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(O-D1) Simulation-based Assessment for the Emergency Medicine Milestones

Permalink

https://escholarship.org/uc/item/5x48g821

Journal

ISSN

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Publication Date

2024

DOI

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an outpatient treatment program through the facilitation of PRP, readmission to the ED for opioid-involved overdoses requiring naloxone administration, readmission to the ED for any reason, acceptance of PRP recovery specialist services, acceptance of PRP patient navigator services, and follow-up with the PRP.

Results: There were 85 total patients of similar race, gender, age, and drug of abuse enrolled in this study. The primary outcome of readmission to the ED for OUD within 30 days of initial discharge was 15% in the retrospective phase and 5% in the prospective phase, $P=0.17$. In the secondary outcomes, 9% of patients had admission to an outpatient treatment program vs 17% in the prospective phase, $P=0.32$. In the retrospective group 98% of patients accepted PRP services compared to 90%, $P=0.17$. In the retrospective group, 25% of patients accepted PRP patient navigator services vs 44%, $P=0.11$. The retrospective group included 13% of patients involved in an overdose requiring naloxone administration vs 0%, $P=0.03$. The retrospective group had 35% of patients with readmission to the ED for any reason vs 13% of patients, $P=0.18$. Additionally, 41% of patients in the retrospective group followed up with the PRP vs 44% in the prospective group with a $P=1.00$.

Conclusion: The ED-initiated buprenorphine protocol led to a reduction in readmissions for any reason, readmission for OUD, and overdoses requiring naloxone. There was an increase in admissions to an outpatient treatment program through PRP facilitation, and acceptance of PRP services. Limitations and low adherence rate may influence results. The next steps include continued enrollment, re-education on protocol, and monitoring long-term outcomes.

15 (O-D1) Simulation-based Assessment for the Emergency Medicine Milestones

Ashley Crimmins, MD

Oral Presenter: Afrah A. Ali, MBBS

Objectives: The purpose of this study is to identify the Accreditation Council for Graduate Medical Education (ACGME) milestones that are the most difficult to assess using traditional methodology and the most suitable milestones to be assessed using simulation.

Background: The ACGME recently revised the educational milestones for all accredited residencies programs. The Emergency Medicine (EM) Milestones 2.0 contains updated specialty-specific, competency-based behavioral anchors for the assessment of residents. Most programs use their current assessment methods to fulfill data points for these milestones subcompetencies rather than

devise new tools. This has resulted in subcompetencies that are difficult to assess using traditional methods. Simulation-based medical education (SBME) measures outcomes based on observational rating, while providing opportunities for formative and summative feedback that can be used as an alternative solution.

Methods: This is a survey-based study that was targeted toward EM residency programs with simulation fellowship affiliation. The web-based survey contained 12 key questions, which focused on demographics of the program, the educational role of the respondents, frequency and type of simulation used in the program, the most difficult to assess education milestones using traditional assessment methods and most suitable milestones for using simulation-based assessment. The survey was conducted using SurveyMonkey and was sent weekly for six weeks to the program director, associate and assistant program director, and simulation fellowship director who were listed on the program's website. Descriptive statistics were used to analyze the data for demographic data as well as the total number of votes for each of the 22 EM milestones subcompetencies for each question. The outcome variables for each subcompetency included the number of votes for "most difficult to assess using traditional methodologies" and "best assessed using simulation." These were counted from both simulation experts and program directors, for a total of five non-ranked votes per category.

Results: Thirty-eight of 115 respondents completed the survey (33% response rate). The milestone that was ranked most difficult to assess using traditional methodologies was Systems-based practice: Quality Improvement. The milestone identified by most respondents as most suitable for assessment using simulation was Patient care: Emergency Stabilization. There was no overlap between the two categories of milestone subcompetencies.

Conclusion: System-based practice and reflective practice and commitment to personal growth are difficult to assess using traditional methods. Non-traditional assessment methods as well as innovative use of simulation may be helpful in assessing these subcompetencies.

Table 1. Emergency Milestone Sub-competencies Most Suitable to Assess Using Simulation

Rank	MOST SUITABLE for assessment using a simulation-based assessment tool	Percentage
1	Emergency stabilization (PC1)	84.38%
2.5	Performance of a focused history and physical exam (PC2)	62.50%
2.5	General approach to procedures (PC8)	62.50%
4	Interprofessional and Team Communication (ICS2)	53.13%
5	Patient and Family-Centered Communication (ICS1)	50.00%

Abbreviations: ICS, interpersonal and communication skills; PC, patient care.

Table 2. Emergency Milestone Sub-competencies Most Difficult to Assess Using Traditional Non-Simulation Methods

Rank	MOST DIFFICULT to assess using traditional NON-simulation	Percentage
1	Quality Improvement (SBP2)	71.88%
2	Physician Role in Health Care Systems (SBP4)	62.50%
3	System Navigation for Patient-Centered Care (SBP3)	50.00%
4	Reflective Practice and Commitment to Personal Growth (PLBI2)	46.88%
5	Patient Safety (SBP1)	43.75%

Abbreviations: PBLI, practice-based learning and improvement; SBP, system-based practice.

16 (P82) Predictors of Prolonged Hospital Length of Stay After Traumatic Brain Injury

George Loo, DrPH; Eric Legome, MD

Poster Presenter: Shameeke Taylor, MD, MPH, MS

Objectives: The aim of this study was to identify factors associated with prolonged hospital length of stay (PLOS) following traumatic brain injury (TBI).

Background: For TBI survivors, recovery can be a long and arduous process with a significant number of days spent in the inpatient and rehabilitation settings.[1-6] Hospital length of stay (HLOS) after TBI is a crucial metric of injury severity, resource utilization and treatment-related costs.[7-8] Risk factors for PLOS after TBI require further characterization as there is a dearth of literature on this important topic.[5-6] Identification of the risk factors associated with PLOS in TBI patients may help health systems develop standards of care and facilitate early mobilization of resources, promote timely discharge and reduce healthcare costs.

Methods: De-identified patient data for individuals with diagnosed TBI who were evaluated by the trauma surgery service at a single US Level 2 academic trauma and tertiary referral center between January 2017–August 2022 were extracted from the hospital's prospectively collected trauma registry. PLOS was defined as the 95th percentile of the in-hospital length of stay of the entire patient cohort. Patients with PLOS were compared with those without PLOS (normal HLOS). Clinical/injury factors, insurance status, and discharge disposition were analyzed. In addition, a logistic regression model was developed that examined PLOS (outcome variable) using intensive care unit (ICU) stay, Glasgow Coma Scale (GCS) score on hospital arrival, Injury Severity Score (ISS), hospital discharge disposition, use of a ventilator, in-hospital cardiac arrest, alcohol withdrawal, and unplanned intubation as predictor variables. Statistical analysis included descriptive statistics, chi square test, Wilcoxon rank-sum test and multivariate logistic regression modeling (OR; 95% CI).

Results: The threshold for PLOS was >24 days. In the cohort of 1343 patients, 77 had PLOS. PLOS was significantly associated with male gender (80% vs 64%; $P<.003$), longer mean ICU stays (16.4 vs 1.5 days; $P<.001$) higher mean ISS (18.6 vs 13.8; $P<.001$), lower mean GCS score (11.3 vs 13.7; $P<.001$) and greater mean complication burden (0.7 vs 0.1; $P<.001$). PLOS patients were more likely to have moderate/severe TBI (44% vs 14%; $P<.001$), were more likely to die in hospital (19% vs 7%; $P<.001$), be discharged to a facility (55% vs 29%; $P<.001$) and use Medicaid (36% vs 22%; $P<.005$). In terms of complications, PLOS was associated with higher rates of cardiac arrest (5% vs 0.5%; $P=0.002$), unplanned intubations (13% vs 1%; $P<.001$), inpatient alcohol withdrawal (10% vs 2%; $P<.001$), ventilator-associated pneumonia (5% vs 0.1%; $P<.001$) and acute respiratory distress syndrome (3% vs 0.2%; $P<.02$). Both groups had similar mean ages, racial distributions, Medicare/commercial insurance use, and rates of orthopedic injuries, alcohol-related injuries, unplanned extubations, and operating room revisits. In the regression model, presence of an ICU stay (OR 2.5, CI 1.1-5.7) disposition to inpatient facility (OR 3.0 CI 1.6-5.9), ventilator use (OR 4.1, CI 2.0-8.4), unplanned intubation (OR 3.4, CI 1.1-10.5), and inpatient alcohol withdrawal (OR 3.5, CI 1.2-10.3) predicted PLOS.

Conclusion: Traumatic brain injury patients with prolonged length of stay were more likely to have severe injuries, in-hospital complications, and Medicaid insurance use and were less likely to be discharged to home. PLOS status was predicted by ICU stay, intubation, alcohol withdrawal and disposition to inpatient and post-acute care facilities. These findings have significant implications for quality improvement and resource utilization at acute care hospitals. Efforts to reduce in-hospital complications and expedite discharge to long-term facilities may reduce length of stay and accompanying costs in TBI patients. Further validation of these results is needed from larger, multicenter studies with diverse patient populations.

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