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CORRELATION BETWEEN UNITED STATES MEDICAL LICENSING EXAMINATION AND COMPREHENSIVE OSTEOPATHIC MEDICAL LICENSING EXAMINATION SCORES FOR APPLICANTS TO A DUALLY APPROVED EMERGENCY MEDICINE RESIDENCY

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☐ **Abstract—Background: It is important for emergency medicine (EM) residency programs to be able to correlate the United States (US) Medical Licensing Examination (USMLE) and Comprehensive Osteopathic Medical Licensing Examination (COMLEX) scores of applicants. Objective: We sought to determine the correlation between USMLE and COMLEX scores for EM residency applicants. Methods: Retrospectively, from 2006 through 2013, USMLE and COMLEX examination scores for applicants to our 4-year, 56-member, dually approved EM residency were analyzed. Using the COMLEX score as the outcome variable and USMLE score as the predictor, multiple linear regression models, stratified by test step, were created. Results: There were 556 students representing 25 discrete medical schools included. Pair 1 consisted of applicants submitting COMLEX Level-1 and USMLE Step-1 scores (n = 486). Pair 2 were those with COMLEX Level-2 and USMLE Step-2 scores (n = 356). For Pair 1, mean, standard deviation, and median scores on the COMLEX were 551, 69, and 548, respectively; for the USMLE, scores were 216, 16, and 217, respectively. Results for Pair 2 on COMLEX were 566, 80, and 562, respectively; USMLE results were 228, 18, and 229, respectively. A strong correlation was observed for Pair 1 ($r = 0.78$; $p < 0.001$). A 1-point increase in USMLE Step-1 is associated with a 3.55-point increase in the COMLEX Level-1 score ($\beta = 3.55$; 95% confidence interval [CI] 3.30–3.80; $p < 0.001$). A similar strong correlation was observed for Pair 2 ($r = 0.72$; $p < 0.001$), where a 1-point increase in USMLE Step-2 is associated with a 3.29-point increase in the COMLEX Level-2 score ($\beta = 3.29$; 95% CI 2.96–3.62; $p < 0.001$). Conclusions: A strong positive correlation between Steps 1 and 2 of the USMLE and COMLEX was found.**

☐ **Keywords—ACGME; USMLE; COMLEX; residency; application**

INTRODUCTION

The American Council for Graduate Medical Education (ACGME) and American Osteopathic Association (AOA) jointly announced a planned single-application pathway to graduate medical education (1). This new application process will likely increase the diversity of applications to emergency medicine (EM) residency programs. A recent study by Weizberg et al. concluded that osteopathic students who take the allopathic

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examinations have greater success in obtaining residency positions (2). Because of this, programs may see an increased proportion of students reporting multiple standardized test scores. In addition, with the advent of the Single Accreditation System, ultimately, osteopathic medical students may be free to apply to any approved EM residency (3).

Despite the planned unification described here, there are currently two paths to becoming a licensed physician in the United States (US). The US Medical Licensing Examination (USMLE) has traditionally been used by allopathic medical students, although it is open to osteopathic students, as well (4). For graduates of osteopathic medical schools, the Comprehensive Osteopathic Medical Licensing Examination of the United States (COMLEX-USA) has been the traditional pathway to licensure. Both of these series of examinations contain three separate written tests and one test of physical examination skills. The timing of the examinations, often referred to as "steps," is also similar. Step 1 is typically taken after the second year of medical school; Step 2 is taken sometime before graduation, and the third and final step is taken sometime thereafter. The timing of the third step typically eliminates the scores from Step 3 from a residency application. Some medical schools require passing scores on the first two steps for promotion and graduation. On the osteopathic side, all students enrolled in osteopathic medical schools must complete the COMLEX-USA series of examinations to graduate and gain licensure.

Currently, the two largest studies comparing the interchangeability of USMLE and COMLEX are based on the experience of medical school cohorts originating from a single medical school (5,6). These studies were also conducted on a broad swath of students, irrespective of their intended field of postgraduate study. The levels of observed agreement in the Slocum et al. study was found to be higher in Step 1 than Step 2, and the Step 1 correlation was similar to that observed in the Lee et al. cohort (5,6). In a third study focusing on applicants to internal medicine, Chick et al. found higher agreement for Step 1 than Step 2, but EM program directors may rightly be interested in the subgroup of students of these larger cohorts who are applying to EM (7). A 2-year cohort study of applicants to a single allopathic EM residency program by Sarko et al. found lower agreement than had been reported previously (8). As a whole, these studies cast doubt on whether a specific formula can be used to convert the scores from one test to another in the overall medical student application process.

The purpose of this study was to identify the degree of correlation that may exist between USMLE and COMLEX-USA scores among a longitudinal cross-section of osteopathic medical student (MS) applicants to an EM residency. These data would enlarge and update the current literature on this topic at a time when the issue is becoming more germane to EM program directors.

Table 1. Dispersal of Osteopathic Medical Students by School

Osteopathic Medical School	Percentage of Cohort
New York Institute of Technology	10.3
Philadelphia College of Osteopathic Medicine	8.8
Lake Erie College of Osteopathic Medicine	8.3
Arizona College of Osteopathic Medicine	6.8
Kansas City University of Medicine and Biosciences	6.7
Western University of Health Sciences	6.7
Touro College of Osteopathic Medicine	5.9
University of North Texas Health Sciences	5.8
Nova Southeastern University College of Osteopathic Medicine	5.6
Chicago College of Osteopathic Medicine	5.0
Edward Via Virginia College of Osteopathic Medicine	4.9
University of Medicine & Dentistry of New Jersey	4.7
A. T. Still University, Kirksville College of Osteopathic Medicine	3.8
University of New England College of Osteopathic Medicine	3.6
Des Moines University College of Osteopathic Medicine	3.2
Touro University Nevada College of Osteopathic Medicine	3.2
Rocky Vista University College of Osteopathic Medicine	1.6
West Virginia School of Osteopathic Medicine	1.4
Lincoln Memorial University, DeBusk College of Osteopathic Medicine	1.1
Ohio University, Heritage College of Osteopathic Medicine	0.7
Rowan University School of Osteopathic Medicine	0.7
Pacific Northwest University of Health	0.5
Oklahoma State University College of Osteopathic Medicine	0.4
Michigan State University College of Osteopathic Medicine	0.2
University of Pikeville, Kentucky College of Osteopathic Medicine	0.2

METHODS

This was a retrospective study of matched, reported test scores of both COMLEX-USA and USMLE between July 1, 2006 and December 31, 2013, among osteopathic MS applicants to a single 4-year, dually approved, 56-member EM residency at an independent academic medical center. The study protocol was reviewed and given expedited approval by our center's Institutional Review Board.

We examined the EM residency program's interview registry database for applicants who voluntarily