SimBox

Tele Sim Box
Please share your name, organization, and if you have ever done a simulation before.

I will call your name.
Objectives

By the end of our time together, you will be able to:

• Locate the resources needed to conduct a simulation using Sim Box.
• Describe the steps/process to conduct a simulation using Sim Box.
• Commit to conducting a Sim Box Simulation in the next month.
The team

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Some SimBox projects have received funding from:

[Logos of American College of Emergency Physicians, HRSA, American Academy of Pediatrics, and RBaby Foundation]
Why Simulation?

- **Simulation is immersive in nature**
- **Participants are practicing skills and management in their own practice setting**
- **Opportunities for teams to train together in a realistic setting**
- **Ask team members to “immerse” themselves into the scenario to make it as realistic as possible**
- **Goal is to think, talk, and do with YOUR stuff**
- **Debriefing is reflective to promote participants to learn from the experience**
1/1-12/31/23
92 countries
7,136 site sessions/ 4,192 unique visitors
What is SimBox?

- Booklet
- Low or high technology mannequin
- Monitor or computer
- Your own equipment
What each case consists of

Booklet

SimBox+

Tele SimBox

Newborn Resuscitation

Video

Click here

SimBox+

TeleSimBox
The Booklet: Case Progression

**SimBox**

**Case progression: Burn**

**Scenario script:**

"You will hear a brief EMS dispatch and then see a two minute countdown clock as you prepare for the arrival of the patient."

**Link to Pediatric Burn Video**

Facilitator states: "EMS, please respond to an 18 month old boy who pulled hot water off the stove over himself and has sustained severe burns. You will arrive on scene in 2 minutes."

- Team assembles + confirms roles
- Asks for equipment: Crescent tool set, roller, mirrors, access, medications
- Don PPE
- Calls for help

"The patient is crying and wincing in pain. His clothes appear wet and you can see large blisters on his exposed skin."

- Team places patient monitors, pulse oximeter, BP cuff, temp probe
- Estimates weight
- Assess ABC/DE
- Begins to carefully remove all clothes

"Scissors, please! Patient is now 7 months old. He is alert and moving all limbs. You are trying to remove all his clothes, but he is crying incredibly. He has severe scald burns on his chest, abdomen, and anterior surface of his left arm and both legs. His weight is 15 kg."

- Team asks to remove the patient’s diaper too (if not done)
- Attempts IV access and verbalizes need to start fluid resuscitation with Lactated Ringer’s (LR) at 125 mL/hr
- Checks BP and temperature

"He is still screaming in pain, IV placement, and BP measurement attempted and unsuccessful. Is there anything we can give him for his pain right away?"

- Team verbaless three times: Patient with extensive scald burns
  - Orders 1 mg/kg IV fentanyl
  - Asks to cover patient with dry, clean sheet
  - Performs secondary survey

**SimBox**

**Case progression: Burn**

**SAMPLE history**

- Recording the patient’s vital signs: HR 140, SBP 80/50, SaO2 95%, RA C 2 sec, BP 104/60

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- Team notes improvement in tachycardia and normal BP with appropriate pain management
- Asks for POC glucose
- Calculates the total body surface area (TBSA) burned
- Calculates the rate of resuscitation fluids using the "2.5 mL/kg LB x % TBSA burn PLUS 30mL/kg/day" formula

"Relief! POC glucose is 107. Do we need to cover these burns?"

- Team dresses burns in dry, clean, sterile dressings
- Reassesses ABC/DE
- Discusses the most appropriate destination for transfer (eg. pediatric burn center) & contacts receiving team

"We have covered the burns with dry, sterile dressings. He is calm and comfortable. Accepting team is ready for handoff."

- Team hands off to the receiving ER/Pediatric Burn/ICU team
- Formulates pain & fluid management plan for transport
- Updates family and answers their questions
- Prepares for transfer

**Signs/ symptoms, allergies, medications, past medical history**

SimBo x+

+Te le Sim Bo x
**The Booklet: Teaching Content & Flashcard**

### SimBox: PEDIATRIC BURN MANAGEMENT

**Flashcard:**
- Perform a thorough physical examination:
  - Evaluate for concomitant injury.
  - Assess vascular status of extremities and thorax. Circumferential burns may result in vascular compromise and may require amputation.
- Treat pain and anxiety:
  - Use nonopioid medication, Nitric acid to reduce pain.
- Ankle/foot burn:
  - Assess the presence of compartment syndrome.
  - Assess neurovascular status.
  - Administer oral pain medication.

### Suggested teaching content to guide the debriefing

**Superficial:** Dry, red, blanches with pressure. Epidermis only.

**Partial-thickness:** Blistered, red, moist, weeping. Blanches with pressure. Extends into papillary dermis.

**Full-thickness:** Waxy white to gray, charred and black. Dry and escharotic. No blanching with pressure. All of the dermis involved.

**Fourth-degree:** Extends through the subcutaneous fat into the fascia and/or muscle.

Infants and young children have a smaller body surface area (BSA) than adults, but are often exposed to the same offending agent (hot water, hot drink, clothing, etc.) and thus sustain a proportionately larger BSA burn than an adult. A 70 kg child has a tenth of the weight of a 70 kg adult but a third of their BSA. This relatively larger body surface area results in both a greater surface exposed to the environment and a greater evaporative water loss per kg than adults. Therefore, children require more fluid per kg during resuscitation.

Infants less than 6 months have limited muscle mass, so cannot generate as much heat by shivering. Temperature regulation in this age group depends much more on environmental temperature control.

Children under age 2 years have thinner skin and are more prone to full-thickness burns at lower temperatures or shorter duration of contact than adults.

**When to transfer a child to a burn center:**
- Partial-thickness burns > 10% BSA.
- Full-thickness burns.
- Burns of the face, hands, feet, genitalia, perineum or major joints.
- Inhalation, electrical or chemical injuries.
- Significant pre-existing medical disorders, co-morbidities, trauma, need for special social, emotional or rehabilitative intervention.
- Burned children in hospitals without qualified personnel or equipment for the care of children.

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**SimBox: Sim Box + Tele Sim Box**

Print and distribute to your participants.
The Booklet: So much more

What are the educational goals for this simulation?

<table>
<thead>
<tr>
<th>Task</th>
<th>Milestone Checklist</th>
</tr>
</thead>
<tbody>
<tr>
<td>Task</td>
<td>CT: Define the necessary staff assignments and roles to care for a pediatric ED patient.</td>
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<tr>
<td>Task</td>
<td>CT: Define effective teamwork and communication (i.e., designate roles, handoff, shared rounds, closed loop communication, sharing mental model).</td>
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<tr>
<td>Task</td>
<td>CT: Define an appropriate PSI.</td>
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<tr>
<td>Task</td>
<td>CT: Obtain an appropriate history from the family member (GNI).</td>
</tr>
<tr>
<td>Task</td>
<td>CT: Obtain family, consumer, and care team (e.g., pediatric ED) medical status of the patient.</td>
</tr>
<tr>
<td>Task</td>
<td>CT: Obtain an efficient patient and secondary survey.</td>
</tr>
<tr>
<td>Task</td>
<td>CT: Prioritize the pain management (e.g., using standard order sets) when no IV access has been established.</td>
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<tr>
<td>Task</td>
<td>CT: Appropriately estimate the percentage of TBI learned.</td>
</tr>
<tr>
<td>Task</td>
<td>CT: Prioritize appropriate fluid resuscitation.</td>
</tr>
<tr>
<td>Task</td>
<td>CT: Take early warning signs to continue body temperature.</td>
</tr>
<tr>
<td>Task</td>
<td>CT: Define an appropriate audit management (e.g., screening, diagnosis, evaluation, intervention, follow-up).</td>
</tr>
<tr>
<td>Task</td>
<td>CT: Define the appropriate destination for transfer.</td>
</tr>
<tr>
<td>Task</td>
<td>CT: Define the handoff of care at the end of the case.</td>
</tr>
</tbody>
</table>

Pre-briefing / De-briefing guide

SimBox + TeleSimBox

Pediatric educational resources
Prebrief

3 min

Dispatch and 2-min countdown clock

2 min

Simulation

10 min

Debrief

15 min

The Video

SimBox +
TeleSimBo
Sim Agenda

Remote facilitator

Set up:
- Teleconnect with In-person facilitator (10mins)

Sim:
- Intro/Prebrief (5mins)
- Sim (screen share YouTube video & play role of parent historian (10mins)
- Debrief (15mins)

In-person facilitator

Set up:
- Gather manikin, equipment, 2 computers
- Establish situational awareness with Charge Nurse
- Teleconnect with Remote facilitator, audio-visual check (10mins)

Sim:
- Play role of embedded RN participant: report physical exam findings, labs, meds given, access requests
Pre-Brief

Prior to the simulation activity
- Introductions
- Agenda review
- Review of essential information about the scenario
- Background information
- TeleSimBox prebriefing toolkit
  - Script tips to establish psychological safety
How the room is usually set up

Print the booklet so that you can reference it during the simulation.

You can use any workplace monitor or computer you have available to stream and navigate the video.
Soldotna Fire, Alaska

Embedded participant/parent

Sim Box + Tele Sim Box
The facilitator uses their laptop to navigate the video based on the participants’ actions.

Participants use their own equipment and supplies to simulate what would happen in the field.
Debrief

- A facilitated, interactive conversation between two or more people to review a real or simulated event in which participants analyze their actions to:
  - Reflect on the role of
  - Thought processes
  - Psychomotor skills
  - Emotional state is a stressful situation
  - To improve or sustain performance in the future
  - (Adapted from CMS & AAP)
Questions?
Simulation #1
Simulation #1

Reflections

What went well?

What could have been done differently?

What were particular challenges?
Simulation #2
Timeline

Prebrief: 10 min
Simulation: 10 min
Debrief: 20 min
Simulation #2
Reflections

What went well?

What could have been done differently?

What did you like? What did you not like?
You are now able to...

• **Locate the resources needed to conduct a simulation using SimBox.**

• **Describe the steps/process to conduct a simulation using SimBox.**

• **Commit to conducting a Sim Box Simulation in the next month.**
Overall Impressions & Feedback

Would SimBox be a useful tool in your clinical environment?

How can we make this better?

How can we support you best?

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Next Steps

- Review the course content
- Meet with your PECC
- Schedule in-person SimBox facilitation
- Co Facilitate!
Thank you so much for your time and participation!