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Education Research

#### Poster Title

A pilot study for introduction of cognitive aids during in-situ simulation of anesthesia crises

#### Authors

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#### Objectives

The purpose of this study was to familiarize the anesthesiology residents with the use of cognitive aids during simulated operating room (OR) crises. We hypothesized that cognitive aids use would improve adherence to critical management steps.

#### Background

Cognitive aids have significant safety implications because of possibility to decrease variability in human performance, particularly in crisis situations.

#### Methods

CA1 and CA2 anesthesiology residents were recruited as participants in this study.

The participants were surveyed regarding their previous exposure to cognitive aids.

The monthly simulation sessions were conducted in-situ, in coordination with SYN:APSE Center.

Each simulation session was 15 minutes long and each team was composed by 4 residents. The teams were randomly assigned to manage the scenario with a set of crisis checklists or from memory alone.

The checklists were provided in booklet form (Emergency Manual . Stanford Anesthesia Cognitive Aid Group 2014) . The booklet was easily accessible, adjacent to the anesthesia machine.

The outcomes recorded included failure to adhere to critical steps of crisis management, delayed adherence to critical steps, inappropriate dosing of medication, inappropriate parameters for cardioversion or for transcutaneous pacing.

At the end of each session, the participants were surveyed regarding their perception and clinical relevance of the checklists. The 5-point Likert scale was used to assess the realism and the quality of the simulation scenarios.

#### Results

A total of 40 anesthesiology residents participated in this study.

The preliminary survey indicated that most residents are familiar with cognitive aids use during non-crisis situations. However, none of participants has used cognitive aids during management of critical events.

28 simulation sessions have been conducted between January to April 2015 using 7 simulation scenarios (3 scenarios for CA1 residents and 4 scenarios for CA2 residents).

50% of these sessions (14) were performed by memory alone and 50% of them were performed using cognitive aids.

Checklist use during simulated crises resulted in improvement in management of simulated anesthesia crises by trainees,

Feedback comments indicated that the checklists were easy to use and that the residents would use these checklists if presented with these operative emergencies in real life.

All participants rated the overall quality of the sessions as above average or excellent.

#### Conclusions

Cognitive aid use was associated with improvement in management of simulated anesthesia crises by trainees.

Limitations of this study include the simulated nature of the crises as events undoubtedly occur in more varied circumstances than we could simulate.

Future work is needed to address the implementation of cognitive aids in the real OR environment.