Influence of Clinical Experience and Productivity on Emergency Medicine Faculty Teaching Scores

BRIAN CLYNE, MD
JESSICA L. SMITH, MD, FACEP
ANTHONY M. NAPOLI, MD

Abstract

Background Commonly cited barriers to effective teaching in emergency medicine include lack of time, competing demands for patient care, and a lack of formal teaching experience. Teaching may be negatively affected by demands for increased clinical productivity, or positively influenced by clinical experience.

Objective To examine the association between faculty teaching scores and clinical productivity, years of clinical experience, and amount of clinical contact with resident physicians.

Methods We conducted a retrospective, observational study with existing data on full-time faculty at a high-volume, urban emergency medicine residency training program for academic year 2008–2009. Residents rated faculty on 9 domains of teaching, including willingness to teach, enthusiasm for teaching, medical knowledge, preparation, and communication. Clinical productivity data for relative value units per hour and number of patients per hour, years of clinical experience, and

annual clinical hours were obtained from existing databases.

Results For the 25 core faculty members included in the study, there was no relationship between faculty teaching scores and clinical productivity measures (relative value units per hour: $r^2 = 0.01$, $P = .96$, patients per hour: $r^2 = 0.00$, $P = .76$), or between teaching scores and total clinical hours with residents ($r^2 = 0.07$, $P = .19$). There was a significant negative relationship between years of experience and teaching scores ($r^2 = 0.27$, $P < .01$).

Conclusions Our study demonstrated that teaching scores for core emergency medicine faculty did not correlate with clinical productivity or amount of clinical contact with residents. Teaching scores were inversely related to number of years of clinical experience, with more experienced faculty earning the lowest teaching scores. Further study is necessary to determine if there are clinical measures that identify good educators.

Introduction

The character traits of effective teachers are well described in the literature and include enthusiasm, patience, approachability, medical knowledge, and communication skills.^{1–4} Commonly cited barriers to effective teaching include lack of time, competing demands for patient care (increasing patient volumes, emergency department overcrowding, high patient expectations), and a lack of formal teaching experience.^{5–7} Pressure to generate revenue

through increased clinical productivity may also compromise clinical teaching.^{8,9}

Few studies examine the relationship between emergency medicine (EM) faculty clinical productivity and resident teaching scores. Two prior studies^{8,10} examined this relationship with medical student evaluators. Educational needs of medical students and residents in the emergency department may differ, with students requiring more basic medical instruction and residents needing more clinical guidance. One small study¹¹ examined the relationship between perceived faculty clinical workload and resident teaching scores, but examined only 1 measure of clinical productivity. In these studies there was no significant relationship between teaching scores and productivity, which suggests that despite clinical demands, faculty can be highly rated teachers.

Prior studies did not focus exclusively on the relationship between core EM faculty and residents and they did not use multiple measures of faculty productivity. Our study's main objective was to examine the relationship between faculty productivity and resident teaching scores

All authors are in the Department of Emergency Medicine at Alpert Medical School of Brown University, Rhode Island Hospital. **Brian Clyne, MD**, is Assistant Professor; **Jessica L. Smith, MD, FACEP**, is Assistant Professor; and **Anthony M. Napoli, MD**, is Assistant Professor.

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Corresponding author: Brian Clyne, MD, Department of Emergency Medicine, Alpert Medical School of Brown University, Rhode Island Hospital, Claverick 274, Providence, RI 02903, 401.444.4247, bclayne@lifespan.org

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by using widely accepted productivity metrics. A secondary objective was to examine the relationship between teaching scores and faculty experience as well as with the degree of resident contact. We hypothesized that highly rated teachers would have lower clinical productivity, more years of clinical experience, and a higher degree of clinical contact with residents.

Methods

This was a retrospective, observational study of existing teaching scores and faculty data compiled between July 2008 and June 2009. The study site's Institutional Review Board approved the research protocol, including waiver of informed consent.

The study population consisted of core EM faculty members at an urban, academic emergency department with an annual patient volume of 100 000 adult visits. The EM residency is a 4-year program with 48 residents. Core faculty, as defined by the Accreditation Council for Graduate Medical Education Program Requirements,¹² were included and noncore faculty, part-time faculty, fellows, and faculty not present for the entire study period were excluded.

Teaching scores were obtained from anonymous, biannual resident evaluations of EM faculty. Residents evaluated faculty with a survey adapted from previously validated instruments,^{13,14} using a 5-point Likert scale (1 = low performance and 5 = high performance) to rate teaching enthusiasm, preparation, availability, ability to provide feedback, clinical knowledge, professionalism, communication skills, role modeling, and adherence to evidence-based care. Overall mean teaching scores were established for each faculty member by using these evaluations. Clinical productivity data, represented by relative value units (RVUs) per hour and number of patients per hour, were obtained from an existing database. Level of faculty experience was determined by calculating the number of years in clinical practice since completion of residency or fellowship training. Resident contact was defined as the overall number of clinical hours worked at the primary teaching site in the study year. All data were compiled and deidentified by a department administrator who was blinded to the study hypotheses.

Data were analyzed by using standard descriptive statistics (means, medians, interquartile ranges). Linear regression was performed to examine the relationship between clinical teaching scores and measures of clinical productivity, clinical hours, and experience.

Results

Twenty-five core faculty members were identified and included in the analysis. The median number of evaluations

What was known

Barriers to effective teaching in emergency medicine include lack of time, competing patient care demands, and lack of formal training for teaching.

What is new

A study of the association between teaching scores and other relevant parameters found a negative relationship between years of experience and teaching scores.

Limitations

Single-site, single-specialty study may limit generalizability; short follow-up period may fail to capture long-term trends; resident evaluations may not fully capture teaching effectiveness.

Bottom line

Emergency medicine faculty teaching scores did not correlate with clinical productivity or the amount of contact with residents, but revealed an inverse relationship between scores and years of experience, contradicting common perceptions.

received for faculty was 70 (range, 32–88). The total number of missing responses was less than 1% for the entire study group. Mean faculty teaching score was 4.44 (range, 3.7–4.9; SD, 0.35), mean number of patients per hour was 2.25 (range, 1.96–2.58; SD, 0.20), mean RVUs per hour was 7.19 (range, 6.16–8.26; SD, 0.64), and mean number of hours worked annually at the primary teaching site was 771 (range, 325–1310 hours, SD, 259 hours); median years of experience was 8 (range, 3–25 years; interquartile range, 4–13.3 years).

There was no significant relationship between faculty teaching scores and number of patients per hour ($r^2 = 0.00$, $P = .76$) or RVUs per hour ($r^2 = 0.01$, $P = .96$). There was also no relationship between teaching scores and total clinical hours worked ($r^2 = 0.07$, $P = .19$). There was a significant negative correlation between years of experience and teaching scores ($r^2 = 0.27$, $P < .01$) with a decrease of 0.27 points (95% confidence interval, 0.1–0.46) for every 10 years of experience (FIGURE).

Discussion

Clinical teaching remains the cornerstone of graduate medical education. Finding ways to evaluate and identify the characteristics of effective educators is increasingly important, particularly in emergency medicine where time pressures are the norm. This is the largest emergency medicine study to demonstrate no association between clinical productivity and teaching, using multiple measures of productivity. It is the only study of its kind to focus on the relationship between residents and core faculty in a high-volume emergency department, and to demonstrate that teaching evaluations are inversely associated with years of faculty experience.

FIGURE

LINEAR REGRESSION OF TEACHING SCORES AND TOTAL YEARS OF CLINICAL EXPERIENCE

Clinical productivity was not associated with teaching scores, a result consistent with prior studies. This may be because clinical teaching, and its evaluation, is based on complex behaviors, individual personality traits, learner preferences, and subjectivity. Alternatively, this may support heterogeneity in the interplay between teaching and clinical productivity; for some faculty members, clinical productivity may indeed detract from teaching, while others may find efficiency in clinical practice and in education as complementary tasks. Highly rated instructors may be better at streamlining information, focusing on brief “pearls,” or using prepared scripts—all effective teaching strategies in busy environments and highly valued by learners in the emergency department.⁴ Consistent with this notion, we found a subgroup of faculty members who demonstrated high performance in both teaching and productivity. Identifying specific practice habits and interpersonal traits of these individuals may help improve resident education in an era of increasing clinical demands.

No relationship was found between teaching scores and the amount of clinical contact with residents. In most programs, the clinical workload among core faculty is highly variable, some with nearly double the clinical hours and others with large administrative or research roles. Our findings suggest that faculty can have a high impact on learners and receive good teaching evaluations despite having significant nonclinical responsibilities.

The inverse relationship between faculty teaching scores and years of faculty experience was an unexpected finding, as experience is traditionally considered a prerequisite for developing expertise in EM and many other disciplines.^{4,15} The difference found in teaching scores translates into a 20% reduction in teaching scores for faculty with 20 to 30 years’ more experience. The significance of this finding is unclear. It is possible that teaching scores, as judged by residents, may not fully reflect the impact and quality of the clinical education provided. It is also possible that experienced faculty lack contemporary knowledge, technical skills (eg, ultrasonography), or familiarity with newer teaching techniques when compared to junior faculty. Experienced faculty may also have different attitudes, definitions, and expectations for clinical teaching than junior peers or trainees. These generational differences have been described previously¹⁶ and may impact the perception of educational quality. The relationship between faculty experience, perception of teaching effectiveness versus actual teaching effectiveness, and impact of generational learning styles deserves further study.

Our study’s limitations include its retrospective nature and the fact that it contains a single year of data from 2 evaluation cycles. Thus, the data may not adequately capture long-term trends in resident scoring or faculty teaching performance. More frequent evaluation cycles (eg, monthly) over an extended period may have yielded different results. Because faculty teaching scores were

overall high (mean, 4.4; range, 3.6–4.9), more frequent evaluations may have better discriminated between teachers. Lastly, it is possible that the evaluation tool did not accurately measure teaching effectiveness, although it was adapted from standardized and previously validated instruments of instructional quality specific to emergency medicine.^{13,14}

Conclusions

Our study demonstrated that EM faculty teaching scores did not correlate with clinical productivity measures or the amount of clinical contact with residents. Some faculty excelled in both clinical performance and teaching. There was a significant inverse correlation between teaching scores and years of experience, which contradicts common perceptions about teaching expertise. Further study involving multiple sites and a standardized teaching evaluation is necessary to determine if there are clinical measures that identify good educators.

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