Improving pediatric emergency readiness through interdisciplinary emergency department simulation

Christine Ren, MD
Emergency Medicine - PGYII

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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

Pre-SIM Survey

1. How many pediatric crash carts are in the department and where are they located? (Circle all locations)
   A. Breaseway (across from Gym Room)
   B. Near Rooms 25-30
   C. Across from Room 57 (near room 50)
   D. Across from Room 58 (near room 49)
   E. In Rooms 1 and 2
   F. In Room 9 and 10

2. Which of the following is the correct placement of the Broselow Tape?
   A. 
   B. 
   C. 
   D. 
   E. 

3. Where is the infant warmer located?
   A. Breaseway (across from Gym Room)
   B. Near Rooms 25-30
   C. Across from Room 57 (near room 50)
   D. Across from Room 58 (near room 49)
   E. In Room 1 and 2
   F. In Room 9 and 10

4. Where is the Pediatric Procedure Cart located?
   A. Breaseway (across from Gym Room)
   B. Near Rooms 25-30
   C. Across from Room 57 (near room 50)
   D. Across from Room 58 (near room 49)
   E. In Room 1 and 2
   F. In Room 9 and 10

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

6. (True or 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.
Resources


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