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The Associations Between United States Medical Licensing Examination Performance and Outcomes of Patient Care

Norcini J, Grabovsky I, Barone MA, Anderson MB, Pandian RS, Mechaber AJ. Acad Med. 2023 Oct 9. PMID: 37816217

This interesting study merges a hot topic (relevance of USMLE scores) with future-focused thought (assessment of physician performance based on their patient outcomes). The transition of USMLE Step 1 reporting to pass/fail has re-ignited the debate about whether the USMLE examination is a good predictor of resident or physician performance, and whether its use in residency selection does more harm than good. Simultaneously, as we move to competency-based medical education, it's become increasingly clear that we must incorporate patient-focused outcome measures while assessing resident performance or evaluating residency programs.

In this study, the authors obtained data for all patients hospitalized in Pennsylvania with Acute MI, heart failure, pneumonia, COPD or stroke between 2017 and 2019. They identified the attending physician of record on these patients (limiting to general IM or FM physicians), then created a composite measure of USMLE Step 1, Step 2CK and Step 3 for each physician. After adjustments for confounders such as patient comorbidities and physician volume, they calculated the relationship between USMLE performance and patient mortality, and USMLE performance and patient LOS. The final data set had 196,881 hospitalizations cared for by 1,765 attendings. Higher USMLE performance was associated with lower patient mortality (odds ratio 0.94 [95%CI 0.90 – 0.99]) and shorter LOS (log LOS 0.99 [0.98 – 0.99]). Extrapolating these data would imply a 22% difference in mortality between the best and worst USMLE performers, and a 2-hour difference in LOS for every 1 standard deviation of change in USMLE performance.

The authors outline several limitations of this study, and conclude that standardized assessments may still have a role in physician training. They re-emphasize the importance of designing an educational system focused on outcomes, leveraging assessment results for feedback and performance improvement, complemented by high-stakes examinations with validity evidence related to patient outcomes.

-Nikhil Goyal, MD

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Quarterly Medical Education Update



Program Misrepresentation in the Doximity Residency Navigator

Smith SC, Abramowicz AE. J Grad Med Educ. 2023 Aug;15(4):436-438. PMID: 37637336

Doximity is a private, for-profit online networking service for medical professionals. One of its resources frequently used by senior medical students is the Doximity Residency Navigator (DRN), which provides basic information about residency programs across the United States. The DRN collects its information from physician alumni profiles, and utilizes surveys to create a reputation-based ranking system of all residency programs within a specialty.

In 2022, the Westchester Medical Center anesthesiology residency program noticed inaccuracies in their DRN profile, prompting them to investigate Doximity profiles for all their graduates from the previous 10 years. They found that 65% of their graduates' profiles contained errors, such as not having their training center listed under confirmed alumni (42%), and inaccuracies regarding alumni fellowship training (30%). Other errors include lack of medical school affiliation, incorrect residency program affiliation, or lack of a profile altogether. Aggregate information in the DRN can only be corrected by prompting individual alumni to complete or correct their profile, and the residency program determined that directing their graduates toward a private, for-profit media platform was coercive and unethical.

Significant errors in the DRN, along with multiple potential avenues for bias in the reputation-based ranking system utilized by Doximity, call into question the validity of this online resource. Authors encourage other residency programs to educate senior medical students about the pitfalls of Doximity, and encourage the use of non-profit resources such as the Association of American Medical Colleges Residency Navigator Tool or the Texas STAR database.

- Anthony Dikhtyar, MD (PGY-1) / Carmen Wolfe, MD



Characteristics of Emergency Medicine Residency Programs With Unfilled Positions in the 2023 Match

Preiksaitis C, Krzyzaniak S, Bowers K, Little A, Gottlieb M, Mannix A, Gisondi MA, Chan TM, Lin M. Ann Emerg Med. 2023 Nov;82(5):598-607. PMID: 37436344

As we all know, the 2023 Match was a disappointment for Emergency Medicine with 541 (18.3%) of PG-1 spots initially unfilled across 131 (41%) programs. Also of concern, though overall numbers of applicants increased across specialties, there was a decrease in EM applicants. Certainly, the causes are multi-factorial with the steady increase in positions over recent years being a significant driver. The authors undertook the important task of investigating the underlying causes in order to improve the future and anticipate upcoming challenges with recruitment. The study aim was to explore specific program characteristics as they related to unfilled positions.

Using a cross-sectional, observational approach, publicly available data from the NRMP Program Results from the 2019-2023 Main Residency Match was examined to determine the number of positions filled vs. available by program. Informed by prior data and consensus opinion, 9 program factors were then chosen for analysis: program size (11 being the midpoint), hospital type (university, county, community), program length, geographic location (using previously identified categories from FREIDA), proximity to other programs, program age ("new" being determined as after 2014), initial accreditation as AOA, ownership structure (corporate, partnership, health-system) and fill status for 2022. Using various statistical methods, the data was analyzed for correlation between the above factors and likelihood of not filling. Longitudinal data from 2015-2023 was also examined to look at applicant numerical trends.

Notably, the findings were that the average number of applicants from 2015-2020 compared to

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2022-2023 were not markedly different (2021 saw the largest number and was considered an outlier). However, from 2015-2023, the number of PG-1 positions available/year grew on average by 149/year (a 65% increase). Of the 9 program variables examined, 6 were associated with unfilled positions, listed by decreasing order according to odds ratios: having unfilled positions in the 2022 match, smaller program size, location in Mid-Atlantic area, prior AOA accreditation, location in East North Central area, and corporate ownership. Program length, proximity to other programs, and program age were not statistically significant.

The authors were careful to point out this data was only for 2023 and therefore, relevant to only that year. They were unable to account for other key variables such as program reputation and culture. They also noted the fact that although 99.6% of unfilled positions had at least one of the 6 factors, many other programs that did fill also shared some of these factors. Though sweeping conclusions cannot be drawn, this is a starting point for further studies and may help inform programs' student advising and recruitment efforts.

-Amy Stubbs, MD



Feedback in Medical Education: An Evidence-based Guide to Best Practices from the Council of Residency Directors in Emergency Medicine

Natesan S, Jordan J, Sheng A, Carmelli G, Barbas B, King A, Gore K, Estes M, Gottlieb M. West J Emerg Med. 2023 May 5;24(3):479-494. PMID: 37278777

Feedback within medical education is an invaluable tool to promote growth and focus on tangible examples while on shift for learners' improvement. Within the Emergency Department (ED), delivery of feedback poses difficulties due to time constraints, patient acuity, workflow, and continuous interruptions. This paper outlines expert guidelines in giving feedback in the ED based on the Council of Residency Directors in Emergency Medicine Best Practices Subcommittee (CORD-EMBPS) after a review of available literature.

The review describes that feedback should be given in nonjudgmental language with an emphasis on actions and behaviors while on shift. Delivering feedback independent of the learners' judgment allows for alleviation of the shame response which opens the learners to acceptance of feedback.

The review emphasizes timely feedback and notes that it increases the likelihood that feedback will be assimilated by the learner. Real time feedback has been shown to be more effective and specific to help the learner improve their performance. The optimal frequency of feedback is unknown though experts recommend that supplementary feedback may be required for current generation of learners. Overall, learners have shown they prefer quality over quantity of feedback.

This paper outlines techniques and tools needed for providing feedback. At the present time there is no agreement on what the best methods are for giving feedback and there is no formal consensus by educational bodies for a solitary design. A variety of techniques that are personalized to individual learners or circumstances may improve feedback response and positive behavior changes.

In order for learners to incorporate feedback there should be a culture of soliciting feedback in each ED program for learners. The culture of feedback as described by the authors review are dependent on four factors: purpose and quality of feedback as well as learner-evaluator relationship and learners' emotional response to feedback. A positive environment for giving feedback has been shown to increase learners' acceptance of feedback and a common example is use of end of shift feedback evaluation. While the end of shift feedback has not been shown to provide high quality feedback, residents have shown satisfaction with this environment of feedback. The CORD-EMBPS evidence-based recommendations include:

1. Feedback should be clear, specific, timely, and actionable. (Level 1a, Grade B)
2. Feedback should be based on observed behaviors. (Level 3b, Grade B)
3. Both corrective and reinforcing feedback should be provided to learners, although not necessarily at the same time. (Level 4, Grade C)
4. Feedback tools are recommended to increase learner satisfaction and volume of feedback; however, the use of tools must be combined with faculty development and a culture of feedback to improve the quality of feedback. (Level 3b, Grade C)
5. Feedback should incorporate learner self-assessment. (Level 3b, Grade C)

The use of the tools and guidelines in this paper should aid educators in giving effective, nonjudgmental, and corrective feedback while on shift to the future ED providers in training.

-Brandon O'Keefe, MD (MedEd fellow)

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A costly threat to GME: the housing crisis and residency training

Drezdzon, M.K., Cowley, N.J., Sweeney, D.P. *et al.* A costly threat to GME: the housing crisis and residency training. *Global Surg Educ* 2, 85 (2023). PMID: n/a

One of the most important known factors that contribute to medical students' decisions on where to match for residency is geographic location. What might not be considered in that important decision is the cost of rent or mortgage in those areas and what a significant financial impact that can have on residents. The authors of this paper sought to investigate this possibly unrecognized issue given the fact that housing costs are rapidly outpacing resident salary growth. Average national rent rose by 19.3% from 2020 to 2021 with a similar increase seen in home prices (18.8%). Contrast these rises in housing costs to the very small increase in mean first-year resident stipends of just 0.6% over the same period.

The authors looked at 97% of surgical residencies across the United States and obtained salary data from online searches using 2021-2022 PGY1 data. A major city was defined if a program had 40 or more first year positions. California programs with housing stipends were also considered and those groups were considered separately. Fair market rents for 1 and 2 bedrooms and mortgage estimates were obtained from national sources. Affordability was defined by the authors as spending <30% of income on housing expenses.

Average first year stipend was \$60,064 +/- \$4233. Nationally, the percentage of average income needed for 1 bedroom, 2 bedroom or a mortgage was 19%, 23% and 32%. In the 10 major cities identified in the study, those costs began to rise to 26%, 32% and 57% respectively. What was even more shocking was that in 4 of the cities even a 1 bedroom was unaffordable and in 5 cities 2 bedrooms were unaffordable. In the majority of the cities studied, mortgage payments were also unaffordable. The worst locations for residents renting a

1 bedroom were Washington, DC and California. With stipends considered in California, percentage of rent costs dropped from 32% to 27%.

When considering 2 bedrooms, unaffordable states expanded to now include Washington, New York, Massachusetts, New Jersey and Hawaii. The authors provide more detail about the top ten cities including suggested annual income in order to afford 1 bedroom, 2 bedroom or mortgage payments. In Boston for example, resident salaries would need to be closer to \$80,000, \$95,000 and \$170,000 in order to afford 1 bedroom, 2 bedroom or mortgages, respectively. This study noted that by investigating only large programs, it does leave out other areas where rents may be higher in the urban setting using Burlington, VT as an example where rent is 1.3X higher than other areas of the state.

Given the similarity in emergency medicine (EM) resident salaries, this issue is also relevant to EM. When people spend more than 30% of their income on housing other areas suffer such as food and medical expenses. With additional expenses often arising, this can lead to an increase in personal debt for the resident. All of these things contribute to a detrimental effect on resident well-being. Living farther away from the hospital is also not a solution as increased commute times also affects well-being.

Some solutions are housing stipends as seen in California, but the authors also suggest that wages need to rise proportionally as well. Housing costs cannot be controlled by residency programs or GME, but resident compensation can be improved by those entities. Without a change in the current trends, financial stress will only increase for residents leading to a ripple effect on resident wellness.

-Christopher Sampson, MD

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