

Research Abstracts

1 A Brief Online Tutorial to Improve Knowledge of Mass-Casualty Triage Concepts and Participant Preparedness for this Task

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Background: Appropriate triage is the most important medical task performed at a disaster site to reduce death and disability.^{1,2} Formal training in this skillset for medical students and residents is lacking.^{1,4,5,6} Free online medical education can fulfill the need for brief specific training with the potential to reach a variety of trainees, though little is known of how much of that information is retained long term.

Objectives: This study investigates participants' baseline comfort with and knowledge of mass-casualty triage protocols. We tested whether a brief online tutorial improved participant knowledge immediately after the tutorial and 3 months post intervention.

Methods: This is a prospective survey study of a convenience sample of emergency medicine physicians, medical and nursing students at an academic medical center. An online tutorial on triage methods during mass-casualty incidents was published using a Wordpress platform. Participants were given access to the website and took an initial survey of prior mass-casualty triage experience, subjective preparedness to perform such triage, as well as a test of triage performance using Simple Triage and Rapid Treatment and Secondary Assessment of Victim Endpoint algorithms. After reading through the tutorial, participants completed a post-tutorial survey and were reminded by email 3 months later to complete a third evaluation (Fig. 1).

Results: Fifty-two participants filled out the initial survey. The mean pre-tutorial survey score was 6.4 out of 14 (95% CI: 5.8-6.9). While there was a statistically significant increase in post-tutorial scores ($p < 0.0001$, Fig. 2), the knowledge increase was not maintained at 3 months ($p = 0.03$). Comparison between different trainee groups did not reveal any statistically significant difference in a one-way Anova [$F(3,47) = 1.39$, $p = 0.2$]. Participants felt more prepared and proficient in triaging victims immediately after the training ($p = 0.0003$, $p = 0.001$), but the difference was not maintained at 3 months ($p = 0.05$, $p = 0.06$).

Conclusions: Despite a high attrition rate, results suggest that mass-casualty triage knowledge can be improved in the short term at all levels of training using an

online tutorial. This gain was not sustained at 3 months, raising question about the long-term utility of online training.

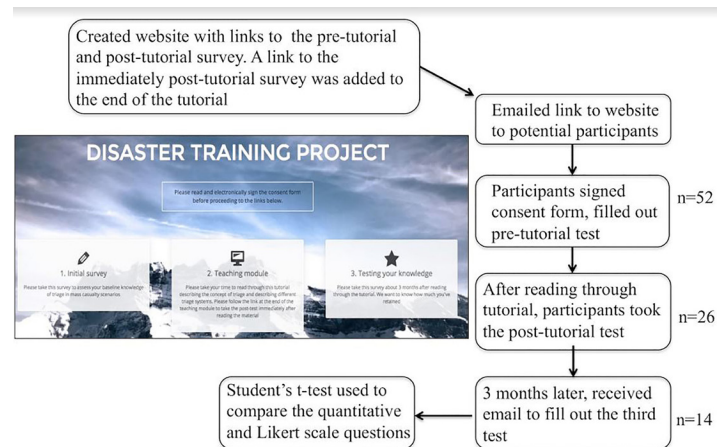


Figure 1. Methods for the study.

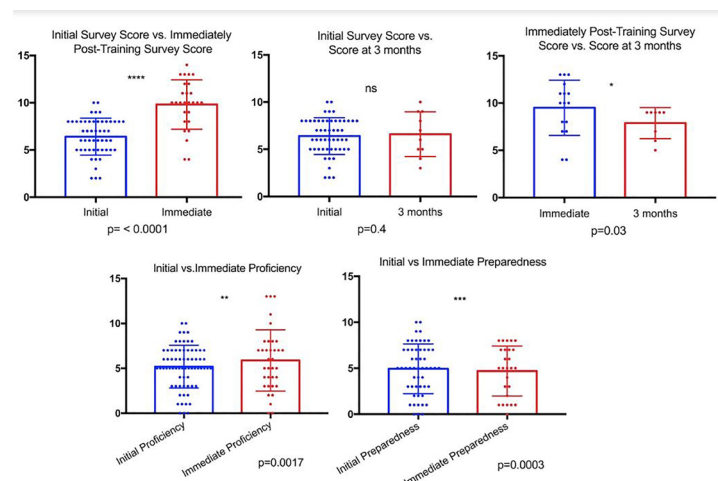


Figure 2. Score comparisons for initial pre-tutorial, immediately post-tutorial, and 3 months past initial training survey.

2 A Descriptive Analysis of Practice Patterns Among Emergency Medicine Residency Programs on Twitter

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Background: Twitter is increasingly being recognized as an instructional tool by the Emergency Medicine (EM) community. In 2012, the Council of Residency Directors (CORD) recommended that EM residency program Twitter accounts be managed by faculty and not trainees, yet since this time, little has been published regarding the actual practice patterns of EM residency programs using Twitter.

Objectives: The purpose of this study was to provide descriptive analysis regarding current practice patterns

among EM residency programs with Twitter accounts. It was hypothesized that practice patterns differed from prior CORD recommendations.

Methods: In this IRB-approved mixed-methods cross-sectional study, a six question anonymous survey was distributed via spaced emails using the online tool SurveyMonkey© to EM residency program directors nationwide. Additionally, a Twitter-based search was conducted and the public profiles for EM residency program Twitter accounts were analyzed. Descriptive statistics and qualitative analysis were performed on the data set.

Results: Of the 168 ACGME-accredited EM residency programs surveyed, 88 programs responded (52% response rate), with 59% of respondents reporting an affiliated EM residency program Twitter account. Residents more commonly served as content managers for their programs Twitter accounts than faculty (43% vs 37%) with chief residents accounting for 28% of all content managers. Most programs (89%) do not publicly disclose the identity or positions of their content managers. A wide variety of applications for Twitter are currently in practice, with EM residency programs most commonly using Twitter for educational and promotional purposes. There is significant variability in the number of followers between EM residency programs' Twitter accounts.

Conclusions: Applications and usage among EM residency programs are varied, but largely inconsistent with prior CORD recommendations.

Figure 1. Survey questions and responses distributed via SurveyMonkey™

1. Does your emergency medicine residency program have a Twitter account?
2. Under this Twitter account, who is responsible for posting “tweets” (Check all that apply)
 - a. Chief resident(s)
 - b. Program coordinator
 - c. Program director
 - d. Other (please specify): _____

Position	Survey Respondents
Resident(s)	28 (43%)
Faculty(s)	24 (37%)
Administration/Staff	6 (9%)
Mixed Faculty & Residents	4 (6%)
Unclear	3 (5%)

3. What type of content is posted on this Twitter account? (Check all that apply)
 - a. Educational conference content
 - b. Non-conference educational content
 - c. Residency or departmental promotional content
 - d. Other (please specify): _____

4. Is this Twitter account used for any other educational or non-educational endeavors? (Check all that apply)
 - a. Asynchronous curriculum for resident training
 - b. Online journal club commentary
 - c. Other (please specify): _____

Content Type	Survey Respondents
Educational Conference Content	38 (83%)
Residency/Departmental Promotional Content	31 (68%)
Educational Non-Conference Content	28 (61%)
Asynchronous Curriculum for Resident Training	10 (43%)
Online Journal Club Commentary	10 (43%)

5. What measures are taken to protect the academic integrity and professionalism of the institution represented by this Twitter account? (check all that apply)
 - a. Adherence to institutional social media policy
 - b. Regulation on who is allowed to “tweet”
 - c. Other (please specify): _____

Measures	Survey Respondents
Adherence to an institutional social media policy	38 (83%)
Regulation on who is allowed to “tweet”	34 (74%)

6. Please state the position of the person completing this survey
 - a. Program director
 - b. Faculty (please specify academic title)
 - c. Resident (please specify if chief resident or other designated position)
 - d. Administrator/Staff (please specify position)
 - e. Other (please specify): _____

Position	Number of Respondents
Program Director	29 (63%)
Faculty	8 (17%)
Resident	8 (17%)
Administrator	1 (2%)

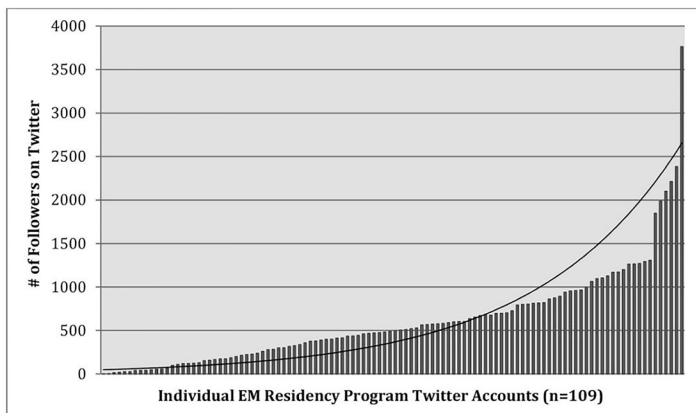


Figure 2. Number of followers per EM residency program Twitter account.

3 A Multicenter Study of Grit And it's Relationship to Burnout

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Background: Burnout is a syndrome involving mental and psychological exhaustion, a reduced sense of accomplishment and self-esteem, and depersonalization in individuals whose work involves dealing with people. Burnout is common in physicians and the specific emotional and physical challenges of emergency medicine place Emergency Physicians at greater risk. Alternatively, grit, defined as “perseverance and passion for long-term goals,” attempts to quantify the ability of an individual to maintain sustained effort throughout an extended length of time. Grit has been found to be a superior predictor of success in several high-stress, high-achievement fields.

Objectives: We aimed to determine if grit, a novel character trait, is associated with resident burnout.

Methods: In November 2016, we conducted a multicenter cross-sectional survey at 3 large, urban, academically-affiliated emergency departments. EM residents in each centers training program were invited to provide anonymous responses to two validated survey instruments. Perseverance was measured using the Short Grit Scale. Burnout was measured with the Maslach Burnout Inventory. Categorical data are presented as frequency of occurrence; while continuous data are presented as means +/- std deviation, analyzed by two-tailed t-tests and correlation coefficients (Alpha = 0.05).

Results: 146 of 181 eligible residents (81%) completed the study (44 EM1, 42 EM2, 36 EM3, 24 EM4). 98 were males and 45 were females (3 identified as “other”). Grit was predictive of psychological well-being as measured by

the Emotional Exhaustion and Depersonalization subscales of the Maslach Burnout Inventory ($r = -0.32, P < .01$ and $r = -0.35, P < .05$ respectively). Analysis for variation by year in training showed that grit did not significantly differ by year in training but burnout did significantly differ, with EM 2 having higher levels of burnout than EM 1 and EM4 ($P < .05$). There were no differences in grit or burnout when analyzing by gender.

Conclusions: There appears to be an inverse relationship between self-reported measures of passion and perseverance (grit) and burnout. Measuring grit may identify those who are at greatest risk for burnout. These residents may benefit from earlier counseling to provide support and improve resilience.

4 A Prospective Randomized Controlled Trial Comparing Simulation, Lecture and Discussion-Based Education of Sepsis to Emergency Medicine Residents

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Background: Septic shock is a life-threatening condition that is traditionally taught to Emergency Medicine (EM) residents in a lecture-based format. Studies suggest that simulation may be more effective in creating competence and comfort in students of EM in managing emergent medical conditions as compared to lecture.

Objectives: Our goal was to investigate whether there is a difference in acquisition and retention of medical knowledge and one's comfort level in diagnosis and management of sepsis and septic shock in EM residents taught using simulation (SIM) vs. lecture (LEC) vs. discussion-based learning (DBL). We hypothesized that SIM would improve immediate medical knowledge and confidence levels compared to LEC or DBL.

Methods: Subjects were enrolled in this prospective randomized controlled trial from a convenience sample of 35 EM residents present during a didactic day in April 2015 at a 4-year program. Computer generated randomization assigned subjects to one of three didactics on sepsis and septic shock (SIM, LEC or DBL). Each didactic lasted 30 minutes and was based upon a set of learning objectives. The SIM arm participated in a 15-minute one-on-one mannequin simulation followed by a 15-minute debriefing. The LEC arm obtained a lecture. The DBL arm participated in a case-based discussion. Medical knowledge was assessed using a 24 question multiple choice question (MCQ) test. A survey using a 6-point likert scale assessed comfort in diagnosis and management of septic shock. Assessments were