



# Patient-simulated cases increase confidence of trainees when managing adverse events related to radiological procedures

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## Introduction

Adverse events pertaining to radiology include severe reactions to iodinated contrast media and procedural sedation. These events are often unpredictable, potentially life-threatening, and can occur in the presence of personnel with little to no prior experience in the treatment of these types of encounters. Despite infrequent exposure to these serious situations, it is important for all radiology staff, including new incoming residents, to be familiar and confident with the appropriate management.

## Purpose

Simulation-based learning is a well-known tool used to supplement students' understanding. However, not all programs have implemented this as part of resident training for a variety of reasons. These include and are not limited to insufficient time, redundancy of training, detracting from resident training in the reading room, scheduling problems, logistical problems, and cost. In the face of these obstacles, we explore whether incorporating a simulation-based exercise in addition to lecture-based content will serve to increase the trainees' confidence when approaching adverse events pertaining to radiological procedures.

## Hypothesis

We propose that incorporating a simulation-based exercise in addition to lecture-based content will serve to enhance training and increase confidence of trainees when managing adverse events pertaining to radiological procedures.

## Methods

- Trainees were given a lecture on how to manage adverse events related to radiological procedures
- Survey was given after lecture for assessment
- Trainees then participated in case-based simulations on how to manage adverse events related to radiological procedures
- Survey was given after simulation for assessment



## Results and Analysis

When assessing how confident (scale 1-10) the trainee was in managing adverse reactions to iodinated intravenous contrast and procedural sedation based on ACR guidelines, trainees reported a statistically higher level of confidence (p-value < 0.01 for both) after participating in the simulation scenarios than the lecture alone.

## Conclusion

In conclusion, patient simulation cases serve as a great adjunct to teaching trainees how to recognize and manage patients who experience adverse events to intravenous contrast and/or sedation with radiological procedures/imaging.

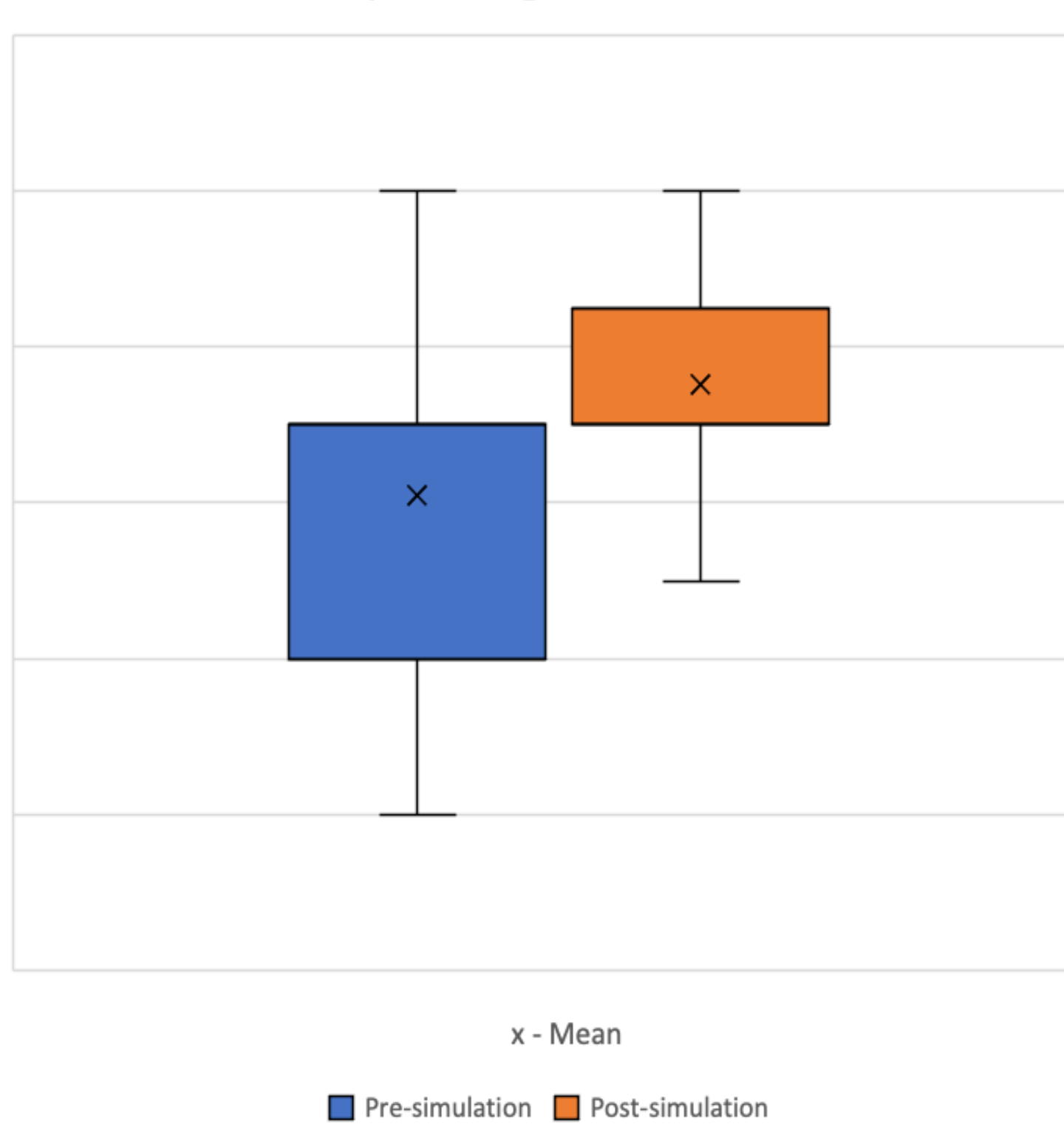
## References

Aebersold, M., (April 3, 2018) "Simulation-Based Learning: No Longer a Novelty in Undergraduate Education" *OJIN: The Online Journal of Issues in Nursing* Vol. 23, No. 2.

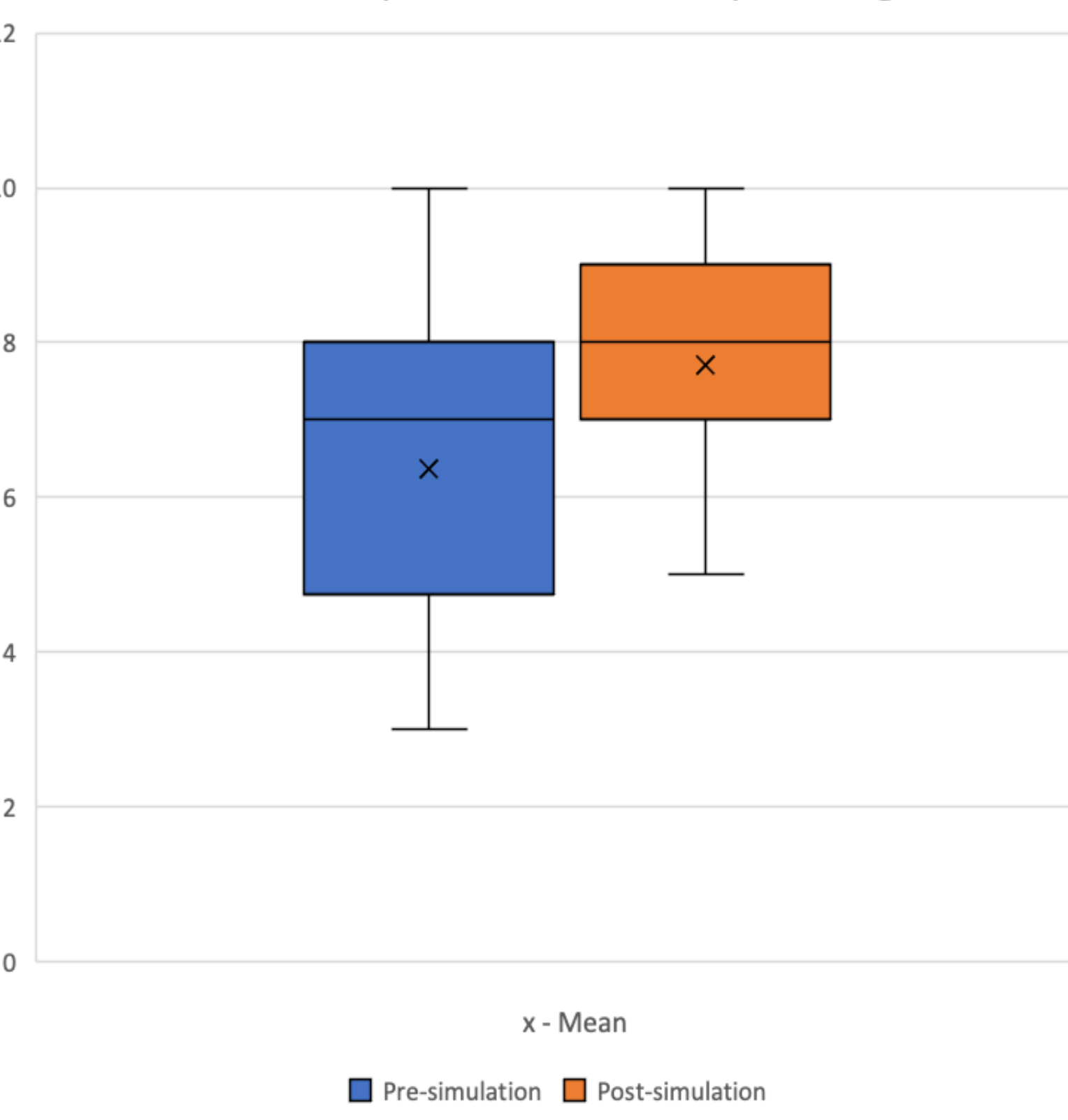
Lateef F. Simulation-based learning: Just like the real thing. *J Emerg Trauma Shock*. 2010 Oct;3(4):348-52. doi: 10.4103/0974-2700.70743. PMID: 21063557; PMCID: PMC2966567.



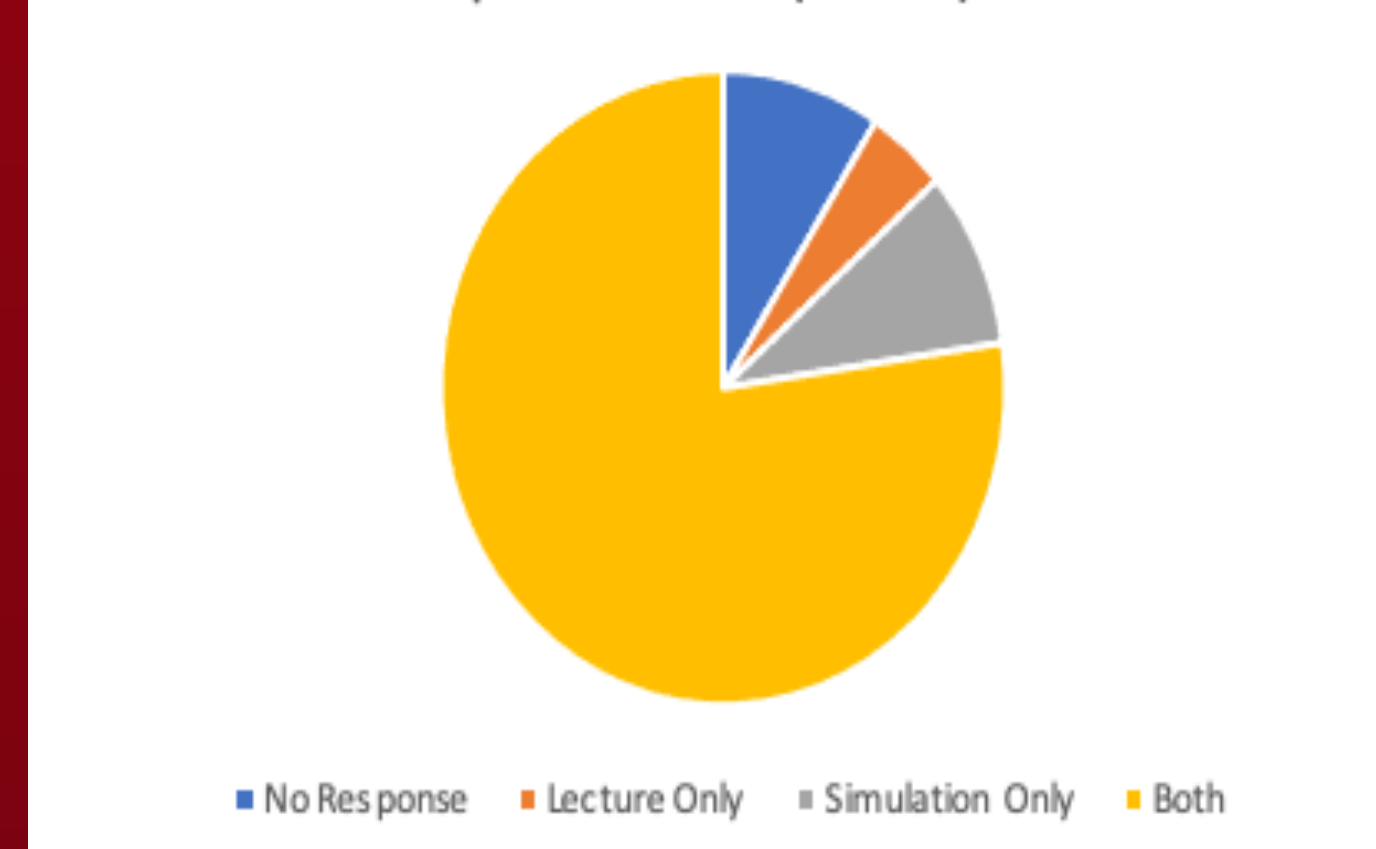
How confident (scale 1-10) are you in managing adverse reactions related to iodinated intravenous contrast media per ACR guidelines?



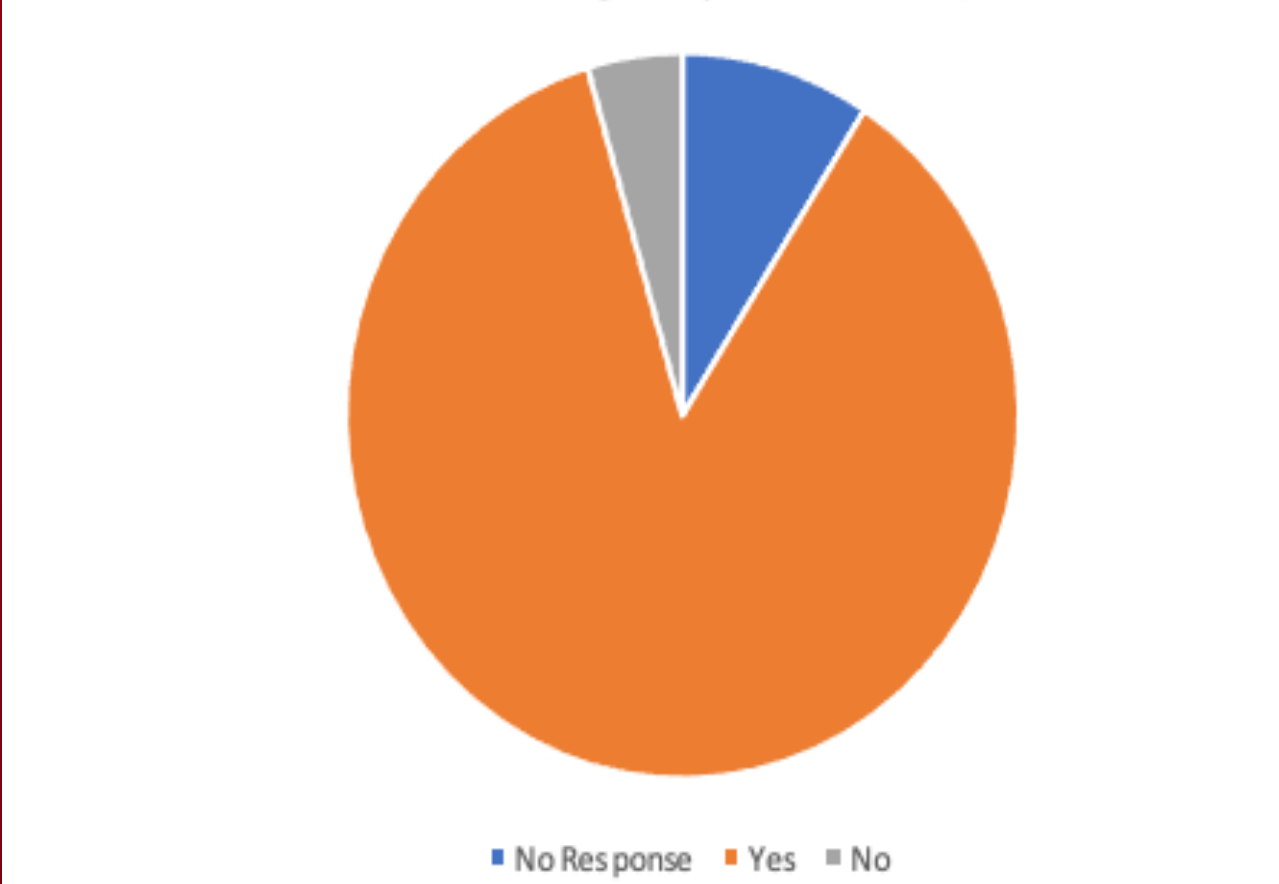
How confident (scale 1-10) are you in managing adverse reactions related to procedural sedation per ACR guidelines?



What is the most effective learning modality to learn how to manage adverse events related to radiological procedures? (n = 22)



Would you recommend other institutions use case-based simulations to help trainees manage adverse events related to radiological procedures (n = 22)?



On a scale from 1 - 10, how well did the case-based simulation contribute to your understanding of how to handle adverse events related to radiological procedures?

