This study aimed to characterize longitudinal clinical programs (LCPs) in US medical schools and measure associations among programmatic structures and goals. A systematic keyword search of US medical school websites was used to identify LCPs. Program characteristics and goals were extracted and categorized, and associations among programs’ structures and goals were evaluated. Further research is necessary to determine the significance of these associations and clarify how specific program structures relate to desired goals and outcomes.

ABSTRACT BODY:

Purpose: This study aimed to characterize longitudinal clinical programs (LCPs) in US medical schools and measure associations between programmatic structures and goals. While recent typologies have characterized LCPs in Canada [1], and worldwide [2], no such study has assessed the landscape of LCPs for medical students in the US.

Methods: We conducted a systematic keyword search of the websites of 137 LCME-accredited US medical schools to identify LCPs. The study included programs that offered student-patient interactions over a period of at least six months and had a stated emphasis on longitudinality. The authors used an iterative, consensus-building framework to categorize programs and measure relationships among programs’ structures and goals. Associations were evaluated using the Chi-square test for independence.

Results/Outcomes: The study identified 98 LCPs in 69 schools. Sixty percent (59/98) of the programs lasted one year or less in duration and 52.0% (51/98) took place in the clinical years of training. Program structures included “clinic attachments” (49/98, 50.0%), “longitudinal integrated clerkships” (LICs; 26/98, 26.5%), and “patient attachments” (20/98, 20.4%). Programmatic goals, identified in 90.8% (89/98), included “exposing students to specific topics, patient demographics, or practice settings” (70/89, 78.7%); “clinical or professional skill development” (58/89, 65.2%); “fostering longitudinal relationships” (29/89, 32.6%); and “understanding the patient experience” (17/89, 19.1%). Patient attachments were found to be significantly associated with “exposure to specific patient demographics” (p=0.04) and “understanding the patient experience” (p=0.03). Pre-clinical programs were significantly associated with clinical skills development (p=0.01).

Discussion: At least half of US medical schools currently offer LCPs meeting our criteria. Programs differed in structure, type, length, curricular integration, rate of student participation, and phase of training. We found associations between characteristics of program structure and goals that imply a degree of coherence across longitudinal programs. "Patient attachment” programs were more likely than other types to emphasize specific patient demographics and support the goal of understanding the patient experience [3]. "Clinic attachments” and LICs were found to place an emphasis on primary care exposure and recruitment, consistent with literature demonstrating that LICs support the primary care workforce [4]. Few of the LCPs had the explicit goal of longitudinality. It may be that educational planners do not view longitudinality as an end in and of itself, but rather as a process by which to achieve other ends [5]. Further research is necessary to clarify the role of longitudinality and understand how specific program structures relate to desired goals and outcomes. This may allow educators and curriculum designers to take a rational, evidence-based approach to program design in the future.

Significance: We have identified several associations between program structures and goals. More research is needed to determine the significance of these associations and to clarify which program structures are most effective for achieving particular educational, developmental, or workforce goals. If education leaders turn towards longitudinal clinical programs to address deficiencies in existing curricula, it is important that the design and implementation of such programs be guided by educational principles, process- and outcomes-based research, and the needs of learners, patients, and society.

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How do Faculty Ratings and Student Self-Evaluations of EPAs Compare?

Christopher Feddock

Highlights in Medical Education

Purpose: Although common wisdom suggests medical students have a limited ability to self-assess, previous studies have shown correlations between medical student self-assessment and final clerkship grades (1, 2). However, students may be a better judge of certain skills over others. In a study of over 1,000 students on an obstetrics and gynecology clerkship (2), self-assessment was more accurate when students judged their written and verbal skills compared to their fund of knowledge and personal attributes. These prior studies focused on competency based assessments of broad areas (fund of knowledge, communication, professional behavior, etc.). Medical education has now progressed from a focus on broad areas of competency to Entrustable Professional Activities (EPAs). This new system is purported to provide a more transparent picture of student work that is better understood by both learners and teachers alike (3). We examined how student self-assessment of their clinical activities using EPAs compared to faculty EPA assessments.

Approach/Methods: During the 2015-2016 academic year, the 12-week internal medicine and 8-week pediatrics clerkships piloted an EPA-based faculty evaluation of student performance. Evaluations were completed after each block of faculty-student interactions, occurring approximately every 2 weeks throughout each clerkship. At the midpoint in each clerkship, students completed a self-assessment using an identical list of EPAs and the entrustment scale.

Faculty evaluations of student and student self-assessments both rated six EPAs: Obtain an interval history for a patient being seen in follow-up; Develop a prioritized differential diagnosis and select a working diagnosis following a patient encounter; Develop a diagnostic plan for a common clinical presentation; Develop a basic treatment plan for common clinical conditions; Provide accurate and concise documentation; Provide an oral presentation of a patient encounter. Both evaluation tools elicited ratings of student performance on a 1-4 scale. The faculty tool utilized an entrustment scale (1=cannot perform, 2=requires close supervision, 3=requires minimal supervision, 4=performs independently) whereas the student tool utilized descriptors for each entrustment category describing the qualities that faculty generally consider to underpin a specific level of entrustment. For the six EPAs, we compared each student’s self-rating with the mean entrustment rating assigned by the multiple faculty with whom the student worked.

Results/Outcomes: For both the internal medicine and pediatric clerkships, faculty rated students higher (p<.05) than students rated themselves on diagnostic plans (3.06 vs. 2.88), treatment plans (3.13 vs. 2.86), and oral presentations (3.33 vs. 3.15). Conversely, students rated themselves higher (p<.05) than faculty rated them on documentation (3.32 vs. 3.21) and history taking (3.39 vs. 3.32). There were no significant differences between faculty and student ratings on differential diagnosis (3.04 vs. 3.08).

Discussion: A student self-evaluation as part of the midpoint formative feedback process provided a different perspective on clinical performance compared to faculty evaluations. Although several reasons may underlie the differences in faculty and student ratings, we posit that students feel more competent with (and thus rate themselves higher on) skills that they believe they have mastered through prior instruction and assessment, while they feel less competent with (and thus rate themselves lower on) novel skills.

Significance: In our study, student self-assessment of EPAs differed significantly from their actual faculty evaluations. Further study of the reasons for these differences is critical to providing effective feedback to medical students. In addition, educators may consider briefly revisiting and reemphasizing the skills learned early in the medical curriculum (e.g. doctoring courses) at the outset of the clinical clerkships when students can better put the skills in context.

Purpose: The specialties that medical students choose to pursue have significant downstream effects on the availability of physicians, which in turn reduces the efficiency of health systems. Over the past several decades, medical students and residents have increasingly gravitated toward careers that they perceive to be more 'lifestyle-friendly' as well as careers that are more specialized.1,2 Despite the importance of understanding specialty choice, little data exists on this topic. This study sought to better understand how medical student specialty preferences change during medical school and how specialty selection relates to lifestyle preferences and demographic factors.

Approach/Methods: First-year medical students were surveyed about lifestyle and specialty preferences in the fall of 2012. These same students were surveyed again in the spring of 2016 of their fourth year, following the National Residency Matching Program's Main Residency Match. Medical students from a nationally representative sample of 10 medical schools were invited to participate. The survey contained 36 items and included sections on specialty preferences, perceptions of what creates a good physician lifestyle, and demographic, educational, and debt burden data. Data from 2012 and 2016 were paired for each student by using a unique identifier provided by the student.

Results/Outcomes: The 2012 survey response rate was 65% (997/1530), the 2016 response rate was 50% (788/1575), and the paired response rate was 29% (351/1226). Compared with national medical student demographics, participants in the matched data were significantly younger (p<0.01) and there were significantly more females (p<0.01). Other demographic characteristics were not significantly different. Sixty-five percent of students in the paired sample switched specialty preferences. There was variation between specialties in the number of fourth year students who maintained the same specialty preference. For example, 75% of fourth-year students interested in Orthopedics had expressed the same specialty interest in their first year; this number was 60% for Pediatrics, 20% for Internal Medicine, and 0% for Pathology. There were no significant differences in lifestyle preferences for students whose specialty preferences remained constant between the first and fourth year compared to those whose preferences changed. Ethnicity was the only significant demographic difference between these two groups (p=0.01). Twenty-four percent of non-white students reported a stable specialty preference in their first and fourth years, while 40% of white students reported the same specialty preference.

Discussion: The overall rate of specialty preference switching in this study was consistent with older studies,3,4 however the specialties that students most often switched into and out of were different. The variety of trends found across specialties suggests that factors contributing to these trends may differ for each specialty. Our results suggest lifestyle factors may not contribute to the overall stability of specialty selection, although specialty-specific trends may exist. Finally, our results uncovered an association between ethnicity and specialty preference stability.

Significance: This study is the first to investigate demographic and lifestyle preference associations with specialty preference stability. Our results point to the importance of further investigation into specialty-specific selection trends. Additionally, the association between specialty preference stability and ethnicity warrants future research.

2. West CP, Dupras DM. General medicine vs subspecialty career plans among internal medicine residents. JAMA.2012;308(21):2241-2247.
Purpose: With more medical school using the Entrustable Professional Activities (EPAs) as a framework for competency it is unclear if grading systems beyond pass/fail are necessary. However, a pass/fail clerkship grading system is in conflict with residency program selection, which place great emphasis on “honors” in a program specific clerkship (1). The main purpose of this study was to determine if there is an honors level of entrustment for grading in a required fourth year clinical care clerkship and if this decision is conceptualized as a norm- or criterion-referenced standard by faculty and resident raters. It is important to understand how raters conceptualize honors because norm-referenced standards are not typical in a competency-based framework. The secondary purpose of this study was to characterize the domains of performance in which honors students stand out from non-honors students as perceived by faculty and resident raters.

Approach/Methods: In AY2015-16 the major assessment of the University of Utah School of Medicine critical care clerkship was a global rating form (GRF) aligned with EPAs 1-3, 5-6, 9. The form also asked: Does this student perform at an honors level? If so, what distinguishes the student from a non-honors student?. An average GRF score was computed and compared between forms indicating a student performed at an honors level to forms not indicating honors with the Mann Whitney U test. Education researchers independently coded all qualitative responses by (1) any reference to norm- or criterion-referenced standards for determining honors and (2) EPA or non-EPA topics based on grounded theory for the later categorization. Definitions and phrases for norm- and criterion-referenced standards guided the coding. Any disagreement was discussed till consensus was reached between the researchers.

Results/Outcomes: There were 99 global rating forms completed on 81 students. Fifty-six of the forms indicated honors level performance. Average global rating form scores (0-4 scale) were significantly higher on forms indicating honors (3.5) compared to forms not indicating honors (2.9), $P < 0.001$. Additionally, when honors was indicated 20% of the forms described students’ performance in terms of norm-referenced standards while the other 80% were based on criterion-referenced standards. The top five topics mentioned for honors students were work ethic (mentioned on 25% of 56 forms), patient-centered care (21%), EPA9-teamwork (21%), active learning (18%) and fund of knowledge (16%).

Discussion: Ratings were half a point higher for students performing at the honors level compared to students not at the honors level, but this difference did not translate into moving from one category to the next on the global rating form. Most faculty and residents used criterion-reference standards to determine who was an honors student. However, with the exception of teamwork, what distinguishes an honors student from a non-honors student is not necessarily captured in the EPAs.

Significance: Assessments aligned with EPAs may not accurately capture the honors fourth year clerkship student as conceptualized by faculty and resident raters. More large-scale research is needed before it can be determined if the honors grade is warranted in a competency based framework.