

## **UC Irvine**

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

#### **Title**

Pork Belly Procedural Trainers: Creating Realistic, Cost-effective and Reusable Simulation Tools for Resident Education

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Table 2.

	a	b	c	d	e	f
1	John Smith			Monitor Meeting	Cliff	
2	CCC Reviewer: Fallon			SDOT	SDOT By:	SDOT Date:
3	From Prior CCC:			SDOT 1 Data	Sheet	not done yet
4	Strengths:			SDOT 2 Data	Banker	6/1/18
5	1 Multi-tasking			ROSH Reviewer Aug/15		84%
6	2 Medical Knowledge			ROSH Reviewers Up to Date through	July-Nov 16/2	
7	3 Professional Values			Conference Attendance	84%	
8	4.6			MOOTing/ing	No	
9	Opportunity			ROSH review, Patient Care	Flu, June 2018	
10	1 History & Physical			Administrative/Jana Comments:	6 & July, & August	Teaching duties
11	2 Technology			Research Project Complete	Yes	Pod Abdominal Catastrophe Image Published
12	3 Patient Centered			In-Service Exam:		US Guided hematoma block proposal writing and surprise question
13	4.6			PGY1		in Septe drafting manuscript
14	4.6			PGY2		
15	Current CCC:	Milestone	Summative Statement	PGY3		
16	Strengths:			Percentile	99%	
17	1 Emergency Stabilization			Chance of Passing	99%	
18	2 Medical Knowledge			POY2		97
19	3 Communication			Percentile	99%	
20	4.6			Chance of Passing	99%	
21	Opportunity			POY3		
22	1 Multi-Tasking			Percentile		
23	2 Accountability			Chance of Passing		
24	3 Patient communication			Total # Procedures		1224
25	4.6			Class Range Procedures		740-1643
26				Specific Procedures Below Required		Peds reusu: 6(15), Peds Trauma 8 (10)
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### 30 PEM for EM: A Novel Pediatric Emergency Medicine Curriculum

Schwartz K, Krautwald M, Oyama L, McDaniel M/ University of California, San Diego; Rady Children’s Hospital - San Diego

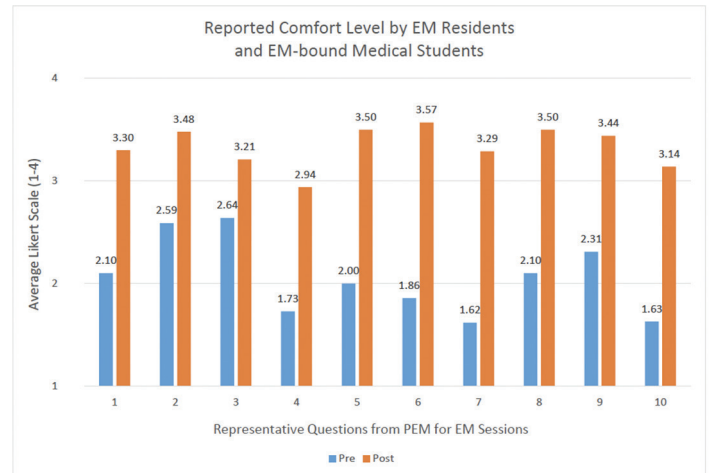
**Introduction/Background:** Children comprise approximately 20% of the emergency medicine (EM) patient population and graduates of EM residencies report a desire for more training in pediatric emergency care. Expertise from Pediatric EM (PEM) trained physicians may not be available at every institution.

**Learning Objective:** Design a comprehensive, interactive pediatric emergency medicine curriculum that is translatable to any EM residency.

**Curricular Design:** A novel PEM curriculum was devised by PEM fellowship trained physicians/educators. Each session comprised a one-hour module on an essential PEM topic. They involved team-based learning, flipped classroom, simulation, procedural workshops, and educational games. Examples included, “The Crumping Newborn,” “Pediatric Respiratory Distress Toolbox,” “Oregon Trail: Pediatric ID in the ED,” and “Magic Bubbles: The Art of the Pediatric Exam, Pain Control, and Distraction.” A facilitators’ guide, educational resources, and any necessary stimuli were provided to PEM faculty, who led the module and contributed feedback. Learners were EM residents at all levels and some sessions also included rotating EM-bound medical students. Anonymous pre and post-session evaluations were collected.

**Impact/Effectiveness:** PEM for EM implemented gamification, team-based learning, and simulation to teach essential pediatric EM care. Pre and post-session Likert 1-4 evaluations appraised learner self-assessment of preparation and/or comfort level with common pediatric ED management. The 10 modules, each of which were evaluated individually,

showed an increase in confidence level (see Figure 1) and qualitative feedback was overwhelmingly positive. Suggested areas for improvement included requests for follow-up materials, which were incorporated in later sessions, and use of this curricular style in other aspects of didactics. The curriculum is currently in preparation for use at other institutions, including an additional site implemented this year.



Key: Representative Questions from PEM for EM Sessions

- 1) Appropriate BRUE Management
- 2) Abdominal Emergency Ddx by Age
- 3) Common Peds ID Diagnosis
- 4) Respiratory Support Use
- 5) U/S for Intussusception
- 6) Restraint for Procedures
- 7) Palatable Abx Choice
- 8) Salter-Harris Fracture Identification/Management
- 9) High Risk Non-Accidental Trauma Identification
- 10) Perform Peds GU Exam

Figure 1. Reported Comfort Level by EM Residents an EM-bound Medical Students.

### 31 Pork Belly Procedural Trainers: Creating Realistic, Cost-effective and Reusable Simulation Tools for Resident Education

Kei J, Mebust D / Kaiser Permanente San Diego Medical Center

**Introduction:** The field of emergency medicine (EM) requires physicians to master a variety of different procedural skills. However, many commercially available task trainers and simulation mannequins lack fidelity and are extremely expensive. Often made of plastic or rubber, they make the overall experience unrealistic and unsatisfying. Pork belly with tissue and skin can be used to create several realistic and cost effective procedural trainers.

**Educational Objectives:** Pork belly simulation trainers (PBSTs) were created with the following educational objectives in mind: 1) provide learners with an authentic procedural experience, replicating human flesh and 2) allow learners to refine and perfect their procedural skills without harming patients in the process. Pork belly simulation trainers were

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](http://www.baconsimulation.webnode.com)

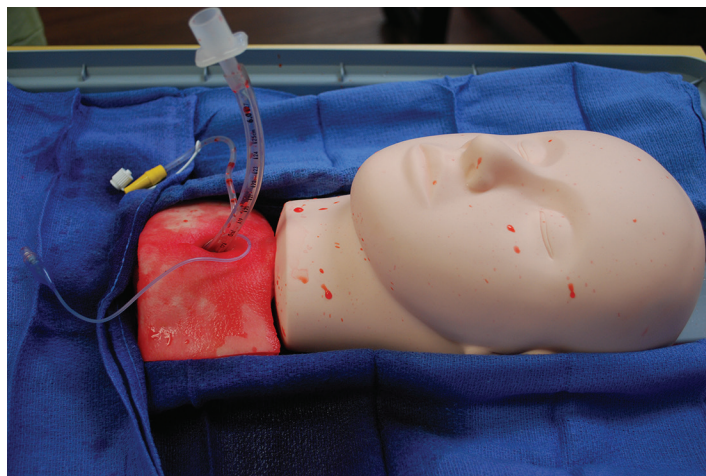


Image 2.

## 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.