



Crisis Simulation in MRI Settings

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1




Disclosures

I have no conflicts of interest.

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2



Outline

- Crisis Simulation in MRI - Why?
- How we did it at Dartmouth-Hitchcock Medical Center
- Lessons Learned and Outcomes


3



MRI settings

- diagnostic MRI
- intra-operative MRI (MRI-OR hybrid suite)
- cardiac MRI hybrid rooms
- ? future applications


4



Diagnostic MRI - case scenario

- 3 year old for MRI spine
- mask induction, PIV, propofol
- transport to scanner
 - coughing/patient movement
 - vomiting
 - desaturation

5



Simulation in MRI settings

Our prerogatives:

- **in situ**
site-specific features, MRI safety
- **interprofessional**
single anesthesia clinician, MRI techs (RNs)
- focus on **initial steps**, not ACLS per se
 - communication
 - call for help
 - decision making
 - task delegation

6

Dartmouth Health **MRI-OR crisis simulation**


7

Dartmouth Health

1st round:

(low budget, in the MRI-OR)

ad-hoc, after cases finished



8

Dartmouth Health **Barriers to crisis management:**



- Distance to patient/airway
- Availability and organization of equipment
- Call for help system


9

Dartmouth Health **MRI-safe Airway Grab Bag**

Single-person airway rescue
(temporizing measure)

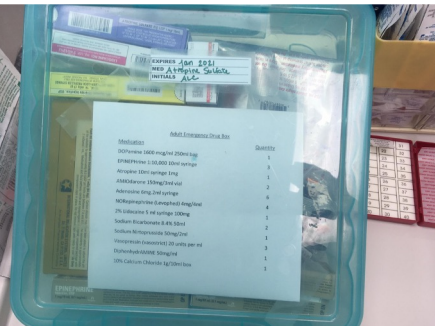
- Self-inflating bag
- Adjuncts
- Adult/Pedi version

(Implemented for all NORA sites)



10

Dartmouth Health **Code Cart Meds**



- MRI-safe
- sealed tray

(MRI-OR only)

11

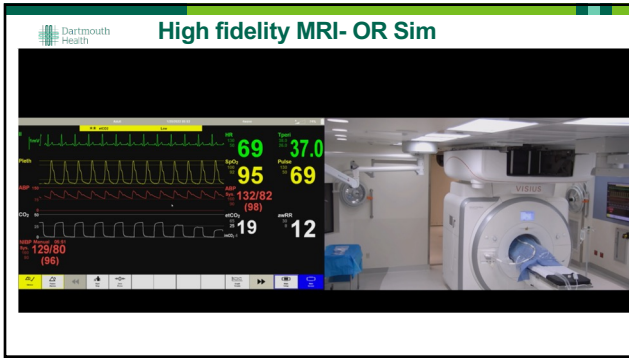
Dartmouth Health **Standardized Call for Help**

- different sites have unique issues
- day-time vs. after-hours
- hospital system still reliant on radio paging

(Implemented for all NORA sites)



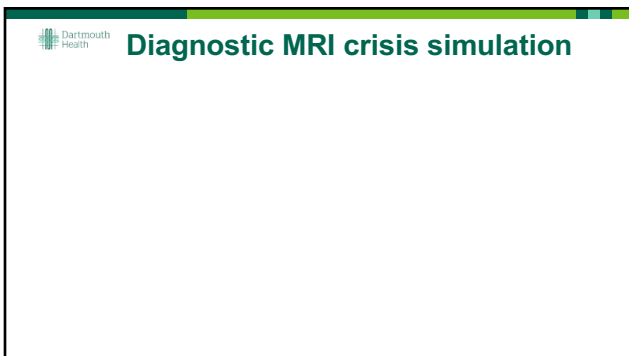
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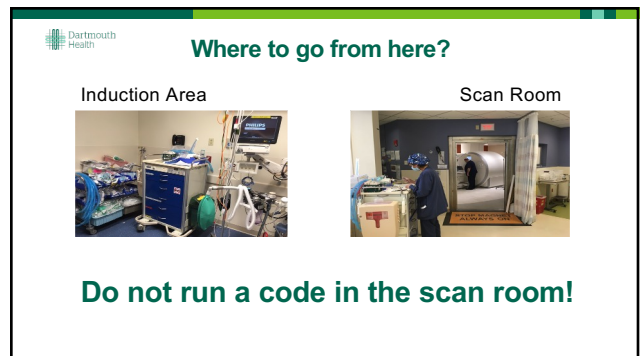
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16



17



18

Post-course Survey Results:

N >90-100 participants (MRI-OR and diagnostic MRI)
 ~ 50% Anesthesia participants

- **Relevance:** 96% of 75 respondents
- Learned something new: 89%
- Should be offered again: 88%

19

CRM for interprofessional teams:

- Systematic review with 12 included studies
- 10 studies with **improved CRM skills**
- 1 study with **improved team behaviours**
- 2 studies with sustained **reductions in adverse patient outcomes after a single simulation-based CRM team intervention.**

“[...] promise for the use of simulation-based CRM team training to enhance [...] communication and coordination abilities for crises management.”

Fung L, Boet S, Bould MD, et al. Impact of crisis resource management simulation-based training for interprofessional and interdisciplinary teams: A systematic review. *Journal of Interprofessional Care*. 2015;29(5):433-444.

20

Take home points 1/2:

Basic tenets of crisis management are hard in NORA/MRI - so consider a standard approach to:

- 1) Call for help process
- 2) MRI-safe Airway Equipment



NORA Stat Page
 NORA STAT For MRI Distress
 Ask operator to "Page NORA STAT to MRI"




ANESTHESIA EMERGENCY ADULT AIRWAY KIT
 PLEASE RETURN TO MAIN OR / ANESTHESIA DEPARTMENT

21

Take home points 2/2:

Interprofessional ad-hoc teams have to function well for optimal outcomes.

- **Crisis training can improve teamwork and facilitate solutions.**



22

Questions & Comments

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23