In situ simulation (ISS), or simulation education physically integrated into the clinical setting, is an effective education strategy shown to improve medical knowledge, clinical performance, and team dynamics. Barriers limit the use of ISS including lack of time, supplies, and prepared facilitators. There is a paucity of literature on how to best develop an ISS curriculum and areas to target for improvement. The objective of this project was to:

1. Develop prepared toolkits to support running brief ISS sessions for pediatric residents
2. Assess the impact of toolkit development on the frequency and quality of ISS

### Methods

#### Needs assessment:
- Literature search on best practices in ISS
- Learner survey regarding perceptions of current ISS curriculum and areas to target for improvement
- ISS facilitator survey regarding current challenges to conducting ISS and areas to target for improvement

#### Intervention:
- Developed ISS toolkits consisting of:
  1. Simulation case outline
  2. Relevant supplies and equipment
  3. Debriefing resources
- Piloted toolkit within current ISS sessions
- Revised based on facilitator and learner feedback
- Expanded toolkit use to additional sessions

#### Evaluation:
- Learner perceptions of ISS sessions using the Satisfaction with Simulation Experience Scale
- Learner reported intended changes to clinical practice using open ended questionnaire following session
- Frequency of ISS sessions

### Results

- Toolkits created for four ISS cases (Figure 1)

- Learner reactions (n=15)
  
<table>
<thead>
<tr>
<th>Satisfaction with Simulation Experience Scale</th>
<th>Median</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>The simulation developed my clinical reasoning skills</td>
<td>5</td>
<td>4-5</td>
</tr>
<tr>
<td>The simulation helped me to recognize patient deterioration</td>
<td>5</td>
<td>2-5</td>
</tr>
<tr>
<td>I received feedback during the debriefing that helped me learn</td>
<td>5</td>
<td>3-5</td>
</tr>
<tr>
<td>This was a valuable learning experience</td>
<td>5</td>
<td>4-5</td>
</tr>
</tbody>
</table>

- Top themes of learner reported intended changes to clinical practice:
  - Improved role identification/task delegation
  - Improved intra-team communication
  - Increased resource awareness/utilization

- Session frequency

- Toolkits implemented

### Conclusions

- Needs assessment was instrumental in developing content and components of the ISS toolkit
- Toolkit based ISS sessions were well received by learners
- Toolkit implementation was associated with an increased frequency of ISS sessions

### Background

ISS is an effective educational technique but logistical challenges limit its use. There is interest in identifying ways to conduct more frequent, high quality ISS sessions by addressing the common barriers. This project was intended to assess if developing prepared toolkits would be an effective method to overcome common barriers in order to increase the use of ISS while still maintaining high quality session.

Moving forward it will be of interest to further assess the impact education provided through the use of the toolkits has on the learners’ future clinical practice. Learners report intended changes in role identification, communication, and resources utilization. It would be of interest to see if those changes are incorporated and sustained. There would also be value in assessing if the toolkits can be used by more novice ISS facilitators including residents as the educators as a potential way to future increase the use of ISS.

### Connections

- Stakeholder contacted | Insights gained
- Residents | Content to address in sessions
- Residency leadership | Logistical barriers to target
- Current ISS facilitators | Current challenges to target
- Potential future ISS facilitators | Barriers that prevent facilitating
- Interprofessional team members | Content to address in sessions
- National ISS experts | Best practices, lessons learned
- Additional stakeholders to consider: Subspecialists, simulation experts in other MCW departments, student/fellowship leadership

### Creating Value

- Prepared toolkits may provide a way to overcome common barriers that limit the use of ISS
- Expansion of this work could allow for more consistent use of ISS within pediatric residency training
- The toolkit infrastructure could be expanded upon to target a wide range of clinical, interpersonal, and professionalism topics focused on developing learners:
  - Competence managing various clinical scenarios
  - Caring interacting with patients and families
  - Character working as a member of an interprofessional team