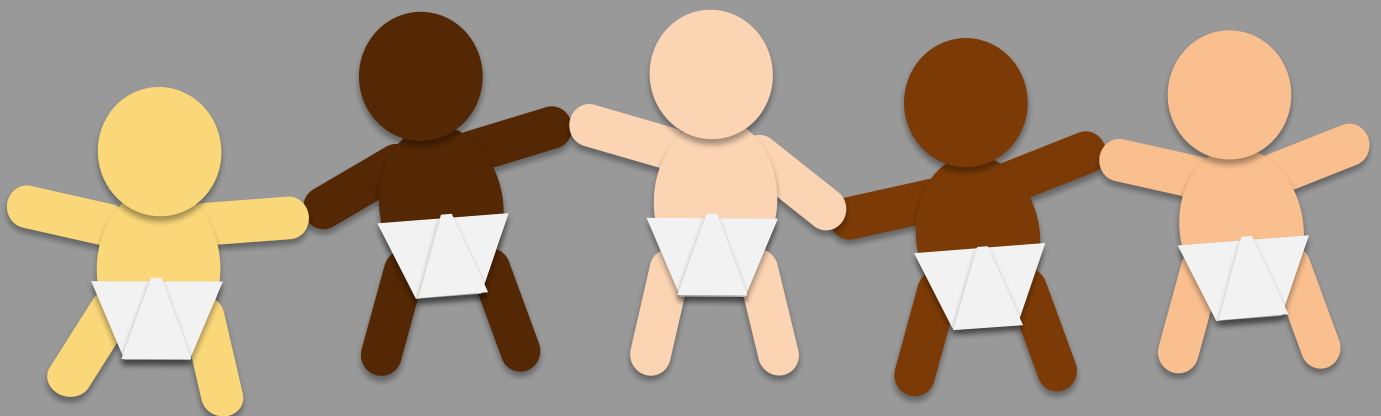


# SimBox+ *Tele* SimBox

## Pediatric Basics: Septic Neonate

**NEW!**  
**INCORPORATES 2020**  
**AHA PALS**  
**recommendations**



## Demonstrate a team based approach to caring for a sick neonate

Crisis Resource Management is an approach to teamwork in the care of a sick neonate with attention to role designation, directed orders, sharing mental model and closed loop communication with team and family members.

The Team leader (TL):

- Sets the tone for the room
- Encourages closed loop communication
- Maintains awareness of situation/member task load
- Provides a case summary often
- Shares thoughts with the team
- Remains open to thoughts and suggestions from the team

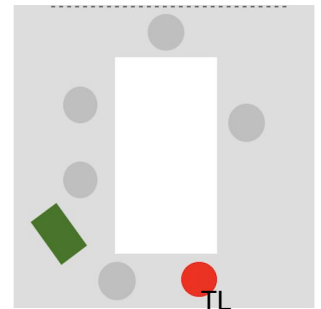
Team members:

- Know their role assignments
- Are able to carry out their responsibilities and say so if not
- Know how to find equipment
- Know how to use a cognitive aid

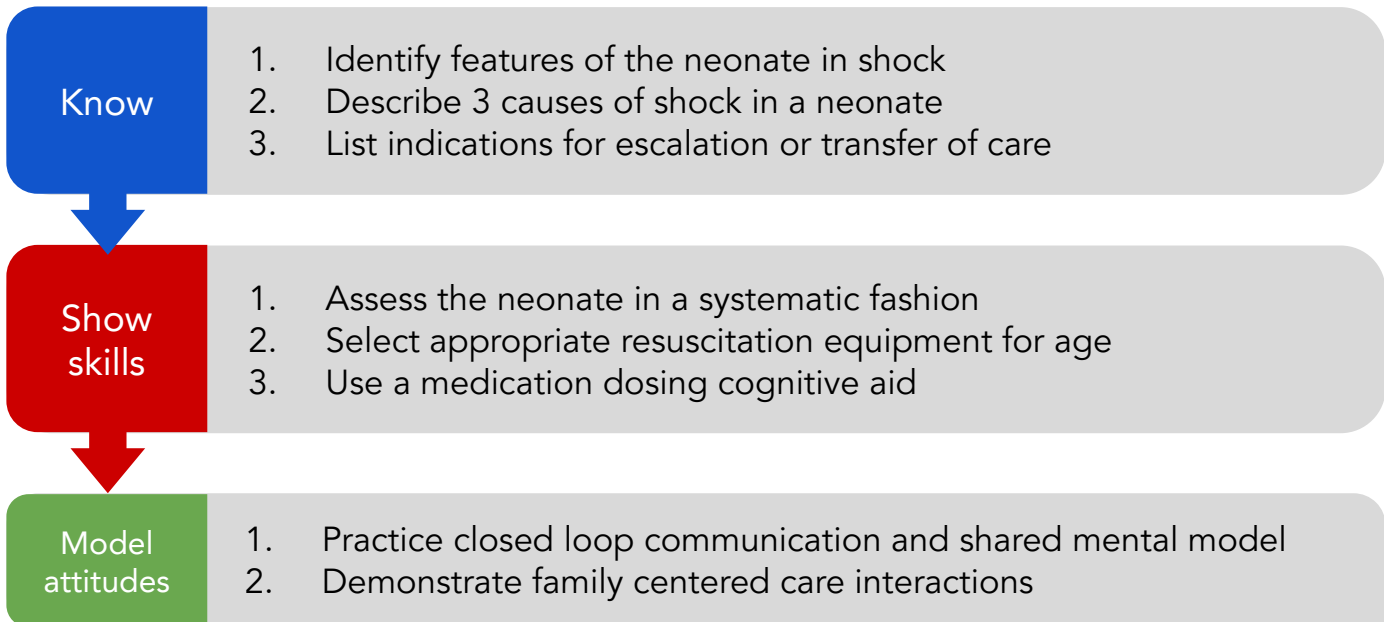
All team members are responsible to practice readiness and choreography.

<https://lifeinthefastlane.com/cc/crisis-resource-management-crm>

Resuscitation team



## Goals of the first five minutes: knowledge, skills and attitudes



1. Identify features of the neonate in shock
2. Describe 3 causes of shock in a neonate
3. List indications for escalation or transfer of care

Normal Vitals (0-3 mo)  
 HR 110-160 RR 35-55  
 BP SBP 65-86 DBP 45-55  
 Temp 36-37.9 C | 96.8-100.3 F

In babies 0-3 months of age :

## Airway

APNEA is ominous: consider rescue breathing. Position, place shoulder roll, suction

## Breathing

Obligate nasal breathers. If septic, may present with tachypnea + ↑WOB → fluid losses

## Circulation

Tachycardia = early shock, ↓BP is late. Compensate with ↑HR CO = HR X SV

## Disability

AVPU: Alert | Verbal | Pain | Unresponsive. Beware of hypoglycemia = Check early

## Exposure

Hypothermia can point towards sepsis/ shock. Think sepsis if rectal T <36 or ≥38

## Other

Cardiac disease can present in the first few weeks of life:

- Poor feeding: suspect coarctation or other ductal dependent congenital lesion
- Heart failure: palpate below costal margin for liver edge to check if "liver is down"
- Consider POCUS ECHO to check cardiac contractility

## K2: Differential Diagnosis: The MISFIT\*

- T Trauma: non accidental
- H Heart and Lung: congenital heart disease, apnea, infection
- E Endocrine: congenital adrenal hyperplasia, hypothyroid
- M Metabolic: hypoglycemia, Na, Ca
- I Inborn errors of metabolism
- S Sepsis or Seizure: CNS abnormality, infxn
- F Feeding mishaps: dilution errors, latch
- I Intestinal disasters: diaphragmatic hernia, malrotation, Hirschsprung, NEC
- T Toxins: maternal opiate, other poison

## Sick or not sick? NFLS

Neuro: tone, suck, reflexes, cry  
 Fontanelle: sunken or bulging  
 LOOK: check diaper area for hernias, abnormal genitalia, umbilical stump  
 Skin: cyanosis, pallor, jaundice, rashes, petechiae or bruising



## K3: indications for care escalation

Know limitations of your environment:

- Consider escalation of care early and call for back-up
- If unable to provide higher level care at your facility, call to transfer and transport as soon as possible

# Show skills

1. Assess the neonate in a systematic fashion
2. Select appropriate resuscitation equipment for age
3. Use a medication dosing cognitive aid

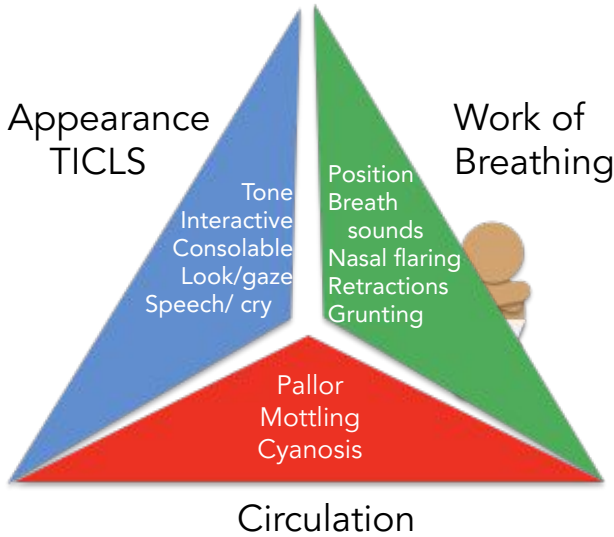
# SimBox Basics

Know where your equipment lives and how to use it! Make sure its in good condition and not expired!



## Pediatric Assessment Triangle and SAMPLE History

REF: Horeczko T, Enriquez B, McGrath NE, Gausche-Hill M, Lewis RJ. The Pediatric Assessment Triangle. Journal of Emerg Nurs. 2013;39(2):182-189. doi:10.1016/j.jen.2011.12.020.



<b>S</b>	Signs Sx: feeding, ins outs, wt loss gain, sleep activity, jaundice
<b>A</b>	Allergies: may be unknown
<b>M</b>	Medications: vaccines, Vit K and maternal opiate/antibiotic
<b>P</b>	Pre & perinatal history, Gp B strep Gest DM/HTN, HSV, ill contacts
<b>L</b>	Last meal
<b>E</b>	Events: leading up to presentation

### Airway \*NEW 2020 AHA p16

Airway before compressions. Consider supraglottic airway if >34 weeks and >2000g  
HFNC: titrate 1.5L/kg/min to MAX 2L/kg/min then consider CPAP, ask for Peds help  
Tracheal intubation: 3.0 cuffed \*/ 3.5 uncuffed/ Miller 1

### Breathing

RR < 20 consider BVM assist | For RR = 0 give 1 breath Q 2secs\*. Watch for chest rise.  
CPR\* ventilate 20-30 BPM. Avoid over-ventilation (pneumothorax/ gastric insufflation)

### Circulation

High Quality Compressions  
100-120 BPM + good recoil

#### EARLY EPINEPHRINE IN CPR\*

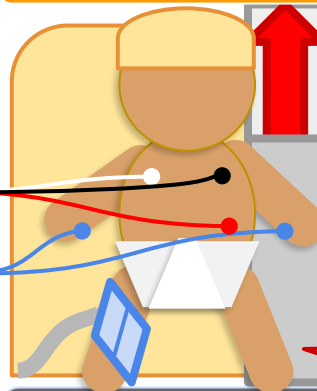
- See PALS Card for Shock Energy Dosing  
USE Peds pad size if < 15kg. Place front and back (if none use Adult pad)  
If cardiac disease suspected:
- ✓ Pulses: brachial and femoral
  - ✓ Pre/post ductal oximetry
  - ✓ 4 Extremity BPs

Meds: consider PR/IN/IM if no IV/IO  
PALS: 3 attempts or 90 sec for IV attempt then place IO  
Tibial IO Landmarks:  
1 FB medial  
1 FB below tibial tuberosity  
Proximal tibia preferred w CPR  
Use other leg if infiltrates  
IO size PINK-premies, blue-babies



### Disability

Dextrose Rule of 50 OR 5/2/1  
D10: 5 ml/kg | D25:2 ml/kg | D50:1 ml/kg



For pediatric medication dosing: estimate weight with length-based tape, measure from crown to heel of supine patient with arrow pointing up  
Most neonates weigh 3-5 kilos! (GREY ZONE)

Do: practice monitor lead placement: in babies!

### Exposure

Neonates do not tolerate being cold. Don hat/blankets. Know where an infant warmer or chemical mattress is kept or call for one.

\*Fluid administration: Push-Pull 10 or 20 cc/kg Normal Saline bolus with 3-way stop-cock, (or 10cc NS flushes)  
Preferred pressors: epinephrine or norepinephrine  
Stress dose steroids: consider if fluid refractory.

1. Practice closed loop communication and shared mental model
2. Demonstrate family centered care interactions

## Closed Loop Communication and Shared Mental Model:

Closed loop communication goals are for all team members

- Address team members by name when assigning tasks
- Give confirmation when tasks are acknowledged or completed

A shared mental model allows a team to anticipate the plan for patient care and what equipment or medications might be needed



**TIP:** Practice closed loop communication around assigning roles/tasks:

Leader: Team, this is a 10 day old in shock.  
We need the crash cart and the warmer

RN: I've got the crash cart, I'm going to work on vitals and a line. Tech can you fetch the warmer from North clean holding?

Tech: Yes on the warmer. Will you need anything else from there?

RN: just a rectal thermometer!

Leader: I've got a shoulder roll and ambu bag and am assisting the airway

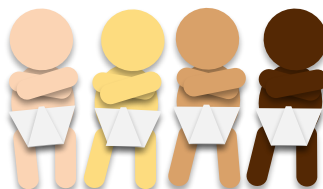
Tech: OK, I'm back with the warmer and the thermometer. Let me get the temp

## Demonstrate family centered care interactions::

Allow family input and presence in most circumstances

- Staff members including social work, a chaplain or other crisis support can help to obtain information & give updates
- An interpreter must be available for non-English speaking families
- Younger siblings should not be used as interpreters

References:  
National Pediatric Readiness  
Project [here](#)



Credits:  
SimBox Steering Team  
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