



20 Using a Clinical Dashboard to Empower Resident Education: Does Incorporating Objective Feedback Into Semi-Annual Evaluations Improve Insight and Impact Clinical Behaviors Among Residents?

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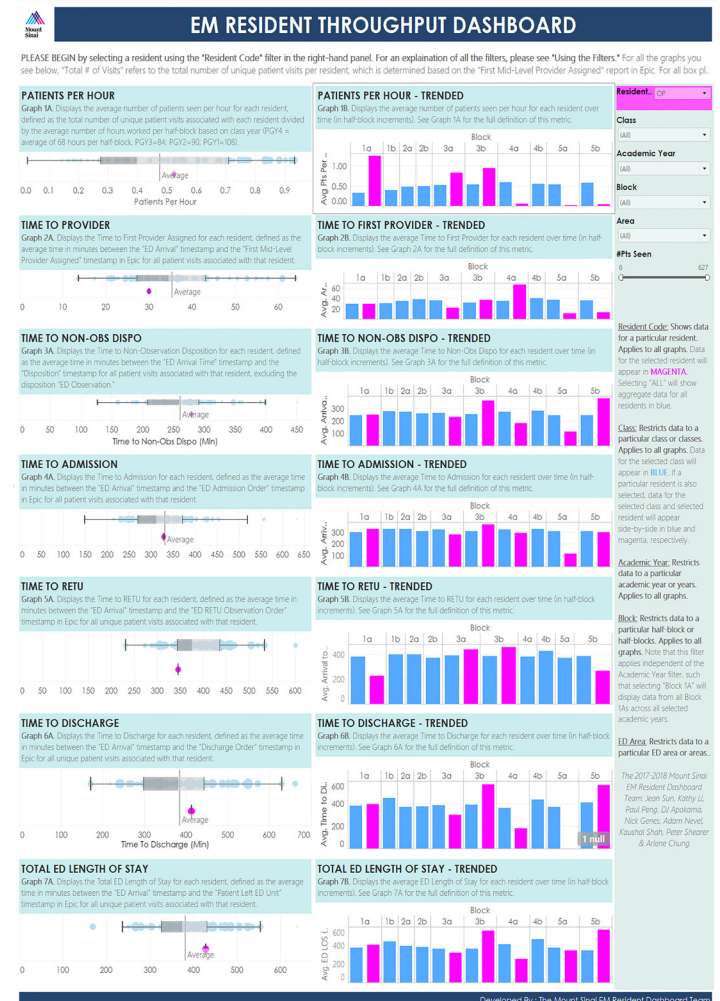
Background: Since the implementation of the Next Accreditation System in 2014, residency programs have struggled to provide meaningful milestone-based data for their residents that demonstrates measurable outcomes. Many programs have adopted end-of-shift or end-of-rotation evaluation forms, but encounter barriers such as poor faculty compliance or performance inflation. Some programs have recently adopted clinical dashboards to display certain metrics, such as door-to-provider time, but often there is no explanation of how the data was derived or how the resident should incorporate the information into a milestone-based assessment of their performance. To the best of our knowledge, this is the first study investigating a novel approach to address this educational need using an EM Resident Clinical Dashboard to integrate performance metrics and milestone assessments directly into semi-annual review sessions for residents.

Educational Objectives: Following the Kirkpatrick model, will will determine if the use of our Dashboard to provide feedback during semi-annual review sessions 1) improves resident and faculty satisfaction with the semi-annual review and feedback process; 2) improves the accuracy of residents' self-assessment of their clinical performance; and 3) significantly impacts the clinical behaviors of individual residents.

Curricular Design: We propose a single blinded randomized controlled pilot study to determine the

effectiveness of our educational intervention. Participants will be 62 EM residents from a single institution. All residents will be provided their own Dashboard (FIGURE 1) via email with viewing instructions. However the intervention group will additionally receive targeted feedback from faculty during their semi-annual review sessions using Key Performance Indicators from the Dashboard based on a synthesis of ACGME milestones, reportable quality metrics, and data registries such as the ACEP Clinical Emergency Data Registry (TABLE 1). Impact will be determined via satisfaction forms, self-assessment surveys, and changes in clinical performance as measured by the Dashboard.

Impact/Effectiveness: We believe that use of our Dashboard during semi-annual review sessions can empower resident education by providing objective clinical data to inform milestone assessments as well as prepare our residents for practice in an increasingly data-driven world.



| Key Performance Indicators | Corresponding State or Federal Metrics & Measures | Corresponding EM Professional Society Metrics & Measures | Corresponding ACGME Milestones & ABEM Models of Clinical Practice |
|---|---|--|---|
| ED Admission Rate | NHAMCS: ED Visits Resulting in Hospital Admission | EDBA Proportion Metrics: Total Number of Patients Admitted from the ED | ACGME Milestone #7: Disposition (PC7): Establishes and implements a comprehensive disposition plan that uses appropriate consultation resources; patient education regarding diagnosis; treatment plan; medications; and time and location specific disposition instructions. |
| ED Handoff Documentation | JCAHO National Patient Safety Goals #2E: Implement a Standard Approach to Handoff | ACEP: Safer Signout Protocol | ACGME Milestone #18: Technology (SBP3): Uses technology to accomplish and document safe healthcare delivery. |
| ED Arrival to Provider Time | NHAMCS: Wait Time at ED Visits: Time Spent Waiting to See a MD, DO, NP, or PA | EDBA Timestamp and Interval Metrics: Arrival to Provider Contact Time | ACGME Milestone #8: Multitasking (Task-switching) (PC8): Employs task switching in an efficient and timely manner in order to manage the ED. |
| ED Arrival to Disposition, Discharge, and Departure Times | NQMC #010135: Time from ED Arrival to ED Departure for Admitted ED Patients NQMC #010431: Time from ED Arrival to ED Departure for Discharged ED Patients | EDBA Timestamp and Interval Metrics: Disposition Decision Time | ACGME Milestone #17: Systems-Based Management (SBP2): Participates in strategies to improve healthcare delivery and flow. Demonstrates an awareness and responsiveness to the larger context and system of health care. |
| Patients per Hour | | EDBA Productivity Metrics: Pts per Hour | ABEM Models of Clinical Practice 20.4.2.2: Patient Flow and Throughput |
| Sepsis Scorecard* | NYDOH Sepsis Adherence Measures: Six metrics based on National Quality Forum Measure NQF#0500 and Centers for Medicare and Medicaid Services Measure CMS SEP-1* | ACEP#27: Sepsis Management: Septic Shock: Antibiotics Ordered | ABEM Models of Clinical Practice 10.1.7: Sepsis/Bacteremia |

NQMC: Agency for Healthcare Research and Quality National Quality Measures Clearinghouse; NHAMCS: Centers for Disease Control and Prevention National Hospital Ambulatory Medical Care Survey; JCAHO: Joint Commission on Accreditation of Healthcare Organizations National Patient Safety Goals; EDBA: ED Benchmarking Alliance Consensus Summit; NYDOH: New York Department of Health; ACGME/ABEM: American College of Emergency Physicians/American Board of Emergency Medicine

*Includes the following six metrics for patients with severe sepsis/septic shock: 1) Initial Lactate Drawn in <1 Hour; 2) Antibiotics Given in <1 Hour; 3) Two Blood Cultures Drawn Before Antibiotics; 4) Two Blood Cultures Drawn in <1 Hour; 5) IV Fluid Bolus Initiated in <1 Hour; and 6) 30cc/kg IV Fluid Bolus Given.

21 Using an ‘Oral Board’ Exam to Assess for EPA 10 in the Emergency Medicine Rotation

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Background: The Association of American Medical College encourages medical schools to use 13 Entrustable Professional Activities (EPAs) as a framework for assessing student preparedness for residency. The Emergency Medicine (EM) clerkship provides an appropriate clinical setting to observe, practice and therefore assess EPA 10: “recognize a patient requiring urgent or emergent care and initiate evaluation and

management.” This important skill is one in which many medical students have shown difficulty with. Medical schools use various techniques to evaluate for EPA 10, some using simulation, while others using an objective structured clinical exam. Oral exams have been studied in other specialties, but haven’t been studied in EM or in evaluating for EPA 10.

Educational Objectives:

- Develop an assessment method that can evaluate students in EPA 10.
- Design case scenarios that can be used to evaluate student performance.
- Identify critical actions and create an assessment tool for evaluation of student performance.

Curricular Design: The ‘oral board’ exam is used by the American Board of Emergency Medicine to certify practitioners as competent in all aspects of EM care. We decided to use this style of exam to assess for EPA 10 during our EM rotation. We created 3 case scenarios, which were given by faculty and/or selected senior residents at the end of the rotation. The cases are: 1) Trauma with pneumothorax and intraperitoneal bleeding, 2) Chest pain secondary to a pulmonary embolism, and 3) Altered mental status with UTI/sepsis. All cases require the student to evaluate the ABC’s, initiate appropriate treatment, obtain adequate help, and communicate with other providers.

Impact/Effectiveness: To assess whether the oral exams evaluate different or redundant variables to that of the medical students’ clinical scores or their NBME shelf exam scores, we calculated a Spearman Rank Order Correlation. Comparing the oral exam to the shelf exam produced a p-value of 0.558, so the correlation was not statistically significant. Furthermore, comparing the oral exam to the clinical scores produced a p-value of 0.457, also not statistically significant. Therefore, there was no statistically significant correlation between the oral and shelf exams, or the oral and clinical scores. This confirms that the oral exam evaluates different, non-redundant variables than the clinical and NBME shelf scores.

| Correlations | | | Oralexam | Clinscore |
|----------------|----------|-------------------------|----------|-----------|
| Spearman's rho | Oralexam | Correlation Coefficient | 1.000 | .049 |
| | | Sig. (2-tailed) | . | .457 |
| | | N | 233 | 233 |
| Clinscore | Oralexam | Correlation Coefficient | .049 | 1.000 |
| | | Sig. (2-tailed) | .457 | . |
| | | N | 233 | 233 |

