# UC Irvine

## Title
Use of Simulation to Assess Resident Performance of Medication Reconciliation and Disclosure of Error

## Permalink
https://escholarship.org/uc/item/21t2j8hv

## Journal

## ISSN

## Authors
Naples, R
Fisher, J

## Publication Date
2016

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among US seniors matching into EM.

**Methods:** This was a retrospective observational review of NRMP data published and between 2007 and 2014. Permission was obtained from the NRMP. The data was analyzed using ANOVA and Fischer's exact to determine statistical significance.

**Results:** There was no statistical difference in the average number of programs ranked by EM applicants among the years studied (p=0.93). Among time intervals, there was a difference in the number of EM applicants who were AOA (p=0.043). This statistical phenomenon was due to the drop in the number of AOA students in 2011. No statistical trend was identified over the time period studied. A net trend in overall Step 1 and Step 2 scores for EM applicants was observed. However, this did not outpace the national trend increase among all US seniors.

**Conclusions:** NRMP data from 2007-2014 demonstrates trends among EM applicants that are similar to national trends in other specialties for USMLE board scores, number of programs ranked and AOA membership. EM does not appear to have become more competitive relative to other specialties with regards to these metrics.

| NRMP[1] Data for EM[2] Applicants from 2007-2014 | | | | |
|---|---|---|---|---|
| | **2007** | **2009** | **2011** | **2014** |
| | | | | |
| **AOA (%)** | 12.36% | 10.93% | 9.13% | 12.04% |
| **Mean number of programs ranked (SD)** | 7.8 (3.4) | 8 (3.5) | 8.5 (3.5) | 9.2 (3.7) |
| **Mean Step 1 score, EM (SD)** | 218.9 (18.8) | 220.6 (18.2) | 219.7 (18.1) | 228.9 (17.3) |
| **Mean Step 2 score, EM (SD)** | 225.1 (20.3) | 227.6 (20.6) | 232.3 (18.8) | 241.4 (15.7) |
| **Mean Step 1 score, all[3] (SD)** | 220.4 (20.3) | 224.3 (19.6) | 225.2 (20.6) | 230 (18.8) |
| **Mean Step 2 score, all (SD)** | 224.5 (22.3) | 229.7 (21.8) | 234.3 (20.4) | 242 (16.6) |

1 = National Residency Match Program
2 = Emergency Medicine
3 = all US seniors who matched in the NRMP main residency match

# 58 Use of Simulation to Assess Resident Performance of Medication Reconciliation and Disclosure of Error

*Naples R*, Fisher J / Lewis Katz School of Medicine at Temple University, Philadelphia, PA

**Background:** According to the Institute for Healthcare Improvement, up to 50% of all medication errors in hospitals and 20% of adverse drug reactions (ADR) are a result of improper knowledge and recording of a patient's medications; medication reconciliation (Med Rec) is an important component of patient safety and should be part of a standard history. ACGME milestones include Med Rec in SBP3 (Technology) as a level 1 skill and disclosure of error in ICS1 (Patient centered communication) as a level 4 skill.

**Objectives:** Our objective was to determine how frequently our residents perform Med Rec using a simulated case. We also included an ADR to observe our residents disclosing an error. Our hypothesis was that junior residents would more frequently perform Med Rec but once the ADR was identified, senior residents would more readily disclose the error.

**Methods:** We developed a simulated case of a patient with an inferior STEMI. A triage note was developed using our EMR and provided to the residents at the time of the case. The note included an incomplete medication list. A nurse confederate and a bag of the "patient's" medications were in the simulation room. The "patient" was taking tadalfil for BPH. Nitroglycerin (NTG) was given by the nurse when ordered by the resident or "per protocol". After administration of NTG, the patient had persistent hypotension and worsening ST elevation (ADR to NTG due to tadalfil). If the resident did not recognize the ADR, the "cardiologist" asked about the patient's medications. A faculty member observing the encounter noted the level of training of the resident, performance of Med Rec and disclosure of error.

**Results:** 26 of 36 (72%) of residents participated in the simulation (PGY1 - 9, PGY2 - 9 , PGY3 - 8). 8 (31%) residents performed Med Rec (PGY1 - 3 (33%, p=1.0), PGY2 - 4 (44%, p=0.38), PGY3 - 1 (16.5%, p=.36)). Once the ADR was recognized, 12 (46%) residents disclosed the error to the patient (PGY1- 4 (44%, p=1.0), PGY2 - 5 (56%, p=0.68), PGY3 - 3 (37.5%, p=0.68).

**Conclusions:** Overall, residents infrequently performed Med Rec in this simulated case and a minority disclosed the error to the patient. There was no difference in performance of Med Rec or disclosure of error by level of training despite the ACGME level of skill designations. Direct observation of these skills in a simulated setting allowed milestone based assessment of these skills without actual patient harm.

# 59 Using Gamification and Technology to Encourage Independent Study

*Haight S*, Kolinsky D / MultiCare Auburn Medical Center, St. Louis, MO; Barnes Jewish Hospital, Washington University School of Medicine, St. Louis, MO

**Background:** Each year residency directors are faced with the challenge of finding new ways to motivate their residents to spend their free time studying independently. One potential solution is combining gamification with new technologies. Gamification uses game mechanics (leaderboards, head-to-head competition, tournaments, etc.) to incentivize residents to study and make the learning process more enjoyable. New technological innovations such as smart phones and tablet devices enhance access to and portability of educational tools. There has been little published in the medical literature on the utility of gamification in medical education.

**Objectives:** To use competition to encourage the use of an online question bank. We hypothesized that competition