

Reaching the Masses: Strategies for Providing Broad Based Education

Session 3-301, Tuesday September 12, 2023 11:00-11:50am

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2023 ALL-GRANTEE MEETING

CULTIVATING COMMUNITY GROWING COLLABORATION

Speaker Disclosure

- **We have no financial interests or relationships to disclose**



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Funding Acknowledgement

- We will discuss work with funding from the following entities



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Objectives

- By the end of this session attendee should be able to:
 1. Describe how collaboration can address the challenges SP programs face related to education
 1. Identify the benefits and opportunities of sim-based education
 1. Provide an example of the use of online education for reaching large groups of learners
 1. Discuss critical partnerships and collaboratives that contribute to the success of online multi-state educational programs



MISSION: IMPOSSIBLE MISSION: IMPOSSIBLE



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“WHEN Do You Need That?”

- ❖ How's Your Workload?
- ❖ How's Your Attitude?
- ❖ Who Can Help?
- ❖ Get Creative
- ❖ Let's Help Each Other!



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Who Can Help?

- ❖ Anyone, anyone...
- ❖ Let's Get Creative
- ❖ Let's Help Each Other!



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Making the Dream Work

**ONE DOES NOT SIMPLY MAKE THE
DREAM WORK**

**WITHOUT THE
TEAMWORK**

- ❖ Existing Resources
- ❖ Collaboration
- ❖ Economies of Scale



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thinkremote.com

Democratizing Access to Pediatric Education



Emergency Care Continuum



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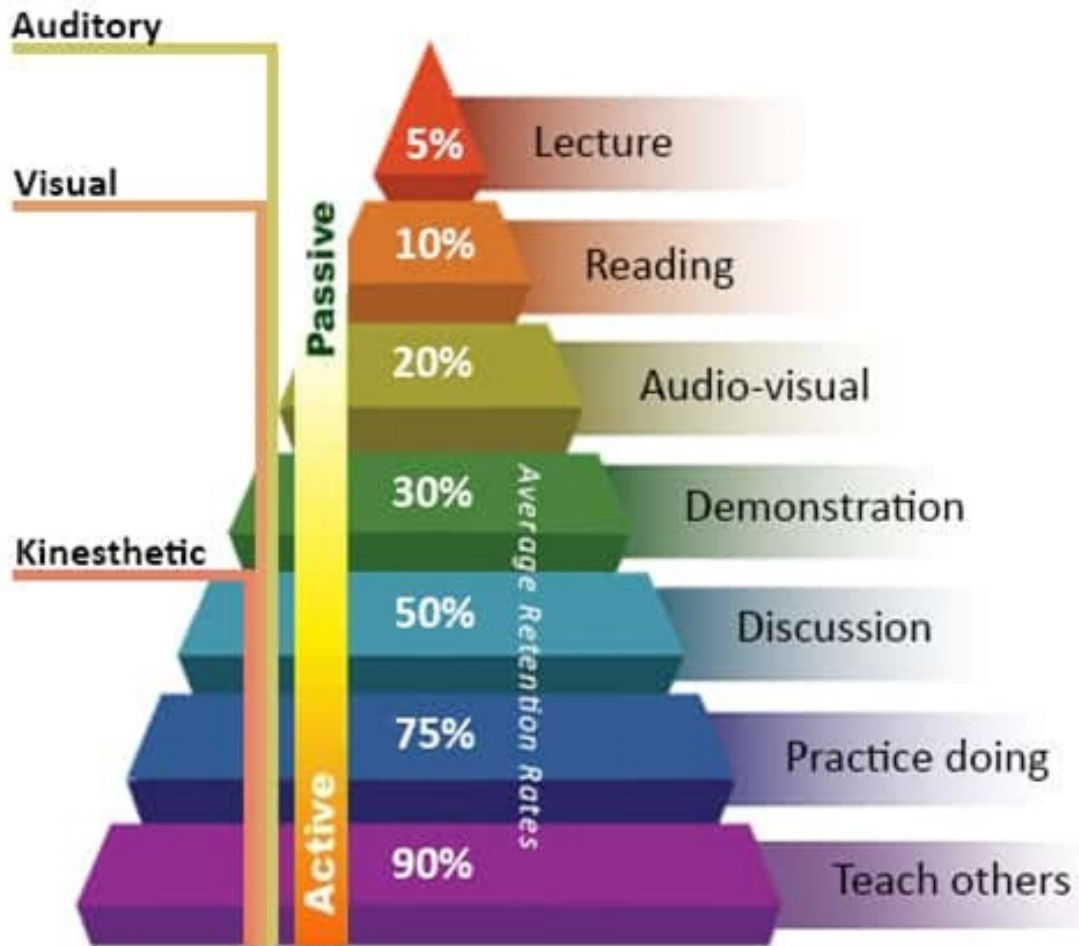
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Options for Educational Strategies

- Synchronous
 - Lectures
 - Case based discussion
 - Lectures
 - Simulation/skills training
 - Case reviews
- Asynchronous
 - Newsletters
 - Recorded webinars
 - Podcasts
 - Videos
 - Websites
 - Learning modules
 - Worksheets



Effectiveness of educational Strategies



Adapted from the NTL Institute of Applied Behavioral Science Learning Pyramid

Why Pediatric Simulation?

	Clinical	Simulation
Experiences	Few Unstructured Uncontrolled	Many Structured Controlled
Feedback	Rare	Frequent
Errors	Patient harm, unethical	Valuable to learning



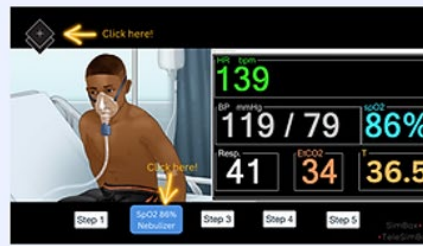
SimBox+ + Tele SimBox

Free online simulation for everyone.

Step by step guide on how to facilitate a simulation.

Use to augment in-person, hybrid or distance simulation.

Low to no technology required.



A Child with Wheeze

Booklet

NEW: Interactive Video



Respiratory Distress

Booklet

NEW: Interactive Video

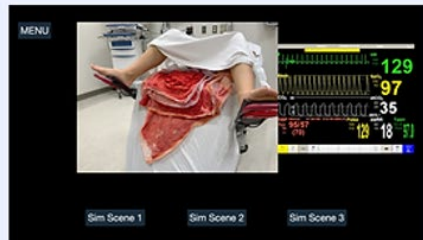


Newborn Resuscitation

Booklet

NEW: Interactive Video

Video



A Postpartum Complication

Booklet

NEW: Interactive Video



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Nikiski Fire, Alaska



Monitor
streaming the
video

Embedded
participant/
parent

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.



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Booklet



SimBox+ Tele SimBox

Newborn Resuscitation

Video



SimBox Case progression: Newborn Resuscitation

SAMPLE history

Prenatal history: P1G0001, no maternal medical problems, unknown gestational age, but mother thinks close to term. No prenatal care since 2nd trimester since mother lost her job and insurance. Precipitous delivery. No maternal peripartum fevers or bleeding.

Family history: No known family history of congenital cardiac disease.

Social history: Denies substance use.

*Occasional respiratory effort without PPV but good chest rise. Saturations improving to 85% on FIO2 of 1. HR>100. Color in

4

HR 130
RR 40-60
Sat 85%
CRT 2 sec

- Team discusses NRP algorithm: SpO2 and HR at goal
- Starts wearing FIO2
- Places ETCO2 on mask, if not already placed
- Requests stat blood sugar

*Improved color, tone. Equal air entry and stable sats despite the FIO2. Blood glucose is 30."

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HR 140
BP 50/30
RR 40-60
Sat 90% on 0.3 FIO2

- Team notes hypoglycemia
- Attempts IV access
- Orders D10W bolus at 2 mL/kg
- Asks for temperature and blood pressure

*IV access in. Administering the D10W bolus. Significantly imp respiratory effort and breathing."

Wrap

- Team leader hands off to receiving NICU/ PICU/ Floor tea
- Updates family

After team performs handoff, state "This concludes the simulation" and debrief.

[Link to resource page: educational content](#)

7 min: Video guide patient appears
9 min: HR<100, low sats
10 min: HR<100, low sats
12-17 min: HR>100, goal sats

TeleSimBox Educational Media Version 3.0 2021

SimBox Resources: Neonatal Resuscitation Program

Knowledge: NRP guidelines Learners should approach a newborn delivery in a standardized fashion with emphasis on airway and breathing

Team briefing and equipment check

Terms? Tone? Breathing?

Stay with mother for routine care

- Warm and maintain normal temperature
- Position airway
- Clear secretions (if needed)
- Dry
- Ongoing evaluation

Time	Pre-ductal SpO2 target
1 min	65%-67%
2 min	65%-70%
3 min	70%-75%
4 min	75%-80%
5 min	80%-85%
10 min	85%-95%

Warm and maintain normal temp
Position airway
Clear secretions (if needed)
Dry
Stimulate

HR SOPA Corrective Steps

M	R	S	P	A	
M	Mask adjustment, Reposition Airway	S	Suction mouth + nose, Open mouth	P	Pressure increase
A	Alternative airway (ETT/ laryngeal mask)				

Endotracheal Intubation

GA (wks)	Depth of insertion (cm)	WR (up)	ETT size (mm)
23-24	5.5	500-600	Size 2.5
25-26	6.0	700-800	<1.500 or <18 mm
27-29	6.5	900-1000	Size 2.5
30-32	7.0	1,100-1,400	1,000-2,000 or 20-24 mm
33-34	7.5	1,500-1,800	Size 2.5
35-37	8.0	1,900-2,400	>2,000 or >24 mm
38-40	8.5	2,600-3,100	
41-43	9.0	3,200-4,200	3.5-4.0

Medication	Dose/ Route	Precautions
Epinephrine 1:10,000 (0.1 mg/mL)	0.1-0.3 mL/kg IV	Give rapidly and follow with 0.5-1 mL normal saline flush. Repeat every 3 to 5 minutes if HR < 60 with chest compressions.
Volume expanders Normal saline O negative blood	10 mL/kg IV	If not responding to resuscitative signs of shock/ history of blood loss

Adapted from NRP, textbook of Neonatal Resuscitation, 7th edition
TeleSimBox Educational Media Version 3.0 2021



Click here (points to a cross icon in the video feed)

Click here (points to a button in the video feed)

Step 1 HR <100 Low Sats PPV

Step 3

Step 4

Step 5

Vital Signs Dashboard:

- HR: 118 (Target: 140-80)
- SpO2: 71 (Target: 100-92)
- etCO2: -?-
- awRR: 15
- ImCO2: 40
- Pulse: 140 (Target: 80)
- Sys: 70 (Target: 80)
- NBP Manual: 05:56 PM 05:56 PM 0/0 (0)

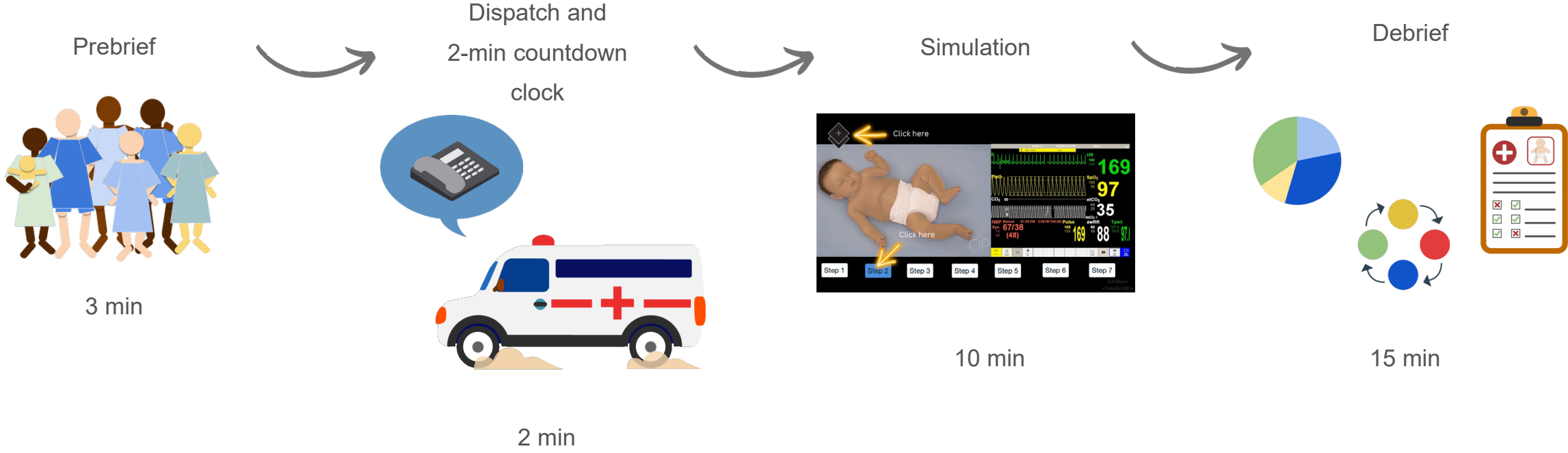
GLOBAL HEALTH MEDIA

SimBox+ +TeleSimBox



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The Video



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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 prompts:

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."

2 min (min 2)

- Team assembles + confirms roles
- Asks for equipment: Broselow tape/ app, monitors, access, medications
- Dons PPE
- Calls for help

"The arrive at the home and have put on the appropriate PPE (mask and gloves). The scene is safe. You find a toddler who is crying and screaming in pain. His clothes appear wet and you can see large blisters on his exposed skin."

Time 0 (min 7)

- Team places patient monitors, pulse oximeter, BP cuff, temp probe
- Estimates weight
- Assesses ABCDEs
- Begins to carefully remove all clothes

"Airway is patent. Breath sounds are equal bilaterally. Femoral pulses are 2+ and CRT 2 sec. He is alert and moving all limbs. You are trying to remove all his clothes, but he is crying inconsolably. He has severe scald burns on his chest, abdomen, and anterior surface of his left arm and both legs. His weight is 15 kg."

1 (min 8)

- 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

HR 160
Sats 99% RA

"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?"

2 (min 10)

- Team verbalizes illness state: Patient with extensive scald burns
- Orders 1 mcg/kg IN fentanyl
- Asks to cover patient with dry, clean sheet
- Performs secondary survey

HR 170
RR 24
Sats 99% RA
BP -/-
T 37

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TeleSimBox Educational Media Version 3.0 2022

SimBox Case progression: Burn

SAMPLE history

Signs/ symptoms: "He was in the living room watching TV. I was in the kitchen making lunch. I stepped away from the kitchen for less than a minute to let the dog outside. All of a sudden I heard crying coming from the kitchen and he was standing by the stove soaking wet. He must have pulled the pot with boiling noodles in it down from the stove top on top of himself."

Allergies/ Medications: None.

Medical history: None, born full term, up to date on immunizations.

Last meal: Pancakes for breakfast approximately 4 hours prior to the incident.

Signs/ symptoms, allergies, medications, past medical history

"1 mcg/kg IN fentanyl given. Patient seems much more comfortable now. His BP is 100/60, and his HR is now 150. We were able to get an IV. Secondary survey with no new significant findings."

3 (min 12)

- 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 "3 mL/kg LR x % TBSA burn PLUS D5LR or D5 1/2NS maintenance" formula

HR 150
RR 24
Sats 99% RA
CRT 2 sec
BP 100/60

"LR started. POC glucose is 107. Do we need to cover these burns?"

4 (min 14)

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

HR 150
RR 22
Sats 99% RA
CRT 2 sec
BP 100/60

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

Advanced learner option: Recognition and management of electrolyte disturbances and/or need for an advanced airway.

Wrap up (min 16)

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

HR 130
RR 22
Sats 99% RA
CRT 2 sec
BP 100/60
T 37

After team performs handoff, state "This concludes the simulation" and move to debrief.

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Participants actions



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The Booklet: Teaching Content & Flashcard

SimBox

Flashcard

PEDIATRIC BURN MANAGEMENT

Airway/ Breath

- Think of airway early
- Assess for CO poisoning
- Use humidified oxygen

Circulation

- Initiate fluids early
- Preferred IV fluid
- Burns <20% TBSA
- Do not bolus unless
- Start IVF during triage
 - <5 y/o: 12
 - 6-13 y/o: 2
 - >14 y/o: 5

Disability

- Altered mental status
- related cause.

Exposure

- Stop the burning
- Remove all clothing
- Examine for any areas
- may mask less painful
- Cover the wound
- Take warming measures
- cover the head to
- Topical antibiotic
- burn center.
- Do not apply ice
- and cold injury to
- Burn debridement

Fluid Resuscitation

Total fluid volume to be replaced

≥30kg: 2 mL/kg LR x %TBSA B

<30kg: 3 mL/kg LR x % TBSA A

- Give half over the first 8
- Give the other half over
- Subtract any bolus fluid
- Use LR for resuscitation
- Only for second and third
- Titrate based on response

E.g. 30 kg child with 40% TBSA

Total fluid resuscitation in first 2

3,600 mL / 2 = 1,800 mL to be

will be 1,800 mL / 8h = 225 mL/h

SimBox

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 escharotomy.

Treat pain and anxiety:

- IN fentanyl, Tylenol suppository, IM Toradol if no IV access.
- Remember nonpharmacologic interventions: reassurance, soothing, distraction, child life specialists.

"AMPLET" Mnemonic:

- Allergies, Medications, Past medical and surgical history, Last intake, Events and Environment, Tetanus (tetanus prophylaxis should be considered for all burns).

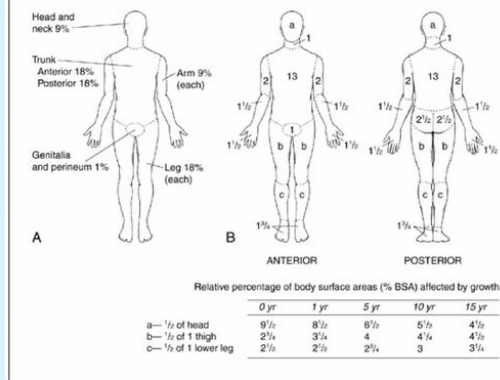
Ask for the circumstances of the injury:

- Non accidental scalds are a common form of abuse.
- Is the story consistent with the injury pattern?
- Does the mechanism match the developmental stage of the child?
- Document: photographs are crucial.
- Reporting of child abuse is mandatory in the US. The child's pediatrician is often a valuable source of information.

Labs: CBC, serum electrolytes, CK, UA.

Determine the total body surface area (TBSA) burned.

Estimating Percent Total Body Surface Area in Children Affected by Burns



(A) Rule of "nines"
(B) Lund-Browder diagram for estimating extent of burns

U.S. Department of Health and Human Services, Public domain, via Wikimedia Commons

Rule of 9s: Used in adults but is not very accurate in children as the proportion of body surface area made by anatomic parts, especially the head, varies considerably by age.

Lund Browder diagrams.

Palm method. (fingertip to wrist equals 1% of TBSA)

Superficial burns are NOT included in TBSA.

SimBox 3.0

SimBox

Teaching Content

This page provides possible questions to elicit teaching points during the debrief. These questions are not meant to replace your team's discussion, but can help to steer the debriefing session.

CLASSIFY BURNS BY DEPTH OF INJURY

SUPERFICIAL: Dry, red. Blanches with pressure. Epidermis only.

SUPERFICIAL PARTIAL-THICKNESS: Blisters. Moist, red, weeping. Blanches with pressure. Extends into papillary dermis.

DEEP PARTIAL-THICKNESS: Blisters, easily unroofed. Wet or waxy dry. Variable color. Does not blanch with pressure. Includes more of the dermis.

FULL THICKNESS: Waxy white to gray to charred and black. Dry and inelastic. No blanching with pressure. All of dermis involved.

FOURTH DEGREE: Extends through the subcutaneous fat into the fascia and/or muscle.

HOW ARE BURNS IN CHILDREN DIFFERENT THAN ADULTS?



Infants and young children have a smaller body surface area (BSA) than adults, but are often exposed to the same offending agent (tap water, a hot drink, clothing iron), and thus sustain a proportionately larger TBSA burn than an adult.

A 7 kg child has a tenth of the weight of a 70 kg adult but a third of their TBSA. This relatively large body surface area results in both a greater surface exposure to the environment and a greater evaporative water loss per kg than adults. Therefore, children require more IV 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?

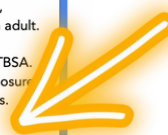
- Partial thickness burns >10% of TBSA.
- Full-thickness burns.
- Burns of the face, hands, feet, genitalia, perineum or major joints.
- Inhalation, electrical or chemical injuries.
- Significant pre-existing medical disorders, concomitant trauma or need for special social, emotional or rehabilitative intervention.
- Burned children in hospitals without qualified personnel or equipment for the care of children.

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TeleSimBox Educational Media Version 3.0 2022

Suggested teaching content to guide the debriefing

Print and distribute to your participants



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TeleSim

The Booklet: So much more

SimBox Prebriefing Script

Best practices for establishing psychological safety in simulation.

Basic Assumption: "We believe that everyone participating in our activities is intelligent, capable, cares about others, and is committed to learning." [Center for Medical Simulation](#)

SimBox Debriefing Script

Components of a Debrief (Based on 3Ds + PEARLS)

"The purpose of this debrief is to discuss areas of great performance and discover areas for improvement. It is not a blame session- everyone is here to do their best."

Prebrief
Welcome your team
"This simulated resuscitation is an emergency. We will debrief for 20 to 30 minutes. Input from the team is needed, everyone is expected to participate as seriously as possible."

Describe
Describe simulator
"Act as you would in a real event unless your equipment should be attached using your equipment."

Discover
Discover
7-8 min
Clarify facts:
"Can a teammate share a short summary of the case?"
"Were there other thoughts?"
Explore Performance:
"What went well?"
"What could be improved?"
Use observations of learner experiences to highlight strengths of the team and individuals, while asking learners for their thoughts, observations and reflections.

Deepen
Deepen
1-2 min
Identify patient care priorities. Then provide focused feedback and specific areas of opportunity for improvement. Elicit any other outstanding issues or concerns.

Summary
Summary
1-2 min
Identify take-home points to apply to future practice: Round the room reflections and thanks for participation.

Ref: PEARLS Debriefing Script + The 3D model of debriefing. *Semin Perinatol.* 2011;35(2):52-58

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Pre-briefing/
De-briefing guide

What are the educational goals for this simulation?

SimBox Milestone Checklist

TASK	DONE CORRECTLY	NOT DONE CORRECTLY	NOT DONE
Team-centered care Verbally assemble the necessary staff, equipment, and resources to care for a pediatric burn patient. Demonstrate effective teamwork and communication (i.e. designate leader/roles, directed orders, closed-loop communication, sharing mental model). Demonstrate appropriate PPE.			
Family-centered care Obtain an appropriate history from the family member (SAMPLE). Address family concerns, update on care (translate medical aspects of care in plain language).			
Medical knowledge Use the pediatric assessment triangle to assess the patient's clinical status. Perform an efficient primary and secondary survey. Prioritize early pain management (e.g. using intranasal fentanyl) when no IV access has yet been established. Appropriately estimate the percentage of TBSA burned. Prioritize appropriate fluid resuscitation. Take warming measures to conserve body temperature.			
Psychomotor Demonstrate appropriate wound management (removing clothing/diaper, using dry, sterile dressings). Decide on the appropriate destination for transfer.			
Communication Demonstrate handoff of care at the end of the case.			

SimBox TeamSTEPPS Communications tools

COMPONENTS OF EFFECTIVE TEAMS: TEAMSTEPPS IN A NUTSHELL

<https://www.ahrq.gov/professionals/education/curriculum-tools/suppsupport/ImplementTeamworkbook.html>

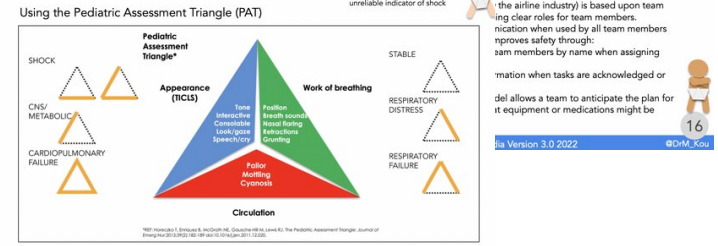
COMMUNICATION	LEADERSHIP	SITUATION MONITORING	MUTUAL SUPPORT
SBAR Situation Background Assessment Recommendation	BRIEF Planning, setting the tone	STEP Status of pt Team Members Environment Progress toward goal	TASK ASSISTANCE Awareness of team work load
CALL OUT	Huddle	"I'M SAFE" for self evaluation	FEEDBACK Providing information for purpose of team improvement
			ADVOCACY & ASSERTION Advocating for patient in case of a disagreement with decision maker
			2 CHALLENGE RULE Information conflict regarding patient safety
			DESC Script Tool for personal conflict* Describe situation Express your concern Suggest an alternative Consensus statement
			CUS STATEMENT I'm concerned I'm uncomfortable This is a safety issue
			COLLABORATION Working toward a common mission

SimBox Pediatric vital signs & assessment

Pediatric Vital Signs/Weight by Age

Age	Weight (kg)	Pulse	Resp	Systolic BP*
Newborn	3	100-180	30-60	60-70
6 mos	7	100-160	30-60	70-80
1 yr	10	100-140	24-40	72-107
2	12	80-130	24-40	74-110
3	15	80-130	24-40	76-113
4	16	80-120	22-34	78-115
5	18	80-120	22-34	80-116
6	20	70-110	18-30	82-117
8	25	70-110	18-30	86-120
10	35	60-100	16-24	90-123
12-15+	40-55	60-100	16-24	90-135

*BP in children is a late and unreliable indicator of shock



Pedi educational resources



School Nurse Emergency Care (SNEC) Course

Transitioning to an Online Format



2023 ALL-GRANTEE MEETING

CULTIVATING COMMUNITY GROWING COLLABORATION

School Nurse Emergency Care (SNEC) course

- **1996** - Illinois EMSC initially rolled out course
 - Based on a course by the University of Connecticut through an EMSC Targeted Issue grant
 - Reviews appropriate assessment, triage, and initial management of medical emergencies in the school setting
 - Incorporates EMS and disaster preparedness concepts
 - Course length – 3 days
 - Team taught by emergency nurses and school nurses
 - Includes lectures, case presentations/scenarios, and skill stations
- **Ongoing** - Revisions to curricular materials
 - *7th Edition* is current version



Challenges

- Reaching all sectors of the state
- Maintaining instructor base
- Addressing the needs of schools nurses unable to attend in-person courses
- Funding needs
- COVID-19 Pandemic



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Virtual Course Development

- Secured COVID supplemental funding
 - Educational design contractor
 - Videographer
- Convened an ad-hoc SME workgroup
- Key partners - Illinois Assn of School Nurses, Illinois Emergency Nurses Assn, Illinois State Board of Education, Illinois Department of Public Health School Health program
- Created a self-study narrated virtual SNEC course in < 1 year
 - 17 course modules
 - 5 skill demonstration videos
 - Post-test bank
 - Evaluation
 - Nursing CE certificate (meets Illinois nursing licensure requirements)
- Course is hosted on a learning management platform
 - <https://www.publichealthlearning.com>



Sharing Experiences Component



I had a student who carried the magnet for her implanted Vagus Nerve Stimulator or VNS with her throughout the school setting, so it was with her wherever she was in the event she had any seizure activity. She carried it in a waist purse, along with a copy of her Seizure Action Plan which served as her EAP or ECP.

Sharing Experiences

I had a special education kindergarten student and the doctor said she could carry and self-administer her own inhaler. However, this was clearly beyond the capabilities of this student. This is a situation when you need to get involved and talk to the family and doctor regarding administration. In addition, for the older student, they may tend to forget to carry their spacer with their inhaler. In times like that, it's helpful to have a spare spacer and inhaler in the office.



School Nurse Treatment Guidelines

38 School Nurse Guidelines (examples)

- Abdominal Pain
- Anaphylaxis/Allergic Reaction
- Asthma/Reactive Airway Disease
- Burns
- Chest Pain
- Diabetic Emergencies
- Drowning/Submersion Injuries
- Headache
- Head Injury
- Heat Related Injuries
- Respiratory Distress
- Seizures
- Toxic Exposure
- Trauma

Asthma Episode (Acute)/Reactive Airway Disease

SYSTEMATIC ASSESSMENT
 Begin the four components of assessment (see *Systematic Assessment/Immediate Care and Assessment Tools*) and perform interventions AS YOU GO.

KEY ASSESSMENT POINTS FOR ACUTE ASTHMA EPISODES

- Airway examination to rule out (R/O) obstruction due to infection or foreign body aspiration
- Respiratory assessment
- Skin assessment

IMMEDIATE INTERVENTIONS
 Even before you determine triage category, perform the following actions as indicated:

- Help student into a position of comfort
- Perform peak flow assessment if possible
- Administer prescribed bronchodilator or other medication as directed

Note: Obtain peak expiratory flow reading before administering bronchodilator and again 20 min later (or per EAP/ECP orders)

Note: Use spacer or holding chamber with MDI/nebulizer, if available

DETERMINE TRIAGE CATEGORY AND ADDITIONAL INTERVENTIONS
 Determine triage category and activate EMS AS SOON AS the need becomes apparent!

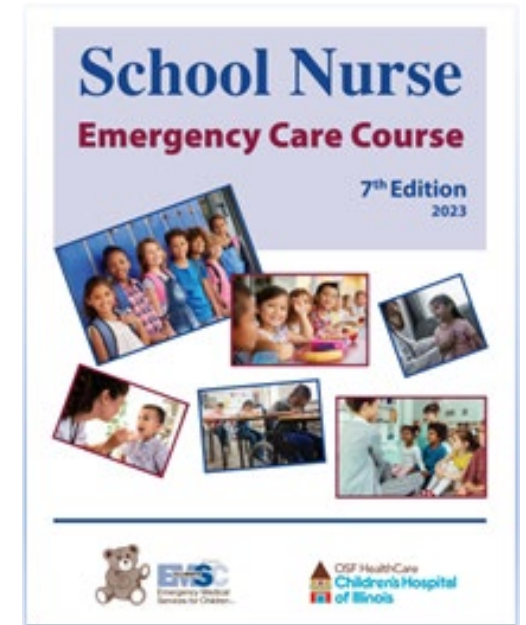
EMERGENT	URGENT	NONURGENT
<ul style="list-style-type: none"> • S/S of severe asthma (see <i>Assessment Tools</i>) <p>INTERVENTIONS</p> <ul style="list-style-type: none"> • Support C-ABCDE • Prepare to ventilate if necessary • Activate EMS if S/S are not relieved by medication or if medication is not available • Administer high-flow O₂ if available • Repeat prescribed bronchodilator/ other medications • Directly/continuously observe student • Consult IHP and EAP/ECP • Contact parent/guardian • Notify school administrator • Follow-up 	<ul style="list-style-type: none"> • S/S of moderate asthma (see <i>Assessment Tools</i>) • Cannot tolerate normal activity • No improvement within 15–30 min of bronchodilator administration • Bronchodilator unavailable <p>INTERVENTIONS</p> <ul style="list-style-type: none"> • Determine need for EMS • Administer high-flow O₂ if available • Repeat prescribed bronchodilator/other medications • Consult IHP and EAP/ECP • Directly/continuously observe student • Contact parent/guardian to transport student to medical care or home • Follow-up 	<ul style="list-style-type: none"> • S/S of mild asthma (see <i>Assessment Tools</i>) • Symptoms respond to bronchodilator • Student is able to maintain normal level of activity <p>INTERVENTIONS</p> <ul style="list-style-type: none"> • Repeat prescribed bronchodilator/other medications • Consult IHP and EAP/ECP • Monitor student • Contact parent/guardian • Return student to class or send home as indicated • Assess need for parent/guardian–student asthma education • Follow-up as needed or per policy



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Benefits

- Leveraged already existent course
- Education now available to
 - Broader school nurse audience
 - Those unable to attend in-person courses
 - Seeking a refresher course
- Provides access to
 - User friendly educational program
 - Many resources/templates
- Promotes *Pediatric Readiness* in the school setting



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Collaboration

Common Goals, Multiplying Benefits



2023 ALL-GRANTEE MEETING

CULTIVATING COMMUNITY GROWING COLLABORATION

Collaboration

- ❖ **Sharing, Coaching, Mentoring**
- ❖ **Inter-State Partnerships**
- ❖ **Regional Collaboratives**



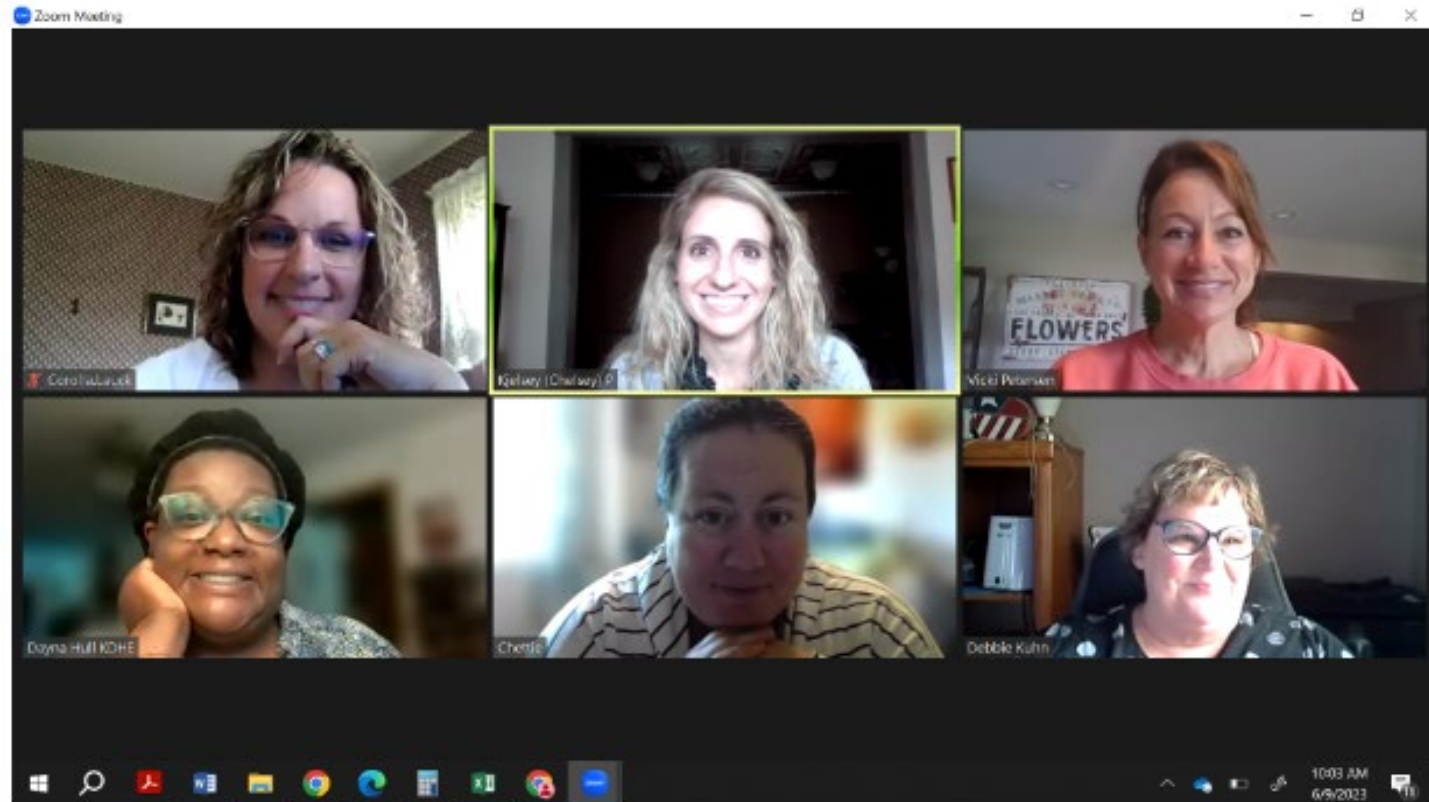
Livestorm



#EMSC23

Heartland EMS for Children Virtual Pediatric Symposiums

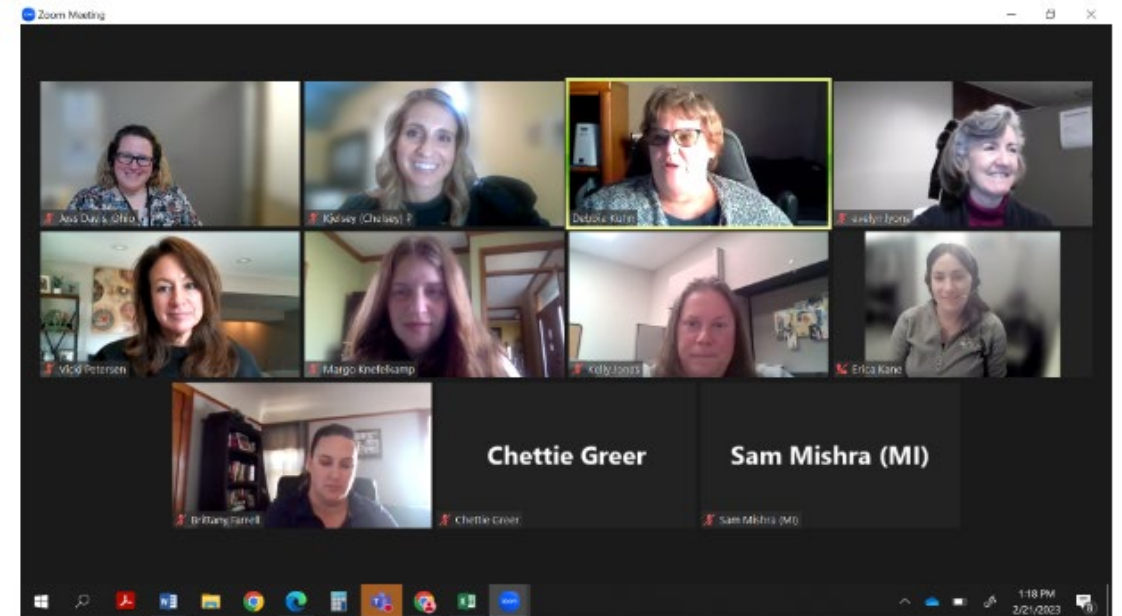
- ❖ 10,000+ Viewers
- ❖ 37 Continuing Ed Hours
- ❖ Tech Geniuses
- ❖ Fits the Budget
- ❖ 97% Good/Excellent



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Midwest EMSC Collaborative

- ❖ 13 States
- ❖ Virtual PECC/Peds Champion Symposiums
- ❖ Hospital Track
- ❖ EMS Track



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State Partnership Library Project

- ❖ EMSC Fellows Project
- ❖ Program Manager Driven
- ❖ Resource Sharing
- ❖ Attribution
- ❖ Make It Your Own



Don't Reinvent the Wheel! Collaborate to make a BETTER WHEEL



#EMSC23

Facilitated group discussion



2023 ALL-GRANTEE MEETING

CULTIVATING COMMUNITY GROWING COLLABORATION

Wrap-up/Take home points

- ❖ Access and leverage existing resources
- ❖ Develop and maintain partnerships
- ❖ Harness the power of collaboration
- ❖ Remember ~ we're all in this together!!



Collaboration

“If you want to go fast, go alone. If you want to go far, go together.” ~ African proverb

“Alone we can do so little; together we can do so much.” ~ Helen Keller

“There is immense power when a group of people with similar interests get together to work toward the same goals.” ~ Idowu Koyenikan

“It is the long history of humankind (and animal kind, too) that those who learned to collaborate and improvise most effectively have prevailed.” ~ Charles Darwin



Emergency Medical Services for Children Innovation and Improvement Center

Our Mission: to transform care and improve outcomes for ill or injured children across the emergency care continuum through a foundation of quality improvement.

[ABOUT US >](#)



Disaster Preparedness



Trauma



Prehospital Based Care



#EM

Pediatric Education and Advocacy Kit (PEAK): Status Epilepticus



Pediatric seizure is one of the most common neurologic emergencies in children. Prolonged seizure (status epilepticus) can be very difficult to manage and can create stress and anxiety not just to the patient family, but also to the healthcare provider. As the goal of seizure management is to stop the seizure as soon as possible, identifying best practices for treatment is important. The following PEAK content is provided to help with managing status epilepticus from prehospital to the hospital environment and highlight available resources for our patients and families with epilepsy.

Last updated: April 2022

Pediatric Status Epilepticus Algorithm

* In children over 1 month of age

Recognition of Status Epilepticus

An unresponsive patient with either one of the following has convulsive status epilepticus:

- Seizure >5 min and/or ongoing seizure on presentation to EMS/ED
- 2 or more seizures without full recovery of consciousness between seizures

Initial Management

- Initiate ABCs, cardiorespiratory and BP monitoring
- O₂ 10-15 L/min via non-rebreather mask
- Prioritize giving the first dose of benzodiazepine as early as possible, followed by checking blood glucose
- Monitor for respiratory depression, hypotension, arrhythmias
- Give acetaminophen 15 mg/kg/dose (MAX 650 mg) PR if febrile
- **Consider other investigations:**
 - Electrolytes, blood gas, calcium, CBC, serum glucose
 - Other: anticonvulsant drug levels, LFTs, blood & urine culture



Phase 1
5-15 min

Prehospital

1. Give Midazolam IM/intranasal (IN) [see dosing table].
2. Check blood glucose:
If blood glucose <3.3 mmol/L (<60 mg/dL):
Treat with D25W 2 mL/kg/dose IV (MAX 100 mL/dose) OR D10W 5 mL/kg/dose IV (MAX 250 mL/dose).
3. If still seizing after 5 minutes, give Midazolam second dose. MAX cumulative dose 10 mg in prehospital setting.

Emergency Department (ED)

1. Give benzodiazepine if two doses not already given prior to ED arrival (see dosing table).
2. Check blood glucose if not already done. Treat hypoglycemia as above. Reassess blood glucose in 5 minutes.
3. Give second benzodiazepine dose for ongoing seizures 5 minutes after first dose. When IV/IO access available, switch to IV/IO route.

CAUTION: Do not give more than 2 doses of benzodiazepines.

Reassess ABCs, monitor for respiratory depression. If still seizing give one of these second-line agents:

Drug	Dose	Age	Comments/Cautions
Levetiracetam	60 mg/kg/dose IV/IO (MAX 3000 mg/dose) Infuse over 5 minutes	Any age	↓side effects/drug interactions, low risk of psychosis
Fosphenytoin	20 mg phenytoin equivalent (PE)/kg/dose IV/IO/IM (MAX 1000 mg PE/dose) Infuse over 10 minutes	Any age	↓BP, ↓HR, arrhythmia; avoid in toxicologic seizures; choose alternate drug if on phenytoin at home or consider partial loading dose of 10 mg PE/kg/dose
Valproic Acid	40 mg/kg/dose IV/IO (MAX 3000 mg/dose) Infuse over 10 minutes	>2 years	In Canada, only available via Health Canada Special Access Program; caution in patients with liver dysfunction, mitochondrial disease, urea disorder, thrombocytopenia or unexpected developmental delay
Phenytoin	20 mg/kg/dose IV/IO (MAX 1000 mg/dose) Infuse over 20 minutes	Any age	↓BP, ↓HR, arrhythmia; avoid in toxicologic seizures; choose alternate drug if on phenytoin at home or consider partial loading dose of 10 mg/kg/dose; use only if Fosphenytoin not available
Phenobarbital	20 mg/kg/dose IV/IO (MAX 1000 mg/dose) Infuse over 20 minutes	<6 mos	Respiratory depression, especially in combination with benzodiazepines



Phase 2
15-20 min

Reassess ABCs, monitor for respiratory depression. If still seizing:

Administer alternative second line agent (e.g., if fosphenytoin given, use levetiracetam)

Pediatric Referral Centre Discussion:

- Need for intubation vs. bag-mask ventilation; hypercapnia is common and resolves with seizure cessation and non-invasive respiratory support
- Additional work up including full septic work up, use of antibiotics/antivirals, brain imaging
- Persistent altered LOC possibly related to non-convulsive status epilepticus or severe underlying brain disorder
- Third line agent: infusion of midazolam, pentobarbital, propofol OR ketamine

Article

Article: Multicenter Evaluation of Prehospital Seizure Management of Children

20 minutes

Details



Interactive Module

Choose Your Own Adventure: Individual Learner Simulation

10 minutes

Details



Video

EIIC Interview: Multicenter Evaluation of Prehospital Seizure Management of Children Webinar

20 minutes

Details



Simulation Video

EIIC Nursing Perspective: Caring for the Pediatric Patient in Status Epilepticus Video

8 minutes

Details



Interactive Module

EIIC Prehospital Pediatric Seizure Learning Module

20 minutes

Details

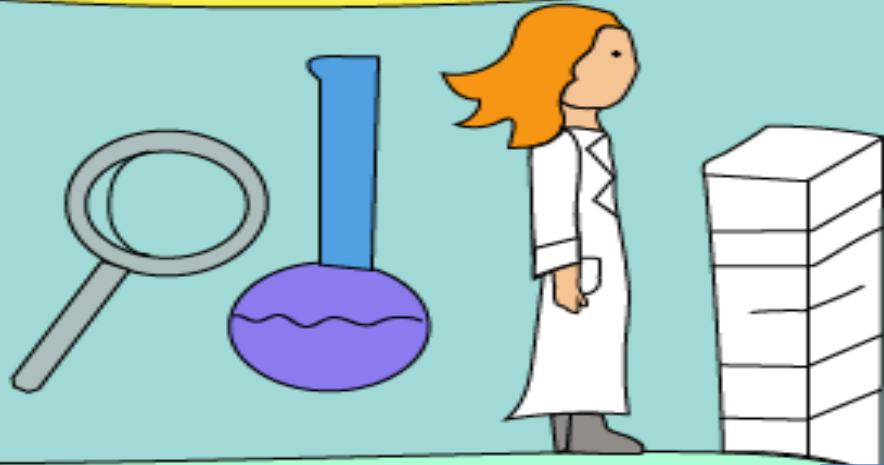
Interactive Module

EIIC Prehospital Pediatric Seizure Learning Module (view module by creating an account with OPENPediatrics)

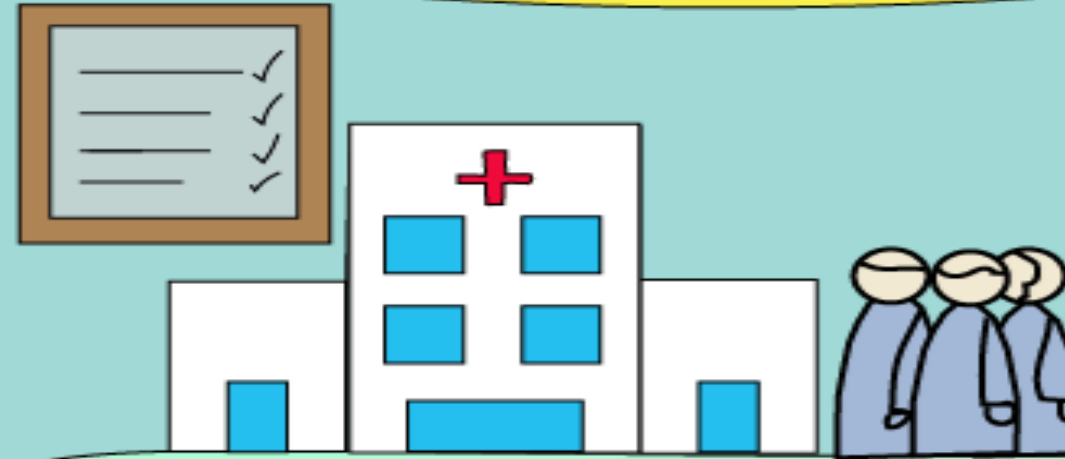
20 minutes

Details

WHAT WE KNOW



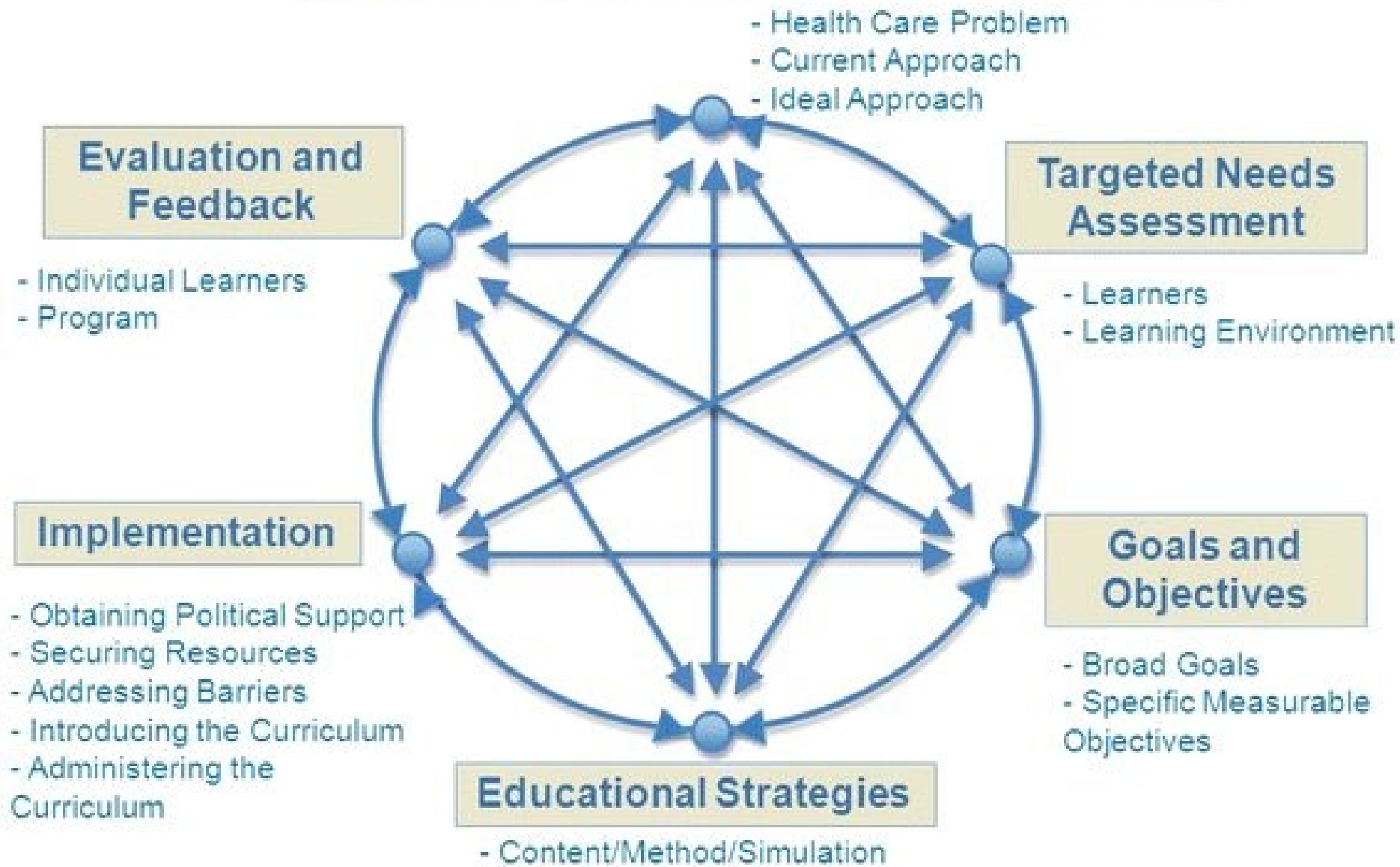
WHAT WE PRACTICE



17 years to bridge



Problem Identification and Needs Assessment



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