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Data-Driven Evaluation of Residents' Clinical Competence: Automating the Model of Clinical Practice of Emergency Medicine

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<p>"made their CC more personal. my patient was pregnant for the first time and had vaginal bleeding for the fourth time during this pregnancy. she kept apologizing (which didn't really bother me) but her card said she was most scared because it was her first pregnancy it gave her a much more vulnerable and human image, not just another patient with vaginal bleeding that required an uncomfortable exam."</p>	<p>"Reminded me that we are treating patients, not just diseases. The exercise really came as a humanizing reminder that we take care of human beings just like us, and taking a brief moment from worrying about ordering labs, documenting, requirements for billing, etc. and instead trying to understand my patient's concerns makes our job so much more real."</p>
<p>"I found this to be extremely helpful. I think it helped me to address the pts specific concern and discuss it with them. It also helped form a meaningful connection. Knowing someone's biggest worry is a big deal. I felt honored to discuss it with them and have a truly honest conversation."</p>	<p>"Made me think harder about treatment options I was considering - cost, ease of getting med and follow-up (transportation). Humbling to realize all the issues my patients are dealing with and how their health fits into or exacerbates those struggles"</p>
<p>"Psychiatric patient reflecting on being treated like a "human being". Very humbling and made me much more conscious of how I treat and respect my psychiatric patients"</p>	<p>"It made me think deeper about them as a being - This brings us back to the reasons we chose to work in this environment and reminds us that compassion and human connection are just as important as meds and clinical care"</p>

Figure 2. Example provider reflections displaying the theme of patient "humanization".

## 17 Critical Conversations: Using Simulation to Improve Comfort & Skill With Goals of Care Discussion.

Dorsett M, Lawrence C, Oberle A, Galante M, Aubin C /Washington University in Saint Louis, St. Louis, MO; David Grant Medical Center, Fairfield, CA

**Background:** Despite evidence that most Americans would prefer to die at home, the majority of them die in a health care institution. Goals of care conversations reduce the incidence of unwanted aggressive intervention, but physician discomfort with goals of care conversations leads to avoidance of such conversations. This suggests a need for a formal educational intervention to teach these critical communication skills, especially in the field Emergency Medicine which encompasses the care of both the critically and chronically ill.

**Educational Objectives:** To increase resident comfort and proficiency with goals of care conversations in an emergent setting.

**Curricular Design:** The educational intervention began with a didactic component covering both common terminology in end-of-life care, as well as a review of terminology to utilize and avoid during end-of-life conversations. Following this didactic session, learners participated in four different simulation cases that utilized high fidelity mannequins as patients and actors as family members. These cases addressed common goals of care scenarios in the emergency setting, including an advanced lung cancer patient unaware of his prognosis, a pair of conflicted family members with difficulty making decisions for an acutely ill and elderly mother, a hospice patient with progressive dyspnea, and a neurologically-devastated patient to be terminally extubated in the ED. Each case required residents to initiate direct but empathetic goals of care conversations with patient and/or family. Debriefing was performed by the standardized family

member(s) and an independent moderator. Feedback was given on bedside manner, terminology used and effectiveness of overall communication.

**Impact/Effectiveness:** Using a 5-point Likert scale format, emergency medicine resident physicians were surveyed before and after participation in the end of life simulation session. Post-participation, residents endorsed being significantly more comfortable initiating end of life conversations (3.7 vs. 3.3, p=0.009), contacting palliative care or hospice (3.7 vs. 2.4, p< 0.001), and initiating palliative, comfort or hospice care in the emergency department (3.5 vs. 2.3, p = 0.001).

## 18 Data-Driven Evaluation of Residents' Clinical Competence: Automating the Model of Clinical Practice of Emergency Medicine

von Reinhart A, Savage D, Sawtelle Vohra S /UCSF-Fresno, Fresno, CA

**Background:** Accurate, efficient tracking of procedures poses technical challenges that have been the subject of recent research and innovation. Procedural competency is only a portion of the knowledge and experience residents need to obtain through postgraduate training. The Model of Clinical Practice of Emergency Medicine ("EM Model") is a comprehensive list of everything the fully trained EM physician should have mastered. It is scientifically-derived, widely accepted, and details the breadth and depth of our field. First published in 2001 based on empiric data, it is reviewed and updated by panels of experts every 2 years. It serves as the basis for ABEM examinations, and is foundational to curricular planning by ACEP, CORD-EM, and residency programs across the US.

In 2011, Tintinalli et al published one of the only studies attempting to quantify the variation in clinical encounters among trainees in the same program. They found substantial variation among residents in the same cohort, 30% to 60%, with maximal variation corresponding to roughly 1 year of clinical training. There is currently no accepted method for tracking this wide variation, leaving learners and educators to guess at gaps in clinical experience, without data to inform educational plans.

**Educational Objectives:** To build a tool to automatically track resident clinical encounters by mapping all items of the EM Model to diagnostic and procedural codes already recorded in patient charts.

**Curricular Design:** We mapped each Model of EM item to 1 or more ICD-10 codes and SNOMED concepts, and each procedure to 1 or more CPT codes. These surrogates are nearly universal searchable constants in the EMR; each item and its matching code(s) can be queried in real time to

measure residents' progress.

**Impact/Effectiveness:** Accurate, automated tracking of residents' clinical experience provides powerful data that can guide learning plans and patient selection for the individual, and broader curriculum planning for the program.

## 19 Development of a Multidisciplinary Curriculum for Education of Trauma Teams During Weekly Emergency Medicine Residency Conference

*Naik N, Farmer B /New York Presbyterian - Weill Cornell, New York, NY*

**Background:** Coordination and collaboration between trauma surgery, emergency medicine, anesthesia, nursing, and EMS is necessary for care of trauma patients. While many institutions have developed multidisciplinary in-situ team training programs to work on communication and teamwork in the setting of trauma, formal residency didactic education on trauma care has remained isolated to individual department weekly conferences.

**Educational Objectives:** To develop a multidisciplinary conference curriculum involving trauma surgery, emergency medicine, anesthesia, nursing and EMS to improve knowledge, skills and collaboration in trauma care.

**Curricular Design:** Educators from trauma surgery, emergency medicine, anesthesia, and nursing developed an interdisciplinary curriculum focusing on abdominal and pelvic trauma. The curriculum sought to incorporate multiple modalities of education to focus on medical knowledge, application of knowledge, procedural skills, teamwork and communication used in trauma resuscitations over a four hour conference during weekly EM didactics. Over 50 learners including EM residents, surgery residents, anesthesia residents, EM physician assistants, EM nurse practitioners, SICU nurses, EM nurses, and EMS personnel participated in the four hour conference. Two thirty minute lectures were used to educate all services on the medical approach to abdominal and pelvic trauma. Three hours were split into rotating small groups involving 1) hands-on skills stations focusing on FAST exam and use of pelvic binders and tourniquets, 2) a high fidelity simulation focusing application of medical knowledge and critical thinking in a case of abdominal trauma resulting in diaphragmatic rupture, and 3) a high fidelity pelvic fracture simulation focusing on teamwork, communication, role definition, and handoffs between services. A wrap-up discussion provided an opportunity for the learners to summarize concepts they learned that would change their practice in the clinical environment. In-situ trauma simulations provide

opportunities to reinforce these concepts.

**Impact/Effectiveness:** A multidisciplinary educational trauma conference during weekly EM residency conference enables unified and collaborative learning to enable coordinated care of the trauma patient.

## 20 Development of a Novel Ultrasound Peritonsillar Abscess Model for Simulation Training

*Plitt J, Ng V /University of Arizona, Tucson, AZ*

**Background:** Peritonsillar abscess (PTA) is a common presentation to emergency departments. Often, residents perform their first PTA needle aspiration in the clinical setting, a nerve-racking experience with multiple potential complications. Few PTA task trainers have been described, none of which allow for ultrasound image acquisition, which improves procedural safety. Simulating PTA needle aspirations under ultrasound guidance with a realistic model can build confidence and proficiency prior to performing this procedure on a clinical shift.

**Educational Objectives:** To create a realistic task trainer that allows emergency medicine residents to acquire ultrasound and needle aspiration skills when draining a PTA.

**Curricular Design:** The task trainer was built with low-cost, replaceable, and easily cleanable materials. An airway mannequin head, internally stripped aside from the tongue, was placed upright on a mesh wire cylinder attached to a wooden base. Water and barrier lotion were combined to simulate abscess material and injected into a small water balloon. The balloon was glued to the bottom of a paper cup with a tongue depressor taped to the inside, allowing insertion into a slit made at the base of the tongue, thereby maintaining correct abscess orientation. The cup was filled with ballistic gelatin and layered with cotton to obscure the balloon. After setting, a uvula and two tonsils were painted on top. Cups were replaced after each needle aspiration.

**Impact/Effectiveness:** Residents were surveyed on their comfort performing PTA needle aspirations and on task trainer utility. Eleven of 16 residents have previously drained 1-3 PTAs, with the rest having no prior experience. On a 1-5 visual analog scale, residents rated their comfort with the PTA procedure as 2.07 before and 3.64 after practicing the procedure on the trainer. Similarly, residents felt ultrasound images were representative of real PTAs (mean 3.41, range 1-5). The model was felt to be realistic (mean 3.73, range 1-5) and easy to use (mean 4.08, range 1-5). An ultrasound guided PTA task trainer has not yet been reported. This low-cost model increased resident comfort in performing PTA needle aspiration, provided realistic ultrasound images, and allows for