Physician Retention in the Same State as Residency Training: Data From 1 Michigan GME Institution

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ABSTRACT

Background In a time of threats to the funding for graduate medical education (GME) and projected physician shortages, drawing attention to the value of physician training programs may be useful. One approach is to study the number and percentage of physicians who enter practice in the state in which they trained.

Objective We sought to examine the percentage of graduates from a single Michigan-based GME institution over a 15-year period, who practiced medicine in Michigan during their career.

Methods We performed a retrospective review of historical data for all graduates currently in practice, derived from 18 GME training programs from 2000 through 2014. Practice location data were collected and confirmed using multiple sources for accuracy.

Results Data were available for 1168 graduates. The average age at the time of graduation was 32.6 ± 4.4 years (mean and standard deviation [SD]), and 60.2% were men (703 of 1168). There were 546 graduates (46.7%) who practiced in Michigan after graduation. Almost 80% of the graduates (279 of 358) who completed medical school and GME in Michigan also practiced in Michigan. Of those, 87.8% (245 of 279) also completed a bachelor's degree in Michigan.

Conclusions The findings show that graduates from our GME programs were highly likely to practice in Michigan if they completed their pre-GME education in Michigan.

Introduction

Graduate medical education (GME) training takes place in teaching hospitals and ambulatory offices under the supervision of practicing faculty physicians. These institutions make up approximately 6% of all of the hospitals within the United States.[1–3] Michigan alone has 52 GME training institutions or hospitals, ranking sixth in the nation, and educating just under 5000 residents per year.[4,5] In addition to providing a large amount of complex and acute patient care, one-fifth or more of all care that takes place in US hospitals occurs at teaching hospitals.[2,6]

These training sites provide a safety net for the uninsured and underserved, as well as many advanced services with the latest technology that nonteaching hospitals cannot provide.[1,2,6] These include burn units, pediatric and neonatal intensive care units, transplant services, and cardiac surgery.[1] Teaching hospitals also play a pivotal role in ensuring the physician workforce for the future by providing the clinical environment for training and supporting scholarly activity in the form of research, patient safety, and quality improvement projects.[6] These critical functions do not come without a price. Factoring in other costs to teaching hospitals outside of resident/fellow salaries and benefits (eg, more tests ordered, longer patient length of stay), the average cost of GME training is approximately $115,000 to $150,000 per resident or fellow per year.[7]

While GME is funded by multiple sources, the majority of dollars come from federal and state funding in the form of Medicare and Medicaid. There is bipartisan support for reducing Medicare costs, and cuts to GME funding are regularly proposed as a means to achieve this goal.[8,9] In addition, some states have reduced or proposed reductions in Medicaid support of GME, while others have eliminated this source of funding altogether.[5]

A reduction in GME funding could affect the number of newly trained physicians, which could exacerbate a projected physician shortage that is estimated to be 91 500 nationwide by 2020.[1] An additional consideration is that up to 33% of current practicing physicians are projected to retire in the next 5 years, further widening the gap between health care needs and the number of physicians available.[3,10]

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One method to provide supporting evidence for continuing Medicaid funding for GME is to demonstrate the value of retaining physicians within the community/state in which they completed their GME training. There are limited data available in the literature addressing in-state retention,[11–13] particularly as it relates to a single GME sponsoring institution. Thus, we analyzed the in-state retention rate of a single Michigan-based GME sponsoring institution by looking at the practice locations of graduates from its training programs over a 15-year period.

What was known and gap
One way to draw attention to the value of physician training programs is to study physician retention in the state in which trainees completed graduate training.

What is new
An analysis of the percentage of graduates from a single Michigan teaching institution who practiced medicine in Michigan.

Limitations
Single institution study; results may not generalize.

Bottom line
A significant portion of graduates entered practice in the state, and the likelihood increased for individuals who completed their pre-graduate medical education in Michigan.

Methods

Setting and Study Participants

A retrospective review of historical data was performed for all 2000–2014 graduates from the 18 GME training programs sponsored by Grand Rapids Medical Education Partners (GRMEP). GRMEP currently sponsors training programs in Grand Rapids, Michigan, for just over 300 residents and fellows in various specialties and subspecialties. Residents and fellows who graduated from 1 of our training programs, who went immediately into another training program (eg, additional training, fellowship), and who were still in training at the time of data collection, were excluded from the review. The rationale for this exclusion was that these individuals were still in a GME training program at the time of this review and were not in clinical practice at the time of data collection.

Data Sources and Study Variables

Data were obtained from the New Innovations database (Uniontown, OH) and GRMEP GME department records, as well as from other sources such as Google, social media (eg, LinkedIn, Facebook), as well as medical license verification and institutional websites available to the public. Study variables included residency/fellowship program specialty, gender, age at graduation, practice location immediately after graduation, 2014 practice location, institution/location where individuals completed their bachelor's degree, and undergraduate medical education.

The study was approved by the Spectrum Health Institutional Review Board prior to initiation. Due to the retrospective nature of the study, a waiver of consent was granted.

Analysis

Summary statistics were calculated for the data; quantitative data are expressed as the mean and standard deviation, and nominal data are expressed as percentages.

Results

The data set included 1296 graduates, and of these, 1168 (90.1%) met the criteria for inclusion. There were 128 residents and fellows who went on to another training program, who were still in training at the time of data collection, and subsequently were excluded from review. Demographic and educational data are shown in TABLE 1. The majority of graduates were men, and the average age at the time of graduation was 33 years. Primary care program graduates (defined as family medicine, internal medicine, internal medicine-pediatrics, and pediatrics) made up slightly more than 40% of graduates. About one-third of the graduates attended medical school in Michigan, and one-fourth completed both their undergraduate and MD/DO degree in Michigan.

An examination of practice location immediately after graduation was performed, excluding 391 graduates who went into a fellowship or another residency program following graduation (TABLE 2). Michigan as a practice location immediately after graduation was the choice for more than half of the graduates (396 of 777), and more than half of primary care graduates (247 of 415) located their practice in Michigan immediately after training.

Just under half (546 of 1168) of our sample practiced in Michigan at some point during their career (TABLE 3). Almost 80% (279 of 358) of the graduates who completed medical school in Michigan practiced in Michigan, and nearly 90% (245 of 279) of that cohort also had completed a bachelor's degree in Michigan. Of the primary care graduates, almost 60% (284 of 476) practiced in Michigan during their career as a physician. Graduates who were practicing in Michigan in 2014 were further reviewed, excluding graduates who had died prior to 2014 or who had reentered training during 2014. As of fall 2014,

TABLE 1
Demographic and Educational Information

Variable	Value (N = 1168)
Age at graduation (y)[a,b]	32.6 ± 4.4
Gender (male : female)	703:465
Obtained medical degree in Michigan	358 (30.7%)
Obtained undergraduate and medical degrees in Michigan[c]	300 (25.7%)
Primary care specialties	476 (40.8%)
Family medicine	133 (11.4%)
Internal medicine	160 (13.7%)
Internal medicine/pediatrics	49 (4.2%)
Pediatrics	134 (11.5%)

[a] Data are shown as the mean ± SD.
[b] N = 1166.
[c] N = 1167.

41.3% (479 of 1161) of GRMEP graduates were currently practicing in Michigan. Of this group, 36.7% (176 of 479) were employed by 1 of the teaching hospitals at which they completed their training. For graduates who practiced in Michigan immediately after graduation, 85.8% (315 of 367) were practicing in Michigan in 2014 (the 24 graduates from 2014 who were practicing in Michigan after graduation were excluded from this percentage).

Discussion

Our data show that over 45% of graduates from GRMEP GME programs have practiced medicine in Michigan at some point following graduation. Additionally, almost 60% of primary care graduates have practiced medicine within the state. This information on retention indicates that 1 of the advantages of providing GME training is the development and education of future physicians who are likely to practice in the state in which they trained.

These data are important to consider, as in recent years there have been several bills introduced in the US Congress to reduce GME payments.[8] A reduction in, or elimination of, funding for GME programs would put more of a financial burden on teaching hospitals. This could adversely affect the supply of US physicians by forcing teaching institutions to reduce or cut GME programs and/or eliminate services not available elsewhere in the community.[3,14] These types of reductions, in an era when health care access is an issue, may adversely affect the quality of medical care in the nation.[3,10]

Our findings suggest that more attention may need to focus on the importance of in-state retention of GME graduates. Teaching hospitals may experience significant savings through the recruitment of graduates from their programs, through reduced recruit-

TABLE 2
Practice Location After Graduation[a]

Variable	Value, n (%)
Michigan as a practice location immediately after graduation[b]	396 (51.0)
Obtained medical degree in Michigan[c]	207 (52.3)
Obtained undergraduate and medical degrees in Michigan[c]	185 (46.7)
Primary care graduate[b]	415 (53.4)
Michigan as a practice location immediately after graduation[d]	247 (59.5)
Family medicine[e]	77 (31.2)
Internal medicine[e]	79 (32.0)
Internal medicine/pediatrics[e]	31 (12.6)
Pediatrics[e]	60 (24.3)

[a] Graduates (33.5% [391 of 1168]) who went into a fellowship or another residency program after graduation were excluded for the purpose of this analysis.
[b] N = 777.
[c] N = 396.
[d] N = 415.
[e] N = 247.

TABLE 3
Michigan as a Practice Location

Variable	Value, n (%)
Michigan as a practice location at some point after graduation[a]	546 (46.7)
Obtained medical degree in Michigan and practiced in Michigan[b]	279 (77.9)
Obtained undergraduate and medical degrees in Michigan and practiced in Michigan[c]	245 (87.8)
Primary care graduate[a]	476 (40.8)
Michigan as a practice location at some point after graduation[d]	284 (59.7)
Family medicine[e]	84 (29.6)
Internal medicine[e]	88 (31.0)
Internal medicine/pediatrics[e]	37 (13.0)
Pediatrics[e]	75 (26.4)

[a] N = 1168.
[b] N = 358.
[c] N = 279.
[d] N = 476.
[e] N = 284.

ment costs, faster integration into practice, and increased familiarity with both the institutional culture and electronic health record.[15] In addition, a method to assess the value of in-state retention of GME graduates for state governments could be to evaluate the number of physicians who train at GME teaching institutions who stay or return to practice in the same state.

According to the Association of American Medical Colleges' Center for Workforce Studies, 44% of Michigan GME graduates were considered active physicians in Michigan in 2014, and 67% of active physicians who completed both GME and undergraduate medical education in Michigan practiced in Michigan in 2014.[4] Our data showed that almost 80% of GRMEP GME graduates who practiced in Michigan after training graduated from a Michigan-based medical school, and that nearly 90% of these also had obtained a bachelor's degree in Michigan. New York showed similar findings in a study conducted in 2014, showing that for physicians who had confirmed practice plans, just under half (45%) were planning to practice in New York. A high percentage (80%) of the respondents who were staying in New York had strong ties to the state, having attended both high school and medical school in New York.[11]

The similarity of findings is encouraging, suggesting our findings may be generalizable to other training programs in Michigan, as well as other states. Our results may be useful to other institutions who wish to demonstrate the inherent value at the community and state level in supporting GME training at teaching hospitals.

Limitations of the study include its retrospective nature and the fact that not all graduates had complete data for all study variables. In addition, there were 128 residents and fellows who were still in training at the time of data collection and could not be included in our data set. Although this study addressed in-state retention, the focus was not on the reason for retention or the geographic distribution of graduates. Further studies should address these important issues.

Conclusion

Our findings show that nearly 50% of graduates from a single Michigan GME institution chose Michigan as a practice location, and graduates were highly likely to practice in Michigan if they completed their pre-GME education in the state.

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