

numbers over the 10-year period, while bowel and testicular POCUS remained rare.

**Conclusions:** We highlighted the number of specific POCUS exams performed by EM residents overall and identified trends over a 10-year period. Data were limited by the retrospective nature and inability to capture non-saved exams unless reported by residents. This information can inform POCUS training in residency and accreditation.

## 61 Unhewn Student Experience: Considering Heuristics in Emergency Clinical Knowledge – A Preliminary Report

Andrew Monick, Xiao Chi Zhang

**Background:** Diagnostic error continues to detract from patient safety and incur high costs. Cognitive bias is a key source of diagnostic failure. The framing effect poses a particular challenge to emergency physicians (EPs) since quality and sequence of information varies profoundly between cases. The extent to which individual factors augment or reduce susceptibility to the framing bias is unclear, and the role of professional expertise in particular is contested and varies across literature.

**Objectives:** This study aimed to investigate the effects of the framing bias on diagnostic reasoning given varying levels of clinical knowledge and experience. We anticipated that effects attributable to frame would be mediated by years of medical education completed.

**Methods:** This was a single-blind experimental study conducted at an academic medical center. 183 medical students were recruited in 2022. Our inclusion criterion was current enrollment at Thomas Jefferson University as a second to fourth year medical student. Students were randomly assigned to review one of two versions of a case vignette consistent with pulmonary embolism (PE). The two versions contained objectively identical clinical data but varied in frame; where one emphasized features consistent with PE, the other did not. Subjects provided their top three differential diagnoses.

**Results:** Likelihood of identifying of PE differed based upon the frame to which participants were exposed ( $p = 0.000$ ,  $df = 1$ ,  $\phi = 0.392$ ). This effect held upon subgroup analysis of each class year. As academic standing advanced, a greater proportion of respondents within the frame-toward condition identified PE as a diagnosis of interest ( $p = 0.001$ ,  $df = 2$ ,  $\phi = 0.344$ ).

**Conclusions:** Our results suggest that cognitive frame may influence diagnostic reasoning, and the extent to which it does is mediated by clinical experience. These findings can inform future medical education initiatives, particularly within EM.

## 62 Longitudinal Cricothyrotomy Competency Among Residents

Andrew Hybarger, Joseph Turner, Lauren Stewart, Dylan Cooper

**Background:** Cricothyrotomy is a high-stakes emergency procedure. Because the procedure is rare, simulation is often used to train residents. The ACGME requires performance of three cricothyrotomies, during residency, but the optimal number of training repetitions is unknown. Additional repetitions beyond three could increase proficiency, though it is unknown whether there is a threshold beyond which there is no benefit to additional repetition.

**Objective:** The objective of this study was to establish a minimum number of cricothyrotomy attempts beyond which additional attempts did not increase proficiency.

**Methods:** This was a prospective, observational study conducted at the simulation center of an academic emergency medicine residency program. Participants were first- and second-year residents participating in a longitudinal airway curriculum during consecutive years. The primary outcome was time to successful completion of the procedure. In 2020, R1-residents were timed by a trained study investigator during sequential cricothyrotomy attempts. In 2021, first- and second-year residents were similarly timed. Procedure times were plotted as a function of attempt number. Data was analyzed using T-tests, correlation analysis, and repeated measures ANOVA. Pre-procedure surveys collected further data regarding procedure experience and comfort.

**Results:** Forty-one first-year residents participated in the study. Steady improvement in time to completion was seen through the first five attempts with leveling off following the fifth attempt. Results can be seen in Image 1 and Image 2.

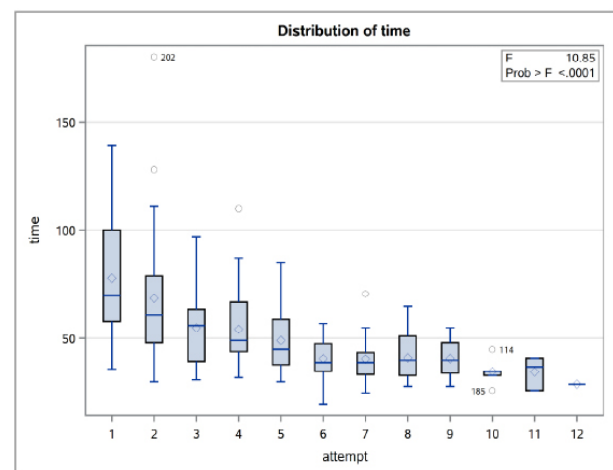


Image 1.

Least Squares Means for effect attempt Pr >  t  for H0: LSMean(i)-LSMean(j) Dependent Variable: time												
ij	1	2	3	4	5	6	7	8	9	10	11	12
1		0.6685	0.0002	0.0003	<.0001	<.0001	<.0001	<.0001	<.0001	0.0005	0.0175	0.3909
2	0.6685		0.2195	0.2022	0.0149	<.0001	<.0001	0.0003	0.0009	0.0229	0.1722	0.7181
3	0.0002	0.2195		1.0000	0.9961	0.3936	0.3768	0.5158	0.5776	0.6401	0.8797	0.9813
4	0.0003	0.2022	1.0000		0.9989	0.5093	0.4914	0.6256	0.6763	0.6988	0.9047	0.9849
5	<.0001	0.0149	0.9961	0.9989		0.9711	0.9670	0.9856	0.9874	0.9539	0.9907	0.9980
6	<.0001	<.0001	0.3936	0.5093	0.9711		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
7	<.0001	<.0001	0.3768	0.4914	0.9670	1.0000		1.0000	1.0000	1.0000	1.0000	1.0000
8	<.0001	0.0003	0.5158	0.6256	0.9856	1.0000	1.0000		1.0000	1.0000	1.0000	1.0000
9	<.0001	0.0009	0.5776	0.6763	0.9874	1.0000	1.0000	1.0000		1.0000	1.0000	1.0000
10	0.0005	0.0229	0.6401	0.6988	0.9539	1.0000	1.0000	1.0000	1.0000		1.0000	1.0000
11	0.0175	0.1722	0.8797	0.9047	0.9907	1.0000	1.0000	1.0000	1.0000	1.0000		1.0000
12	0.3909	0.7181	0.9813	0.9849	0.9980	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	

Image 2.

The 2020 first-year resident group had a faster mean time to completion on first attempt than the 2021 second-year resident group, but the rate of improvement was significantly fast for the second-year group (p=0.24).

**Conclusion:** Additional repetition beyond the ACGME-endorsed three cricothyrotomy attempts may help increase proficiency. Periodic retraining may be important to maintain skills.

**Innovation Abstracts**

**1 A Novel Pediatric Resuscitation Simulation and Procedures Curriculum for Emergency Medicine Residents**

Catherine Yu, April Choi, Kei U. Wong

**Introduction:** Pediatric resuscitation is a vital skill in emergency medicine (EM). However, EM residents have varied exposure to pediatric critical care, and not all graduating residents reach competence in pediatric resuscitation and procedures. A limited number of curricula on these topics have been described in literature, and more are needed to accommodate the diverse characteristics of resident learners. We present a new pediatric airway and resuscitation curriculum for EM residents. Educational

**Objectives:** By the end of the curriculum, learners will be able to perform pediatric intubation, jet ventilation, and neonatal warmer set-up on a simulated model. There will be an increase in perceived preparedness and comfort in managing neonatal shock and pediatric respiratory distress.

**Curricular Design:** Based on an internal needs assessment which identified gaps in pediatric critical care education, we developed a four-hour resident workshop using flipped classroom and simulation instructional methods. Flipped classrooms paired with case-based discussions promote active higher-order learning ideal for complex subjects. Simulation allows for experiential

learning of high stakes topics in a safe environment. We began with two pediatric case-based small group discussions. Residents then rotated through two resuscitation simulations and skill stations for pediatric jet ventilation, intubation, and neonatal warmer set-up. We surveyed the residents to evaluate the impact of the curriculum on preparedness and comfort in resuscitation and procedural skills.

**Impact:** Among 18 residents, there was significant improvement in perceived preparedness and comfort in managing pediatric resuscitations and performing airway procedures (p<0.0005). We continue to improve this program based on resident feedback. With varied training and exposure to pediatric critical care in EM, this curriculum offers residency educators a new resource to teach resuscitation and procedural skills.



Pediatric Resuscitation Simulation and Procedure Workshop		
Time	Activity	Description
8-9:30am	Case Discussion	Two case-based small group discussions using a flipped classroom instructional method. First and second year residents discussed neonatal jaundice and brief resolved unexplained events. Third and fourth year residents discussed status epilepticus and congenital heart disease. Each class discussion was led by pediatric emergency medicine faculty.
<b>9:35-9:40am</b> Review educational objectives and logistics		
9:40-10:20am	Simulation A	A case of neonatal shock led by pediatric emergency medicine faculty. Learners were expected to recognize, assess, and stabilize a 7-day old neonate who presents lethargic, hypoxic, and hypotensive. Learners were expected to utilize and apply crisis resource management as well as teamwork and communication skills.
15min case 25min debrief		
10:25-11:05am	Simulation B	A case of pediatric respiratory distress due to bronchiolitis led by emergency medicine faculty. Learners were expected to recognize, assess, and stabilize a 6 month old patient who presents in respiratory distress. Learners were expected to utilize and apply crisis resource management as well as teamwork and communication skills.
15min case 25min debrief		
11:10-11:55am	Mini Stations	Each station led by pediatric emergency medicine faculty.
15min per station		Station 1) Newborn warmer set-up Learners reviewed the components and logistics of a newborn warmer. Learners reviewed the "Golden Minute" of neonatal resuscitation. Learners practiced the first steps of neonatal resuscitation on a simulated model with the newborn warmer.  Station 2) Pediatric intubation Learners reviewed the anatomic and physiologic challenges in managing the pediatric airway. Learners reviewed laryngoscope types/sizes and endotracheal tube sizes. Learners practiced endotracheal intubation with direct laryngoscopy on simulated models.  Station 3) Percutaneous transtracheal jet ventilation Learners reviewed indications and contraindications. Learners reviewed the technique and set-up for performing the procedure. Learners practiced the procedure on simulated models.
11:55-12pm		Wrap-Up

Figure.

**2 Mission-Driven Individual Learning Plans: A Recipe for Resident Growth**

Matthew Stull, Zeinab Shafie-Khorassani, Marie Hoyle

**Background:** In working towards competency-based education, the ACGME now expects residency programs to utilize individualized learning plans (ILP) for all residents. While used in remediation, best practices when using ILP's more broadly has not been defined. In addition, the ACGME expects residencies to have mission statements that articulate the unique value it brings to learners. There is an opportunity to align a program's mission with the ILP. Our program developed an ILP and coaching program with prompts that anchor the residents' reflections on their progress through residency to the program's unique mission.

**Objectives:** The innovation's objectives include: 1) Develop residents' reflection on their clinical abilities with a growth orientation. 2) Align residents' growth and progression