Curricular Design: A simulation case involving a patient with an intentional acetaminophen overdose who refused care was specifically designed to assess participating residents in the professional values (PROF1) milestone. The level 3 and 4 milestones regarding alternative care plans (level 3) and ethical issues in complicated and challenging clinical settings (level 4) were identified as difficult to routinely assess in other arenas. During the simulation encounter, the patient continually refuses care and becomes increasingly agitated with each treatment attempt. The residents must evaluate the patient's right of refusal and decision making capacity in order to create a plan for evaluation and treatment despite the refusal.

Impact/Effectiveness: Targeted simulations can be successfully designed to obtain multiple data points to ensure resident achievement in defined difficult to assess milestones resulting in more accurate feedback to residents. Levels 3 and 4 of the PROF 1 milestone involving the sub-competencies alternative care plans and ethical issues were identified as difficult to routinely assess in the clinical arena. Our case provides education faculty the means to ensure accurate resident achievement of these particular level 3 and 4 sub-competencies within the PROF1 milestone. Resident feedback regarding this simulation and opportunity for assessment was overwhelmingly positive.

61 Take a Stab at It - A Novel and Economical Chest Tube Model for Procedural Skills Education

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Background: Proper placement of chest tubes is required for efficacy and avoiding complications such as lung injury, blood loss, liver lacerations and damage to vessels and nerves. Simulators and models allow trainees to practice skills, overcome anxiety about complex procedures, and achieve higher levels of technical proficiency before attempting procedures on patients. High-fidelity simulators and commercially available task-trainers can be prohibitively expensive and costly to maintain or replace when used for teaching large groups.

Educational Objectives: Our educational needs included a chest tube model that could economically provide multiple chest tube insertion attempts to a large number of learners, and could be adapted to simulate different chest sizes.

Curricular Design: Our model was constructed using materials readily available: 1-gallon plastic jug ($1.00), plastic wrap ($2.19), package of latex balloons ($0.99), pork spare ribs ($2.99/lbs.), 3-inch foam tape, and super glue.

Model construction: Empty the jug and lay it on its side. Opposite the handle, cut a 3x4 inch rectangular window. Place a balloon in the spout of the jug and inflate so that it fills the inside of the jug and tie off. Glue the side opposite the opening to a piece of plywood. Cut a section of spare ribs to cover the window and wrap the ribs in plastic wrap. Next, use foam tape to secure the slab of ribs over the opening.

Procedure: Make an incision in the "skin" (foam tape), then bluntly dissect down to the ribs and puncture through the intercostal muscles. The opening can be enlarged with Kelly forceps and when a finger is inserted the "lung" (balloon) is palpated. Next, insert a chest tube through the opening and secure using silk suture.

Impact/Effectiveness: The biggest impact of this innovation is that this model can be constructed for about $10 whereas a commercially available task trainers cost $4,300 and the replacement inserts (which endure 6 sticks) cost $184 each.3 It simulates some of the important landmarks for ensuring proper placement, with direct visualization through the clear jug. Learners can also experience some of the potential complications of chest tube placement such as, injury to lung tissue, misdirection of the tube, and tunneling under the skin.

This model was used during our recent Emergency Medicine Symposium where over 50 physicians and advance care practitioners participated in a chest tube skills station. At a low-cost we were able to provide a realistic model for multiple learners to use. The feedback from this skills station was overwhelmingly excellent.

Figure 1.

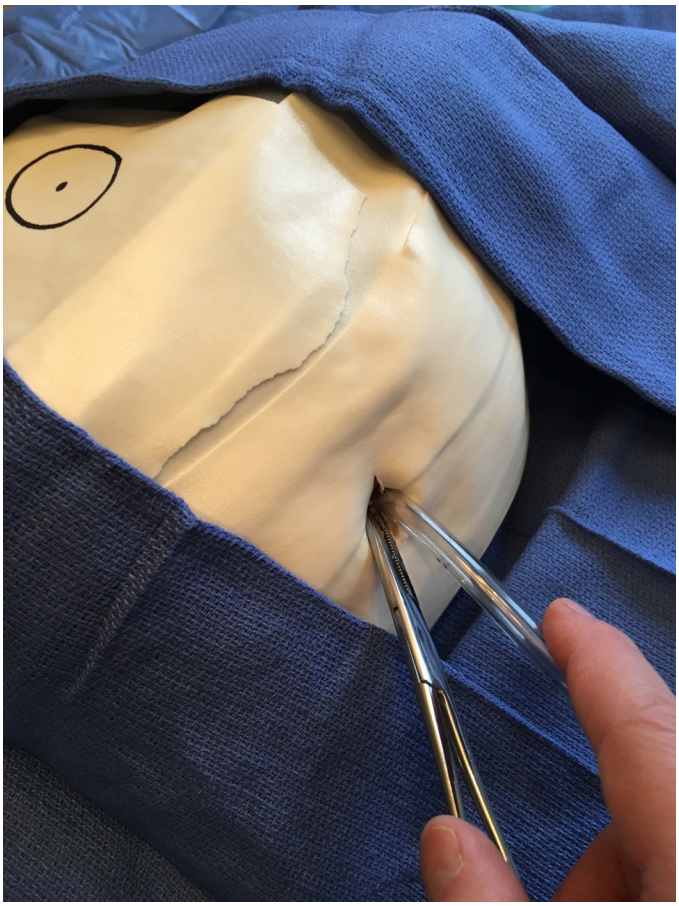

Figure 2.

62 Teaching the Teachers of Point-Of-Care Ultrasound (POCUS): Creating a Checklist for an Objective Structured Teaching Examination (OSTE) for Instructors of the Focused Assessment with Sonography for Trauma (FAST) Exam

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Background: Competency in POCUS is required by the Residency Review Committee for multiple medical specialties not just limited to Emergency Medicine. As ultrasound use increases there is a need to ensure that senior residents and faculty are adept at instructing novice learners in POCUS. OSTEs focus on the teaching skills of residents and faculty and have been utilized to evaluate and enhance clinical teaching. There is a lack of literature detailing OSTE use in teaching procedures like POCUS.

Educational Objectives: We sought to create an OSTE checklist that could be used to evaluate an instructor teaching a FAST exam to a novice ultrasound learner. This OSTE is the basis for creating a curriculum for the instructor and evaluating the effectiveness of teaching the teachers of POCUS.

Curricular Design: A panel of faculty from our institution with both POCUS and medical education expertise created a preliminary OSTE checklist after reviewing the literature. The checklist was organized into three parts: short didactics, hands-on scanning and overall learning climate. We conducted a cross-sectional survey which was IRB exempt. We sent the draft checklist to a convenience sample of ultrasound directors for review. We asked specifically, "Is each particular point/item important for a FAST teacher to perform when instructing a novice ultrasound learner?" and the results were recorded in a binary fashion.

Impact/Effectiveness: The checklist was reviewed by 13 US directors nationally. A cutoff of 75% of respondents scoring the item as YES/KEEP was used to determine whether individual items should be kept or dropped. The final OSTE checklist reflects a total of 29 items out of the original 33 draft items (Table 1). Creation of a FAST OSTE will facilitate the development and evaluation of curriculum specifically designed for the instructors of POCUS starting with the core application of the FAST exam.

POCUS: OSTE Checklist for the FAST Exam

Didactics	Keep	Discard
1. Reviewed Basic Ultrasound Principles		
• Piezoelectric crystals send/receive sound waves converting back and forth sound/energy	69.2%	30.8%
• Tissue appearance based on acoustic impedan (Bone high attenuator/white, Tissue medium/grey, Fluid low/black)	100%	0%
• Two keys to resolution: Frequency (High/good resolution, Low/good penetration), Focal zone (keeping object of interest in center of screen)	76.9%	23.1%
• Artifacts positive and negative role in the EFAST exam: enhancement/posterior to bladder, mirror/present in normal thorax	100%	0%
2. Reviewed Machine Knobology		
• Probe selection	100%	0%
• Frequency button and settings	69.2%	30.8%
• Gain button and settings	100%	0%
• Depth button and settings	100%	0%
3. Reviewed Orientation		
• Probe marker relationship to screen indicator	100%	0%
• Tips to confirm probe marker (gel or touching one end)	84.6%	15.4%
• Standard Longitudinal view (head/left side screen)	84.6%	15.4%
• Standard Transverse view (patient's right/left side screen)	84.6%	15.4%
4. Defined the mnemonic FAST	84.6%	15.4%
5. Reviewed indications for FAST exam	100%	0%
6. Reviewed the limitations of FAST exam	100%	0%
7. Reviewed the four anatomical windows for the FAST exam	100%	0%
8. Presentation was understandable and organized.	76.9%	23.1%

Hands-On Scanning	Keep	Discard
1. Facilitated learner's image acquisition by recognizing and correcting probe position and beam direction.	100%	0%
2. Used verbal cues to slide, rotate, fan, rock, flatten or change pressure of the probe prior to demonstrating or physically directing the learner's hand.	100%	0%
3. Emphasized the importance of fanning through the entire window (liver/kidney, spleen/kidney, pelvis long and transverse) to evaluate for hemoperitoneum.	92.3%	7.7%
4. Instructed how to visualize above the diaphragm in the LUQ and RUQ views.	100%	0%
5. Instructed how to rotate probe when rib shadows obstruct visualization.	92.3%	7.7%
6. Highlighted need to visualize inferior pole of R kidney in RUQ.	76.9%	23.1%
7. Highlighted need to visualize entire spleen/subdiaphragmatic not just the splenorenal interface in LUQ.	84.6%	15.4%
8. Explained that the Trendelenburg position will improve sensitivity for detecting free fluid.	53.8%	46.2%
9. Explained that perinephric fat may appear as free fluid and the importance of comparing to opposite side.	69.2%	30.8%

Learning Climate	Keep	Discard
1. Actively sought questions from the learner.	92.3%	7.7%
2. Probed the learner with questions to gauge understanding.	100%	0%
3. Offered specific positive feedback.	84.6%	15.4%
4. Offered specific corrective feedback.	100%	0%
5. Created a comfortable/safe learning environment.	76.9%	23.1%
6. Summarized key teaching points from the encounter	92.3%	7.7%

Figure 1.

63 Teaching Video and Hands on Learning Improve Slit Lamp Exam Workshop

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Background: Learning through multimedia can fill gaps in less commonly performed procedures and clinical exam skills. 4th year medical students (MS4's) and interns are generally uncomfortable and not proficient with slit lamp exams (SLEs). A concise video presentation that can be watched prior to an educational workshop, and also available for review on shift improves the provider's comfort and proficiency in performing a SLE. This model incorporates video learning, interactivity, practice, and repetition, which have been shown in prior studies to improve learning outcomes.