An innovative trauma training simulation curriculum to improve pediatric trainee's comfort in trauma resuscitation skills

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Background

•Pediatric residency programs do not have a dedicated trauma training curriculum.
•Pediatric residents feel unprepared in responding to critically ill and injured children.

Objective

- To develop and test an innovative trauma simulation curriculum for pediatric residents.

Methods

Kern's model for curriculum development:

- **Step 1:** Problem Identification: Gap in pediatric trauma training.
- **Step 2:** Needs Assessment: literature review, resident/ fellow/ faculty interviews.
- **Step 3:** Goals and Objectives:
  - Performing a primary and secondary pediatric trauma survey.
  - Managing the first 5' of a critically injured pediatric patient.
  - Identifying key components of trauma informed care.
- **Step 4:** Educational strategies: video, flashcard, simulation scenarios.
- **Step 5:** Implementation: Emails, resident academic half day.
- **Step 6:** Evaluation: Retrospective pre-post surveys.

Results

- **Main finding:** Statistically significant increase in level of comfort performing core pediatric trauma resuscitation skills after the simulation curriculum (n=50, 1-5 Likert scale 1= extremely uncomfortable, 5= extremely comfortable).

Trauma skill	Pre-intervention mean (M)	Pre-intervention SD	Post-intervention mean (M)	Post-intervention SD	Mean difference	t-value	p-value
Primary survey	2	0.97	4.02	0.65	**2.02**	12.04	**<0.001**
Secondary survey	2.06	1.21	3.88	0.7	**1.82**	10.58	**<0.001**
C-collar indications	2.29	1.15	3.8	0.93	**1.51**	8.62	**<0.001**
C-collar placement	2.02	1.29	3.9	0.84	**1.88**	10.87	**<0.001**
C-collar clearance	1.82	1.12	2.98	1.27	**1.16**	6.47	**<0.001**
Log-roll	3.1	1.37	4.45	0.82	**1.35**	7.08	**<0.001**

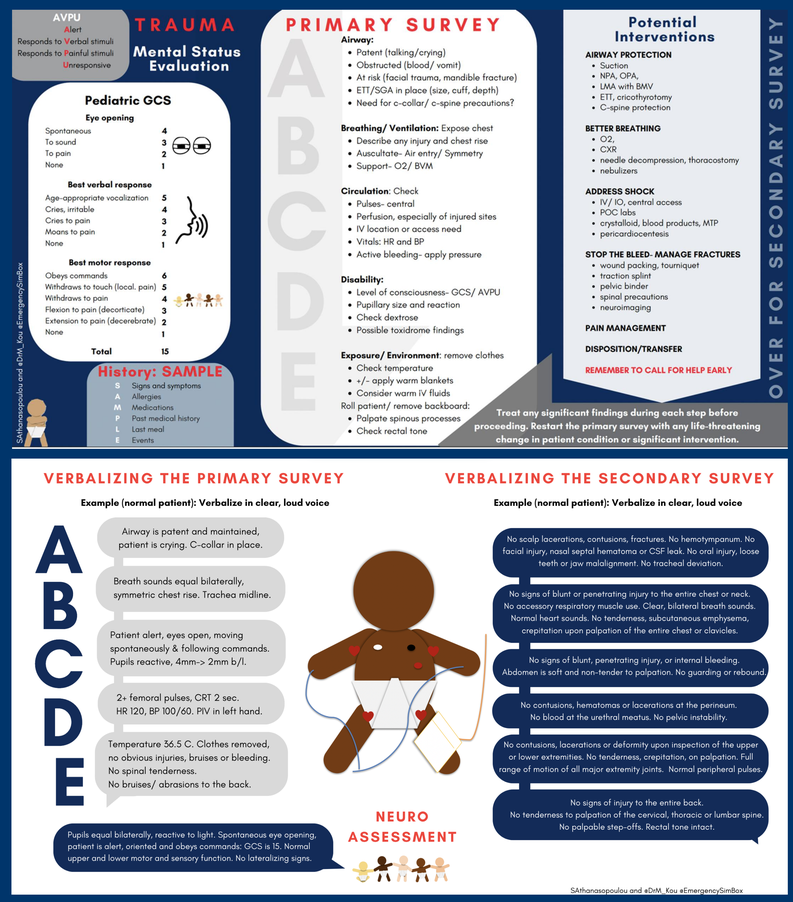
- **Limited experience:** 50% had participated in zero, 46% in less than five full trauma resuscitations prior to the simulation. 82% had participated in less than five modified traumas.
- **Common roles:** 65% put orders in the computer, 15% are family liaison.
- **Increased interest:** 82% reported they are more likely to participate in future trauma resuscitations in the ED after the simulations.

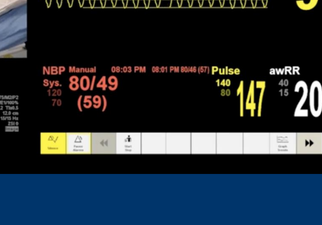
Conclusions

•An innovative trauma simulation curriculum was successful in increasing pediatric residents' level of comfort in key areas of pediatric trauma care.
•Open-access (#FOAMed) simulation resources can help address the gap in trauma training for pediatric residents.

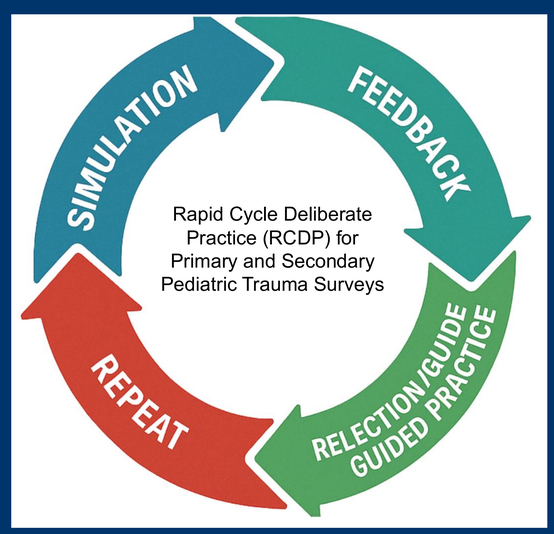
Curriculum

- **Pre-learning**: Laminated flashcard & expert modeling video





- **Academic Half Day (3-hour session):**
  - Brief didactic.
  - Primary and secondary survey practice using rapid cycle deliberate practice (RCDP) simulation.
  - **@SimBox FOAMed case-based simulations** (traumatic brain injury, blunt abdominal trauma) with interactive videos of patients and prerecorded vital signs.
  - Didactic on Trauma-informed care and available local resources by the injury prevention team.



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