

# CALLING FOR HELP! A high fidelity simulation program for critical event training in pediatric sedation cases in remote locations.

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## Introduction:

Pediatric sedation by non-anesthesiologists is a safe practice that is necessary in facilitating radiographic imaging as well as short procedures in out-of-operating-room (OOR) locations. Critical events are rare but possible outcomes and unfortunately access to pediatric anesthesiologists can be difficult given the large volume of sedation cases performed as well as OOR locations stretching to adult sectors of hospital. The management depends on fast recognition and mobilization of resources by sedation team.

We developed an anesthesia-led, multi-disciplinary educational program utilizing High Fidelity Simulation (HFS) in order to improve competency and comfort in assisting with OOR critical events. Our pilot scenario involved a 14mo child with contrast-induced anaphylaxis in an MRI scanner.

## Methods:

Participants were divided into groups including a sedation nurse practitioner, nurses, radiology technicians, and an anesthesia provider. Each group completed the scenario utilizing the Laerdal SimJr simulator in the MRI suite (Figure 1). A pediatric anesthesiologist and a nursing educator directly observed each simulation and led a facilitated debriefing targeted at:

- Improving communication
- Mobilizing resources in OOR locations
- Removal of patient out of MRI suite
- Treating anaphylaxis
- Barriers to management.

Post-course survey was administered to assess effectiveness of course.



Fig 1: Simulation taking place within MRI suite

## Results:

### Survey Feedback (n=10)

<b>RNs</b>	Benefited from cognitive aids
<b>MRI Techs</b>	Reviewed anaphylaxis and pediatric CPR
<b>CRNA</b>	Practiced communication skills

Overall positive response to feedback questions  
 Multiple requests for different simulations in other OOR areas.

### Questions using Five-point Likert Scale (Mean)

I am comfortable with pediatric emergencies in sedations.	(3.8)
I can recognize the development of anaphylaxis	(4.5)
The simulation was targeted to my level of training	(4.6)
The simulation will lead to changes in my practice	(4.3)

## Conclusions:

Our pilot in-situ simulation was an effective method of educating the MRI team in pediatric sedation crisis management.

- Reviewed diagnosis and management of anaphylaxis and inherent risks of MRI scanner
- Reinforced importance of communication between team members
- Developed a protocol to call anesthesiologist in emergencies.

We found that cognitive aids are appreciated by everyone during critical event crises (Figure 2). We also identified systems issues related to delivering pediatric sedation in OOR locations:

- Leadership role in absence of physician during crises
- Appropriate time to call anesthesiologist
- How to contact anesthesiologist (Pediatric Code Blue vs phoning pediatric anesthesiologist on-call).

We plan to simulate other critical events in alternate OOR areas such as the radiation/oncology suite, PET scanner, as well as during patient transport. Furthermore, we have begun incorporating radiology residents into our MRI simulations and hope to incorporate more learners in other specialties in order to improve safety in various OOR locations.

Fig 2: SPA PediCrisis Critical Events Checklist used as a cognitive aid during simulation.

## References:

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3. Society for Pediatric Anesthesia. "PediCrisis Critical Events Card."