

Using Simulations and Skills Stations to Enhance Emergency Preparedness in Pediatric Urgent Care

Ilanalee Cabrera, MSN, RN, CPNP, Wilma Santiago, BSN, RN, CPN, Tiffany Christensen, Rachel Lucas, DO
Children's Hospital of Wisconsin

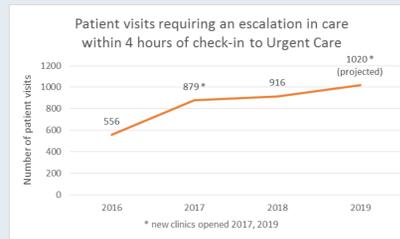
Introduction

Children's Hospital of Wisconsin Urgent Care locations have encountered an increase in both patient visits (Figure 1) and patient acuity (Figure 2) in recent years.

Figure 1: Patient visits



Figure 2: Patient acuity



Research shows:

- Emergency response skills deteriorate quickly after training^{1,2}
- Regularly and repeatedly practicing a skill may prevent rapid skill deterioration^{1,2,3}
- More frequent training is superior to conventional training to ensure high quality resuscitation skills^{1,2,3}

Aim

- Improve emergency preparedness by holding regularly scheduled multidisciplinary simulations and skills practice sessions in order to provide the best and safest care to our patients
- Simulation lab: participant assessment of feeling well prepared or very well prepared for an emergency will increase 20% from pre survey to post survey
- In-situ (in clinic) simulations: post simulation surveys will reflect 75% of participants feeling more prepared for an emergency after the simulation

Methods

Curriculum design and implementation

- High and low fidelity manikins
- Emergency scenarios: asthma and hypoxia, severe bronchiolitis, seizures, hyperthermia, sepsis, diabetic ketoacidosis, anaphylaxis, and cardiac arrest of the child and adult
- Deliberate practice of skills using equipment available in clinic
 - Cervical collar application +/- helmet removal
 - Weight estimation using measuring tool
 - Ventilation of a tracheostomy tube
 - Initiation of emergency response
 - Effective team communication

Survey design

- Likert scale pre survey:
 - Prior simulation experience
 - Prior involvement in clinical resuscitation
 - Self-assessment of emergency preparedness
- Likert scale post survey:
 - Self-assessment of emergency preparedness

Results

Simulations November 2017 – August 2019 n=17 (simulation lab n=11, in-situ n=6)
Total participants n=114, unique participants n=80, repeat visits n=34
Total surveys January 2019 – August 2019 n=40 (survey response rate 100%)

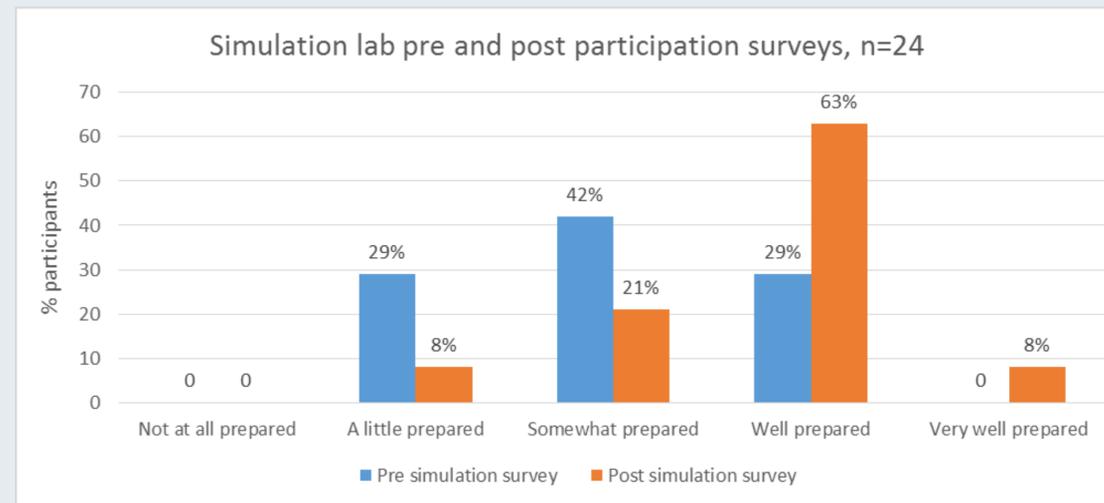
Pre-brief⁴ (simulation lab only)

- The basic assumption that all staff are intelligent, capable, and try their best
- Fiction contract: scenario is as real as possible but learning depends on full participation
- Preparatory information given, introduction to room and manikins

Debrief⁴ (simulation lab and in-situ)

- Re-examine scenario for learning

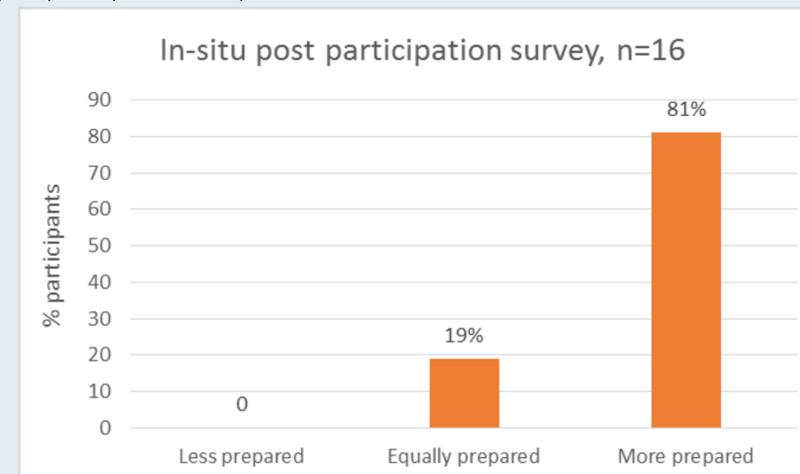
Figure 3: Simulation lab, pre and post survey comparison



In the simulation lab (Figure 3):

- A little prepared decreased by 21%
- Somewhat prepared decreased by 21%
- Well prepared increased by 34%
- Very well prepared increased by 8%

Figure 4: In-situ, post participation survey



In-situ simulations (Figure 4):

- More prepared after the simulation: 81%

Conclusions

- Staff preparedness increased after simulation participation
- All staff play an important role during an emergency
- According to research, regular and repeated practice may increase skill retention and prevent skill deterioration^{1,2,3}
- Multidisciplinary simulations are essential to increase staff preparedness to perform high quality care during an emergency event

Limitations

- Survey data is self-reported and subjective
- Unable to assess improvement in preparedness from in-situ simulations given no pre participation survey
- Difficult to compare data between simulation dates as scenarios may differ between simulations

Next steps

Future data could compare preparedness to:

- Years working in Urgent Care
- Total years of experience in healthcare
- Previous simulation attendance
- Role within Urgent Care

Inter-departmental simulations

References

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Contact information

Ilanalee Cabrera can be reached at icabrera@chw.org

