

# Simulation and Education Resources for Community Emergency Departments enhance Pediatric Learning and PECC Engagement



Yale



CONTACTS AND REFERENCES

snimarjot.kaur@yale.edu; marc.auerbach@yale.edu  
@snimarjotkaur; @drauerbach

Authors: Snimarjot Kaur (1), Erin Montgomery (2), Kamal Abulebda (2), Theresa Walls (3), Robert Dudas (4), Jason Crellin (5), Arushi Manga (6), Carlee Lenehan (6), Jeffrey Holmes (7), Marc Auerbach (1)

Affiliation: (1) Yale School of Medicine, (2) Indiana University School of Medicine, (3) Children's Hospital of Philadelphia, (4) John's Hopkins All Children's Hospital, (5) Geisinger Health System, (6) Washington University School of Medicine, (7) Maine Medical Center

## BACKGROUND AND OBJECTIVES

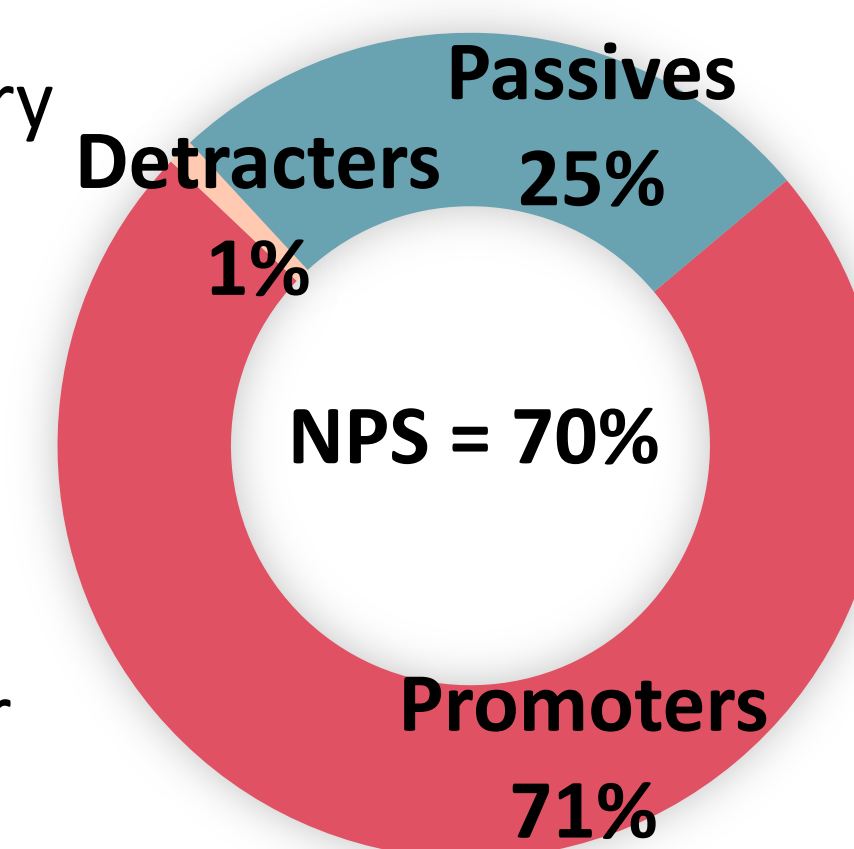
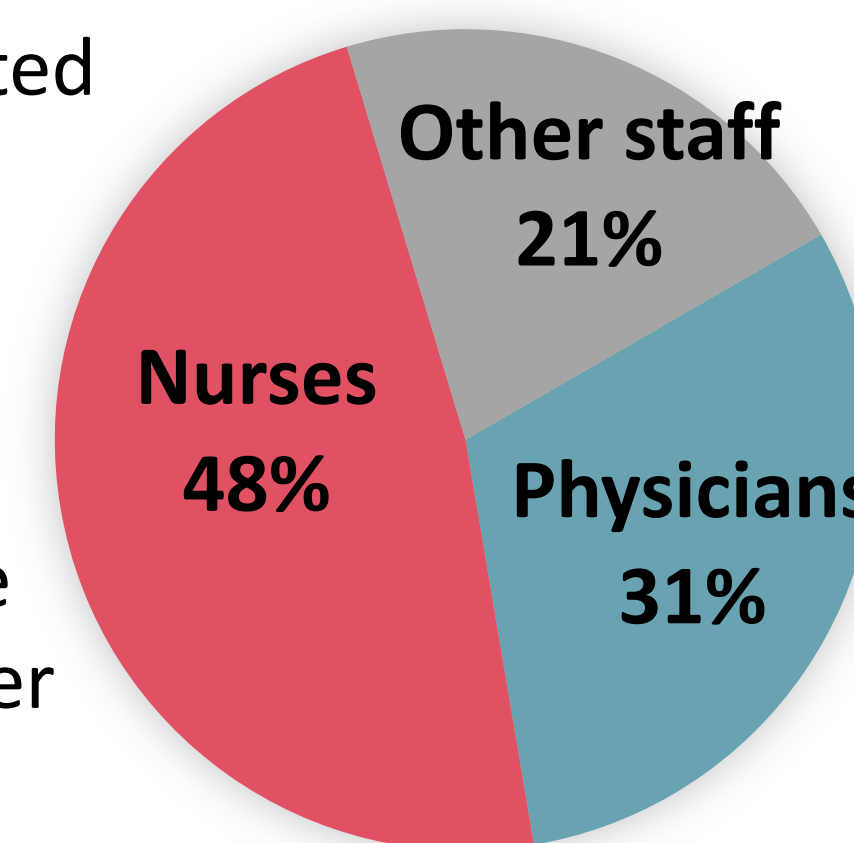
- Approximately 90% of pediatric emergency care is provided in CEDs. It is imperative to support PECCs and education in these settings to promote the quality of pediatric care provided. We developed a PECC-facilitated pediatric improvement intervention in CEDs with support from regional children's hospital partner.
- The goal of our study was to improve pediatric emergency care coordinators' (PECC) engagement, community emergency department (CED) providers' education and competency in caring for acutely ill children, and in turn, improve pediatric readiness.

## METHODS

- A PECC was recruited from each CED. They collaborated with an academic medical center (AMC) to conduct an initial in-situ simulation.
- Each PECC was provided a 10-week online educational curriculum toolkit. PECCs distributed 15-20 minute, at-home learning assignments to learners weekly.
- At the end of 10 weeks, the group repeated a set of three simulations.
- Simulation-based performance checklists were completed. Simulation cases included anaphylaxis/burns, status epilepticus, neonatal resuscitation.
- PECCs and learners completed surveys regarding confidence in management, satisfaction, and future directions with the content. Engagement with online content was measured by tracking number of learners accessing the website.
- Net promoter score (The survey to assess curriculum satisfaction based on a single question, "How likely are you to recommend this program to a colleague?" with responses scored from 0 (not likely) to 10 (very likely). Based on the scoring, responses are grouped into three categories of "promoters" (scores 9-10), "passives" (scores 7-8), and "detractors" (scores 0-6). The Net Promoter Score is then calculated as the percentage of 'promoters' minus the percentage of 'detractors', with an overall range from -100 to +100. A positive score of >20 and <50 is considered a good score, >50 is considered an excellent score.)

## RESULTS

- 15 CEDs (n= 120 learners) have engaged in the intervention. Data analysis is provided for 7 sites that completed the 12-week curriculum and 75 participants from those sites that participated in the first simulation.
- The median years of experience as a clinician were 7 (2,16) years. The median number of pediatric patients cared for monthly were 10 (4, 30).
- Simulation-based performance** - Post-intervention, learners were more confident in their ability to recognize status epilepticus in pediatric patients (p=0.016), medically manage and dose them (p=<0.002) and administer intranasal benzodiazepines (p=0.002).
- Post intervention perception** - Learners believed ED staff was better prepared to handle a precipitous delivery (p=0.033). Learners were more confident in their ability to medically manage a term newborn (p=<0.0001), locate and utilize equipment (p=0.001) and provide positive pressure ventilation (0.023).
- PECC survey** - PECCs were involved from all 7 sites (2 physician, 6 nurse PECCs). Average time in the role had been 15 months. Only 2 PECCs received paid time for their role. All PECCs cited the need for more pediatric simulations. Most helpful contribution was cited as support from content experts and pediatric education for distribution. 10 weeks of curriculum was just enough, as cited by the PECCs.



## Education Engagement : 7 sites

### STATUS EPILEPTICUS



**SIMULATION**  
90 MIN



**PATHOPHYSIOLOGY VIDEO & LECTURE**  
20 MIN

83 learners



**CHOOSE YOUR OWN ADVENTURE**  
15 MIN

63 learners



**PODCAST**  
20 MIN

60 learners



**VIDEO & ALGORITHM**  
20 MIN

51 learners



**BREAK**

**FREE**  
EDUCATIONAL  
ACTIVITIES



**NEWBORN RESCUSSIONATION**



**PATHOPHYSIOLOGY VIDEO & LECTURE**  
20 MIN

52 learners



**CHOOSE YOUR OWN ADVENTURE**  
15 MIN

43 learners



**PODCAST**  
20 MIN

43 learners



**VIDEO & ALGORITHM**  
20 MIN

36 learners



**BREAK**



**SIMULATION**  
90 MIN

Most helpful educational offerings were noted to be the neonatal and seizure case simulations followed by the podcasts and the choose your own adventure videos.

Would like more educational opportunities including simulation, lectures, podcasts:	38%
Would benefit from treatment pathways, algorithms and cognitive aids:	29%
Needed additional resources:	26%

## CONCLUSIONS

Simulation sessions, along with education intervention, facilitated by the AMCs, enhanced the knowledge and confidence of learners towards pediatric cases in CEDs and encouraged PECC engagement.