survey submitted to medical school faculty, while others may diminish themselves.

CONCLUSION

Our study demonstrates regional medical students perceive themselves at least similarly and occasionally better prepared at the end of the clerkship year compared to students at the main campus. These findings support the efficacy of a multi-campus system to adequately prepare learners from all locations and suggest potential advantages to training at a RMC.

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