

UC Irvine

Western Journal of Emergency Medicine: Integrating Emergency Care with Population Health

Title

Prefrontal Cor-GUESS: Gamification that motivates self-directed learning

Permalink

<https://escholarship.org/uc/item/9xp9c94t>

Journal

Western Journal of Emergency Medicine: Integrating Emergency Care with Population Health, 21(4.1)

ISSN

1936-900X

Authors

Crossman, Megan
Zhang, Xiao Chi

Publication Date

2020

Copyright Information

Copyright 2020 by the author(s). This work is made available under the terms of a Creative Commons Attribution License, available at <https://creativecommons.org/licenses/by/4.0/>

designed to provide training institutions a more realistic and cost-effective alternative to the procedural mannequins currently available and can easily be incorporated into residency training by following some simple instructions and guidelines.

Curricular Design: We have designed PBSTs for the following procedures: cricothyrotomy, chest tube insertion, lumbar puncture, thoracentesis and ultrasound guided paracentesis. PBSTs can be incorporated into regular simulation laboratory scenarios and they can be used in an intern procedure day during resident orientation. Residents are provided didactic material in the form of texts, journal articles, instructional videos, and online posts to be reviewed prior to the procedure day. Brief lectures on each procedure will be given, followed by a hands-on session where they perform the procedure on the PBSTs with the help of senior residents or attending physicians. Learners can also be evaluated on their procedural skills with the use of knowledge and performance checklists.

Impact/Effectiveness: Resident and medical student feedback on these PBSTs has been overwhelmingly positive. The innovative, realistic feel has created academic interest and they have been featured at national and regional EM conferences for procedural breakout sessions. Easy, do-it-yourself instructions allow the trainers to be incorporated into any resident program curriculum and can be found at www.baconsimulation.webnode.com

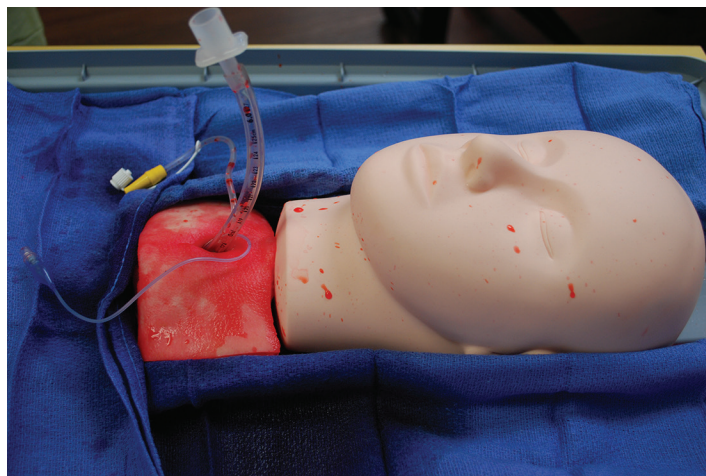


Image 2.

32 Prefrontal Cor-GUESS: Gamification that Motivates Self-Directed Learning

Crossman M, Zhang X / Thomas Jefferson University

Introduction: Gamification, the application of game design elements to traditionally non-game contexts, is a popular method to achieve increased engagement by encouraging participation amongst students. It is intended to augment instructional design, not replace it. However, it is still to be elucidated whether it is effective in fortifying learning and how exactly it achieves this. Prefrontal Cor-GUESS, an adaptation of gamification, was created to see if it motivates engagement in learning.

Learning Objective:

- 1) Facilitate learners' discovery of their knowledge gaps.
- 2) Motivate self-directed learning to close those gaps.
- 3) Inspire engagement and participation in learning.
- 4) Create a game that is easy and inexpensive to replicate.

Design: Emergency Medicine residents and students at a tertiary academic center participated as part of their weekly didactic. Learners were provided with resources to review beforehand on the topic, "controlling hemorrhage", followed by a lecture that was broken up with activities. Prior to presenting blood thinners and their reversal, learners were asked to play a game testing their retention of the material provided prior. Roughly 40 learners were then separated into 2 teams, each team given a deck of cards. Players hold the card against their forehead, which will display a blood thinner or reversal agent, and must figure out which card they have. After the talk, learners were given evaluations with options yes/no.

Impact: The results of the 22 evaluations completed indicate that this method of gamification was overall successful. The majority (86%) said the game helped them identify knowledge gaps and 90% said it motivated them to close these through self-directed learning. Open-ended responses stated



Image 1.

that they liked the presentation because it was “engaging” and “interactive with a lot of participation.” It can be easily implemented, used in an array of group sizes, and can be adapted to cover a plentitude of topics in medical education.



Image 1

33 Preparing Tomorrow’s Leaders: A Novel Approach to an Emergency Medicine Administration Rotation

Krzyzaniak S, Hafner J/ University of Illinois College of Medicine at Peoria

Introduction: The ACGME does not clearly define how programs should prepare residents for future administrative roles and responsibilities. The 2013 CORD Model Curriculum includes specific topics in “Emergency Department (ED) Administration”, however it does not recommend an ideal approach (i.e. didactics vs. dedicated rotation). Our residency curriculum includes a month-long ED administration rotation. However it was largely unstructured and dependent upon the engagement of our ED leadership. This resulted in a widely variable experience for our residents.

Learning Objective:

- 1) Prepare residents for basic administrative duties in community or academic practice
- 2) Expose residents to advanced administrative roles in preparation for future leadership roles
- 3) Empower residents to develop leadership skills within education, hospital administration and pre-hospital setting

Design: Our curricular design utilizes a humanist approach that emphasizes an individual’s values and interests to promote autonomy and foster intrinsic motivation (self-determination theory). Residents are required to complete 15 mandatory and 5 selective activities (Table 1). The mandatory activities were chosen to provide a broad overview of EM leadership and administration. Learners choose 5 selective activities they feel are most important to their professional development. By encouraging autonomy in designing their specific rotation, we promoted internalization of motivation. Engagement was tracked using a sign-in sheet that was required for successful completion of the rotation.

Impact: The structure of this curriculum and the autonomy granted by allowing residents to select rotation components improved engagement. Our residents participated in a wide variety of selective opportunities (Table 2), reflecting the diverse interests of today’s EM residents. Of the 51 selectives chosen, 49% were educational, 12% were EMS, 6% were research-related, and 33% were outside of these categories.

Table 1. Mandatory and Selective Activities for Advanced EM Leadership Rotation.

University of Illinois College of Medicine Peoria/OSF Healthcare
Emergency Medicine Residency

Mandatory Activities:		
Department Administration	Residency Administration	Clinical Leadership
<input type="checkbox"/> ED Dept Mtg <input type="checkbox"/> ED Executive Committee <input type="checkbox"/> ED Advisory Council <input type="checkbox"/> Pediatric ED Quality Meeting <input type="checkbox"/> Quality & Safety Committee <input type="checkbox"/> ED Leadership Meeting <input type="checkbox"/> Trauma Committee M&M <input type="checkbox"/> Unit Council <input type="checkbox"/> Professional Peer Review	<input type="checkbox"/> EM Residency M&M presentation <input type="checkbox"/> Journal club preparation <input type="checkbox"/> Review ED deaths/bouncebacks <input type="checkbox"/> Rotator orientation <input type="checkbox"/> Personal Chart Review	<input type="checkbox"/> Coding/billing review
Selective activities (choose any 5)		
Education	EMS	Research/Ultrasound
<input type="checkbox"/> Student teaching shift (4 hours) <input type="checkbox"/> EBM shift (4 hours) <input type="checkbox"/> M3 simulation <input type="checkbox"/> M4 simulation <input type="checkbox"/> M4 orientation <input type="checkbox"/> EMIG activity <input type="checkbox"/> UICOMP EM website blog post <input type="checkbox"/> Student ultrasound shift (4 hour) <input type="checkbox"/> Faculty meeting <input type="checkbox"/> Program director roundtable (<input type="checkbox"/> Meet with ED Chair to discuss academic department administration <input type="checkbox"/> Other	<input type="checkbox"/> Flight shift <input type="checkbox"/> Ground shift <input type="checkbox"/> EMS administration <input type="checkbox"/> EMS region 2 advisory council <input type="checkbox"/> Instructional activity with pre-hospital crew <input type="checkbox"/> Ride along with EMS director for scene response/EMS QI <input type="checkbox"/> FEMA/NIMS online training <input type="checkbox"/> Other (per EMS director)	<input type="checkbox"/> Time spent on research must be approved by program director (may receive more than 1 credit, depending on project) <input type="checkbox"/> Scanning shifts and QI with Ultrasound Director

ED: Emergency Department, M&M: Morbidity & Mortality, EBM: evidence-based medicine, M3: third year medical student, M4: fourth year medical student, EMIG: emergency medicine interest group, UICOMP: University of Illinois College of Medicine Peoria, EMS: emergency medical services, QI: quality improvement, FEMA/NIMA: Federal emergency Management Agency/National Incident Management System