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### **Code LITE: Developing Pediatric Residents' Resuscitation Knowledge and Skills Using a Guided Mentoring Approach**

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## Background

Simulation-based learning is a popular training method in healthcare education. Literature supports multiple aspects of simulation-based training for technical skills and behavioral skills, however the effects of different pedagogies have not been investigated in this educational method(1).

## Objective

- Examine the effects of guided mentorship during simulation on pediatric residents' learning experience.

## Methods

- Study Design:** Descriptive case study with mixed-method approach, and pre/post interventional design
- Participants:** All residents rotating through the Pediatric Intensive Care Unit (PICU); post graduate level 1-4; pediatric residents, emergency medicine resident and medical-pediatric residents
- Assessment Measures:** Three tools were used: 1) written pre/post-rotation knowledge exam, 2) self-efficacy confidence score, and 3) learning preferences
- Intervention:** Code LITE(Low-tech Internal Training Experience) with guided mentorship: just-in-time, interprofessional, in-situ simulation environment that utilizes cognitive apprenticeship. The content expert/mentor (pediatric critical care faculty or fellow) in the team leader role guides the resident through the case scenario (2)
- Data Collection:** Each simulation is observed with focus on the dynamic between the resident and the mentor
- Data Analysis:** Fisher's Exact test was used to evaluate differences in proportions

## Results

- A total of 24 participants out of 31 completed the pre-survey.
- Out of 15, 11 participants completed the Code LITE in-situ simulation.
- Out of 17, 14 participants completed the post-survey (8 exposed; 6 unexposed) (Table 1)
- A modest increase in knowledge acquisition was observed (Figure 1).
- Nearly 90% of exposed residents agreed they prefer having a simulated code event within the PICU.
- Only 62.5% strongly agreed to prefer guided mentorship during simulation.
- Exposed residents reported higher levels of confidence to delegate tasks during code event (37.5% vs. 0% for unexposed;  $p=.371$ ), providing closed loop communication (62.5% vs. 16.7%;  $p=.121$ ).
- Observational data: Compared to residents, mentors are more likely to take active role on patient re-assessment, delegation of tasks, active decision-making, maintenance of control of a crisis situation, and clear/concise communication.

Figure 1. Knowledge acquisition

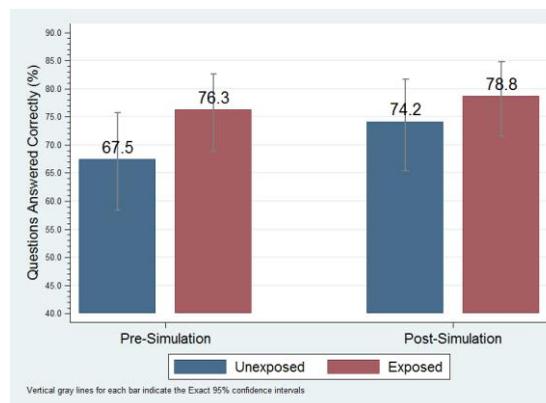


Figure 2. Confidence level scores pre/post survey

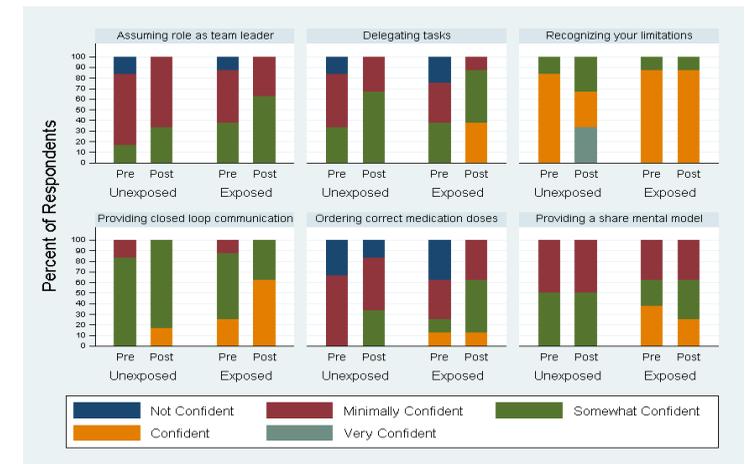


Table 1: Post-survey learning preferences

| Post-survey Learning Preferences among Exposed (N=8)          |       |         |
|---|-------|---------|
| Learning Preference   | Freq. | Percent |
| <i>Having guided mentorship within simulation</i>             |       |         |
| Neutral   | 1     | 12.5%   |
| Agree   | 2     | 25.0%   |
| Strongly agree  | 5     | 62.5%   |
| <i>Share mental modeling</i>                                  |       |         |
| Neutral   | 3     | 37.5%   |
| Agree   | 2     | 25.0%   |
| Strongly agree  | 3     | 37.5%   |
| <i>Having a simulated pediatric emergency within the PICU</i> |       |         |
| Neutral   | 1     | 12.5%   |
| Agree   | 4     | 50.0%   |
| Strongly agree  | 3     | 37.5%   |
| <i>Recommend a multidisciplinary team</i>                     |       |         |
| Neutral   | 1     | 12.5%   |
| Agree   | 4     | 50.0%   |
| Strongly agree  | 3     | 37.5%   |
| <i>Recommend an in-situ simulation experience</i>             |       |         |
| Neutral   | 1     | 12.5%   |
| Agree   | 4     | 50.0%   |
| Strongly agree  | 3     | 37.5%   |

## Conclusion

The preliminary results suggests that the guided mentorship approach is feasible within our PICU. This educational model is well-aligned with the framework of cognitive apprenticeship and can aid residents' learning behaviors necessary to lead a pediatric cardiopulmonary arrest scenario.

## References

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- Dennen VP, Burner KJ. The cognitive apprenticeship model in educational practice. *Handbook of research on educational communications and technology*. 2008;3:425-39.