

Improving pediatric emergency readiness through interdisciplinary emergency department simulation

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Emergency Medicine - PGYII

Overview

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Background

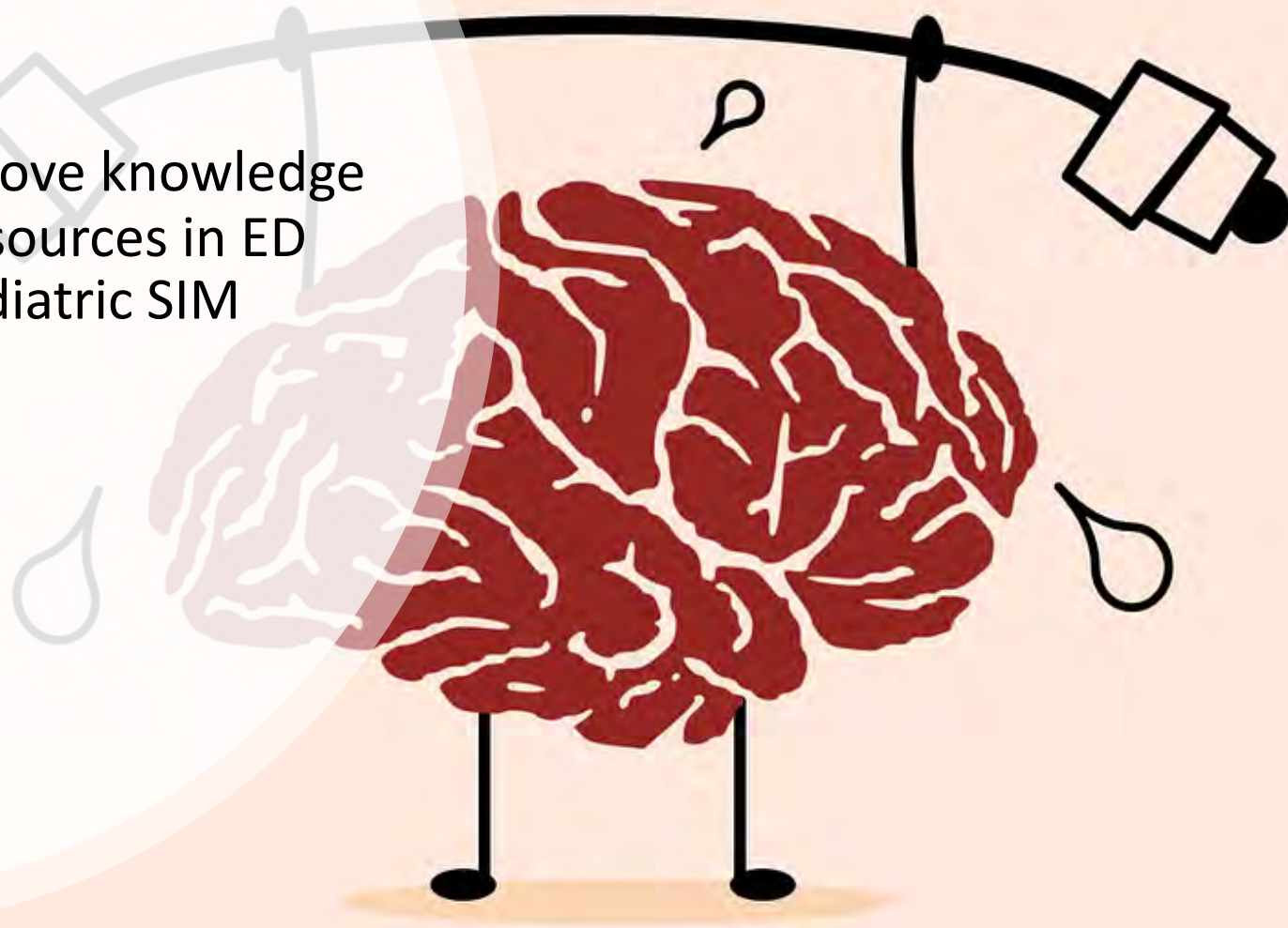
- The majority of pediatric emergency visits are made to general EDs
 - One estimate showed approximately 94% of pediatric patients presented to a general ED first ^[1].
- Our ED sees around 100,000 patients a year, around 18.9% of them are pediatric patients
- Staff in general EDs have varying experience level with pediatric population, knowledge of special pediatric equipment and their locations.



- **High-fidelity simulation** = computerized mannequins
- **In-situ simulation** = simulation within a department using available resources/equipment, involving staff from department.

Aim

- Our aim is to improve knowledge of ED pediatric resources in ED staff after one pediatric SIM session.

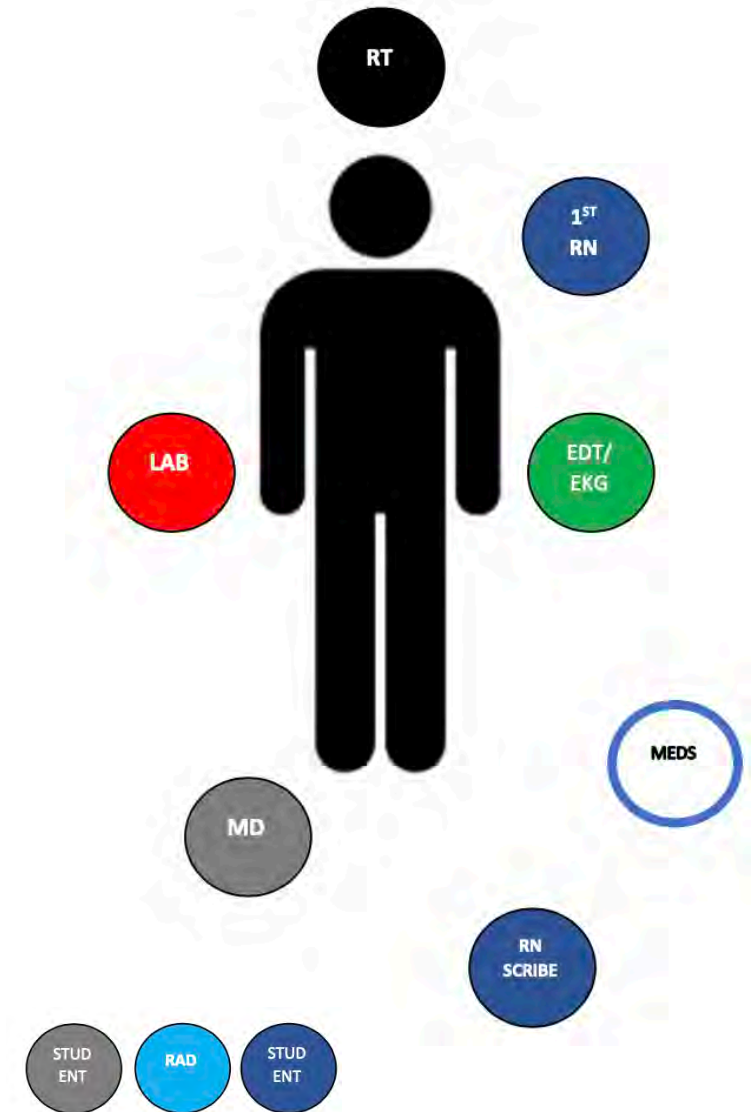


Methods

- 15-minute SIM session in the ED
- The Case: Pediatric Respiratory Distress
- Six question knowledge survey pre- and post-SIM and debrief



Pediatric Code Footprint



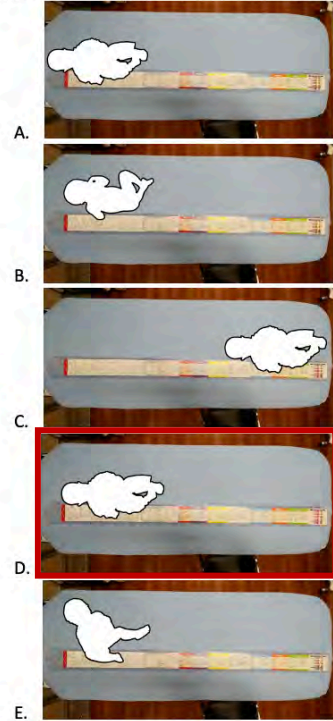


Pre-SIM Survey

1. How many pediatric crash carts are in the department and where are they located? (Circle all locations)

- A. Breezeway (across from Gyn Room)
- B. Near Rooms 25-30**
- C. Across from Room 57 (near room 50)**
- D. Across from Room 58 (near room 40)**
- E. In Room 1 and 2**
- F. In Room 9 and 10

2. Which of the following is the correct placement of the Broselow Tape?



3. Where is the infant warmer located?

- A. Breezeway (across from Gyn Room)**
- B. Near Rooms 25-30
- C. Across from Room 57 (near room 50)
- D. Across from Room 58 (near room 40)
- E. In Room 1 and 2
- F. In Room 9 and 10

4. Where is the Pediatric Procedure Cart located?

- A. Breezeway (across from Gyn Room)
- B. Near Rooms 25-30**
- C. Across from Room 57 (near room 50)
- D. Across from Room 58 (near room 40)
- E. In Room 1 and 2
- F. In Room 9 and 10

5. (True **False**) - "Sepsis alert" applies to pediatric patients as well as adult patients

6. (True **False**) - Now that we have 24-hour pediatric specialist coverage, St. Joseph's Hospital can care for intubated pediatric patients as inpatients.

Learning points

- Location of all three pediatric crash carts
 - Nursing staff already knew about the ones for ED south and north, one lesser know is the cart in the 25-30 patient area.
- Proper usage of Broselow tape
 - One observation by nursing is that some staff use the start of lamination rather than red arrow.
- Pediatric procedure cart, where is it and what's in it?
 - Helpful adjunct airways, central line. Many are present in the pediatric crash cart but useful to know if supplies run low.
- Are sepsis alerts helpful in sick pediatric patients with suspected infection?
 - Not at our institution, a PEDS alert is more appropriate



Results



Our data analysis showed improvement of survey scores after our pediatric simulation intervention



Increase from pre-survey score ($M = 5.9$, $SE = 0.42$) compared to post-survey score ($M = 6.9$, $SE = 0.24$, $t(19) = -3.1$, $p = 0.005$).

Conclusion

- Our simulation teaching intervention showed improvement of ED staff knowledge of pediatric resources and procedures as demonstrated by a pre- and post- intervention survey
- We suspect this will help improve preparation and utilization of pediatric resources for future pediatric emergencies in our community emergency department.



NEONATE/INFANT	PINK/RED
3 TO 9 KG	
SMALL CHILD	PURPLE
10 TO 11 KG	
CHILD	YELLOW
12 TO 14 KG	
CHILD	WHITE
15 TO 18 KG	
CHILD/SMALL ADULT	BLUE
19 TO 23 KG	
SMALL ADULT	ORANGE
24 TO 29 KG	

Resources

1. Gausche-Hill, M., C. Schmitz, and R.J. Lewis, *Pediatric Preparedness of US Emergency Departments: A 2003 Survey*. PEDIATRICS, 2007. 120(6): p. 1229-1237.
2. Murtagh Kurowski, E., T. Byczkowski, and J.M. Grupp-Phelan, *Comparison of Emergency Care Delivered to Children and Young Adults With Complex Chronic Conditions Between Pediatric and General Emergency Departments*. Academic Emergency Medicine, 2014. 21(7): p. 778-784.
3. Al-Elq, A., *Simulation-based medical teaching and learning*. Journal of Family and Community Medicine, 2010. 17(1): p. 35-40.
4. Paltved, C., et al., *Designing in situ simulation in the emergency department: evaluating safety attitudes amongst physicians and nurses*. 2017. 2(1).

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