

Figure 1. Percentage of programs covering health equity topic.

## 17 From Triage to Transformation: Medical Students Navigating Health Systems Science in the Emergency Medicine Clerkship

Mark Olaf, Keith Willner, Devon Bremer, Jennifer Spinozzi

**Introduction:** Health System Science (HSS) is the third pillar of medical education and addresses the underpinnings of how medical care is delivered, how populations of patients are cared for, and how to reduce the cost of care while optimizing outcomes. There is a paucity of literature regarding incorporating HSS principles and education into clinical curricula.

**Educational Objectives:** We aimed to develop clinically based, EM-centered, constructive learning opportunity to emphasize and teach students about Health Systems Science Principles and to assess its efficacy through a qualitative approach.

**Curricular Design:** Using a constructivist learning theory framework, we instituted a HSS shift into our clinical curriculum and asked students to reflect on their experiences. Students spent time in triage, with charge nurses, with care managers, EMS, and in patient transfer centers. Students were also asked to involve themselves in meaningful patient care opportunities when they became apparent. Students then submitted reflections regarding opportunities to meaningfully contribute to patient care, and the process of and challenges relating to managing ED patient flow, based on these experiences. We then performed a qualitative analysis using a constructivist learning theory framework using phenomenological methods adapted to the reflections provided by this experience.

**Impact/Effectiveness:** 115 students completed the exercise and all responses were analyzed. Identified themes and respective sub-themes included patient care roles and contributions including triage mechanisms, interdisciplinary

collaboration, and interpersonal patient interactions; challenges to ED flow, including staffing shortages, patient overcrowding, bed availability; and solutions and suggestions for improvement, including education and training opportunities, improved communication, and resource allocation. The development of this curricular content appears to have generated thoughtful insight into elements of health systems science in the clinical environment. Future work should focus on assessing HSS related outcomes, including medical knowledge principles, and expanding this experience to more fully integrate with HSS principles learned elsewhere in their medical school curricula.

## 18 Einstein's Last Words: Enhancing On-Shift Learning in the Busy Emergency Department

Dylan Krause, Jessica Parsons

**Introduction:** The ED is a fast-paced environment where residents must acquire and apply knowledge. While traditional teaching methods are effective, active learning during shifts can improve knowledge retention. Whiteboard teaching offers a flexible way to highlight learning points without disrupting patient care. We developed a method called "Einstein's Last Words," where learning points are recorded on a whiteboard and shared with all learners after sign-out of patient care. This efficiently disseminates and reinforces learning points, enhancing on-shift education.

### Educational Objectives:

- Promote active learning and knowledge retention on-shift by collecting and reinforcing key points.
- Implement whiteboard teaching as an efficient strategy that does not distract from workflow of the ED.
- Provide opportunities for peer teaching.

**Curricular Design:** In December 2024, residents completed a pre-survey on their perception of on-shift teaching. Following a didactic presentation in January regarding this method, ED team members began writing learning points on whiteboards related to active cases, covering topics like differential diagnosis and management (figure 1). These notes were shared at sign-out to reinforce learning. After six months, residents completed a post-survey. This project was met initial challenges in consistent use, which was resolved by frequent reminders.

**Impact/Effectiveness:** Of the 41 residents who completed the pre-survey and 28 who completed the post-survey, 89% reported that whiteboard teaching enhanced on-shift learning without detracting from patient care (figure 2), and 100% recommended it for ongoing use. This low-cost, effective strategy can be readily adopted by other ED programs. Future goals include optimizing session frequency and exploring interdisciplinary expansion.

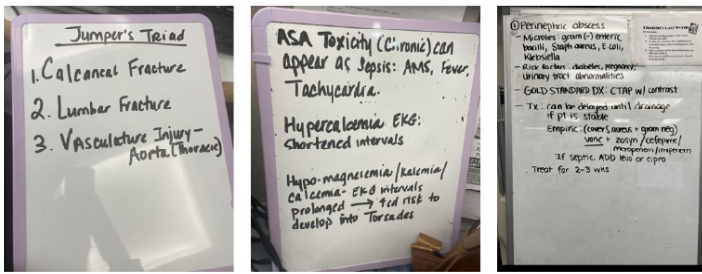


Figure 1. Examples.

## 19 Palliative Care Needs Assessment for Emergency Medicine Residents

Meghan Harrington, Kent McCann

**Introduction:** In 2012, ACEP created a palliative care (PC) subgroup to study the intersection of EM and PC; they developed a list of provider skills that integrate primary PC with concepts relevant to EM.

**Objectives:** This needs assessment explored how Baystate EM residents rate: 1) the importance of PC skills in EM, 2) the teaching they have received, and 3) their comfort level with these skills, all to assess whether more training is needed.

**Methods:** We developed a survey based on current literature that was sent to EM residents in one program. Likert scale 1-5 was used to establish proportions of respondents who agreed or disagreed with statements and Z-tests were used to obtain p values. A priori, we intended to test the following hypotheses: 1) more participants will feel PC skills are important than feel teaching is sufficient; 2) more participants will feel PC skills are important than feel personally comfortable exercising the skill; and 3) participants will feel teaching is insufficient at the same rate that they feel uncomfortable.

**Results:** Of 47 residents, 32 responded (68%). When accounting for any given skill surveyed, 75 to 100% of residents feel the skill is important, 3 to 34% feel the teaching of that skill is sufficient (18 to 74% feel it is insufficient), and 9 to 46% feel comfortable exercising the skill (while 6 to 53% feel uncomfortable). For hypotheses 1 and 2, the null was rejected across every skill. For hypothesis 3, the null failed to be rejected for all but five skills. Participants were also surveyed on preferred learning modalities, and bedside teaching and small groups tied for top vote.

**Conclusions:** Results suggest that EM residents find PC skills important but do not feel comfortable exercising them. The lack of significant difference between the proportion who felt uncomfortable and the proportion who reported insufficient teaching suggests an association between teaching and comfort. Over 53% of residents reported

feeling uncomfortable with family witnessed resuscitation, the highest proportion of any skill. Results suggest that a simulation with subsequent debrief (a practical application of both bedside teaching and small groups), would be effective to improve the skill of running a family witnessed resuscitation.

Provider Skill	Reported Important	Reported Sufficient Teaching	Reported Insufficient Teaching	Reported Comfortable	Reported Uncomfortable
Pain control	96.9	28.1	18.8	43.8	6.3
Treating distressing non-pain symptoms	78.1	18.8	34.4	34.4	18.8
Difficult communication	100	21.9	25	37.5	21.9
Goals of care discussions	93.8	28.1	37.5	46.9	25
Caregiver support	75	3.2	74.2	18.8	43.8
Non-initiation or stopping of non-beneficial interventions	90.6	12.5	46.9	37.5	37.5
Treating common end-of-life symptoms	96.9	18.8	28.1	31.3	15.6
Care for the imminently dying and their family	90.6	15.6	50	28.1	28.1
Respect and grieving	87.5	3.1	59.4	18.8	34.4
Family witnessed resuscitation	100	9.4	65.6	9.4	53.1
Caring for patients under hospice care	87.5	9.4	68.8	15.6	25
Coping and self-care	90.6	34.4	37.5	†	†

Figure 1. Proportion (%) of respondents reporting importance, sufficiency of teaching, and comfort with palliative care skills. Denotes field that was unintentionally omitted from questionnaire and thus no data is available.

Important = Likert 4 and 5 on a scale of very unimportant to very important.

Sufficient Teaching = Likert 4 and 5 on a scale of none to more than enough (Insufficient = 1 and 2)

Comfortable = Likert 4 and 5 on a scale of very uncomfortable to very comfortable (uncomfortable = 1 and 2)

## 20 A Low-Cost, Reusable, Three-Dimensional-Printed Ultrasound Phantom for Simulation of Knee Arthrocentesis

Shivani Ruf, Sara Baker

**Introduction:** Arthrocentesis is a common ED procedure that can quickly differentiate between a limb-threatening infection and a benign inflammatory reaction, but EM physicians get less practice with this procedure as many train at programs with orthopedic residencies. EM residents would benefit from arthrocentesis simulation. Commercial simulation phantoms are expensive. Previous homemade models have been limited by lack of US-compatibility and anatomical accuracy.

**Educational Objectives:** The objective was to create a