A Cross Sectional Study of Medical Student Knowledge of Evidence Based Medicine as Measured by the Fresno Test of Evidence Based Medicine

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ABSTRACT

Objectives: Evidence Based Medicine (EBM) is an important skill set for Emergency Physicians (EP) to possess. EBM has been included in the Accreditation Council for Graduate Medical Education (ACGME) and the American Board of Emergency Medicine (ABEM) Milestones project as a required component to both teach and measure during Emergency Medicine (EM) residency training. Milestone Level One states that graduating Medical Students (MS) must be able to “Describe basic principles of EBM.” The Fresno Test of EBM (FTEBM) is a previously published, validated metric. In this study, we sought to identify the EBM skills of MS in order to establish a baseline for Level One of this Milestone.

Methods: Our institution, a community health network with 17 different residencies and fellowships, hosts MS from allopathic and osteopathic medical schools from across the country. As a mandatory part of hospital orientation, the Division of Education (DOE) requires all rotating MS to complete an entry FTEBM. After consultation with a statistician, we enrolled all MS from the 2011 calendar year. If they completed more than one rotation within our institution, only their first FTEBM was included. Questions were graded using the Grading Rubric Form A. Each question was graded by a single, trained grader and 10% of the tests were graded in their entirety by a PhD expert. Performance was evaluated using descriptive statistics.

Results: Five hundred and seven FTEBM were on file with our DOE. Exclusions included 45 Physician Assistant students, 15 MS repeat rotators and 11 without dates or were misfiled from another year, leaving 436 discrete initial FTEBM MS for analysis. MS represented 40 different medical schools, including 17 allopathic (MD) and 23 osteopathic (DO) schools. The cohort contained 213 (48.9%) MD, 220 DO and three MS who did not identify their medical school. The mean total score on the FTEBM for the cohort was 96/204 or 47%. Overall mean performance by question reported as a percentage is as follows (the individual EBM question topics are in parentheses): 1A (Study Question), 61.6%; 1B (Study Question), 64.2%; 2 (Sources of Evidence), 67.5%; 3 (Study Design), 57%; 4 (Search Strategies), 53.3%; 5 (Relevance), 41%; 6 (Internal Validity), 43.6%; 7 (Magnitude), 37.6%; 8 (Two-by-Two Grids), 29.5%; 9 (Number Needed to Treat), 16.7%; 10 (Confidence Intervals), 32.5%; 11 (Diagnosis), 3.8%; and 12 (Prognosis), 40.8%.

Conclusion: As measured by the FTEBM, MS demonstrate understanding of about half of EBM. Concepts surrounding statistics in general have lower scores. EM residencies will need to formally instruct their residents in EBM concepts in order to meet ACGME/ABEM Milestone requirements and graduate a prepared EP.