

Data Supplement 1: International consensus definitions of pediatric organ dysfunction (adapted from Goldstein et al.)

INTERNATIONAL CONSENSUS Definition of Organ Dysfunction

Cardiovascular: after administration of 40/kg of IV fluids, presence of:

- Hypotension ($< 5^{\text{th}}$ percentile for age)
- Need for vasoactive medication
- Two of the following
 - Base deficit > 5 meq/L
 - Lactate > 2 x upper limit of normal
 - Urine output < 0.5 ml/kg/hr
 - Capillary refill > 5 seconds

Respiratory: any of the following

- $\text{PaO}_2/\text{FiO}_2 < 300$ in absence of CHD or preexisting lung disease
- $\text{PaCO}_2 > 65$ torr
- Need for $> 50\%$ FiO_2 to maintain $\text{SpO}_2 > 92\%$
- Nonelective invasive or noninvasive mechanical ventilation

Hematologic: any of the following

- Platelets $< 80,000/\text{mm}^3$ or 50% decline from highest value over 3 days
- International normalized ratio > 2

Neurologic: any of the following

- Glasgow Coma Scale score ≤ 11
- Acute change in mental status

Renal:

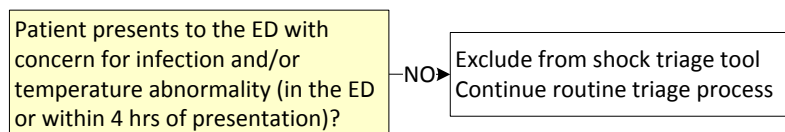
- Serum creatinine at least 2x upper limit of normal for age or 2-fold increase in baseline creatinine

Hepatic: any of the following:

- Total bilirubin at ≥ 4 mg/dl
- ALT 2x upper limit of normal for age

Goldstein B, Giroir B, Randolph A. International pediatric sepsis consensus conference: definitions for sepsis and organ dysfunction in pediatrics. *Pediatr Crit Care Med* 2005;6(1):2-8.

ATSC Septic Shock Triage Identification Tool



YES

Continue assessment at triage

General assessment:
Is patient critically ill?

YES

Transfer patient to a resuscitation room and immediately alert physician/resuscitation team

NO

Continue shock triage tool

- Obtain a full set of vital signs including blood pressure and temperature
- Perform a brief history and physical exam assessing mental status, skin, pulses and capillary refill/perfusion
- Is the patient a *high-risk* patient? (see Table 1)

Septic Shock Checklist

- ☐ Temperature abnormality (Table 2) _____ °C
- ☐ Hypotension (Table 2) _____ mmHg
- ☐ Tachycardia (Table 2) _____ bpm
- ☐ Tachypnea (Table 2) _____ bpm
- ☐ Capillary refill abnormality (Table 3) _____
- ☐ Mental status abnormality (Table 3) _____
- ☐ Pulse abnormality (Table 3) _____
- ☐ Skin abnormality (Table 3) _____

Is patient hypotensive?

YES

Initiate/continue the Septic Shock protocol/pathway using the Septic Shock Order Set, and mobilize resources

NO

Patient meets 3 or more of the 8 clinical criteria,
OR
High-risk patient meets 2 or more of the 8 clinical criteria?

NO

Continue routine triage process

YES

Identify the patient as meeting septic shock triage criteria, transfer to a room immediately and alert physician

Does physician assessment concur with triage assessment?

YES

NO

Continue routine care

Table 1

Patients at high risk include those with a history of:

- Malignancy
- Asplenia (including SCD)
- Bone marrow transplant
- Central line
- Solid organ transplant
- Severe MR/CP
- Immunodeficiency, immunocompromise or immunosuppression

Table 2

Age	Heart Rate (bpm)	Respiratory Rate (bpm)	Systolic Blood Pressure (mmHg)	Temperature (°C)
0 days – 1 mo	> 205	> 60	< 60	<36 >38
≥ 1 mo – 3 mo	> 205	> 60	< 70	<36 >38
≥ 3 mo – 1 yr	> 190	> 60	< 70	<36 >38.5
≥ 1 yr – 2 yr	> 190	> 40	< 70 + (age in yr × 2)	<36 >38.5
≥ 2 yr – 4 yr	> 140	> 40	< 70 + (age in yr × 2)	<36 >38.5
≥ 4 yr – 6 yr	> 140	> 34	< 70 + (age in yr × 2)	<36 >38.5
≥ 6 yr – 10 yr	> 140	> 30	< 70 + (age in yr × 2)	<36 >38.5
≥ 10 yr – 13 yr	> 100	> 30	< 90	<36 >38.5
> 13 yr	> 100	> 16	< 90	<36 >38.5

Table 3

	Cold Shock	Warm Shock	Non-specific
Pulses (compare central and peripheral)	Decreased or weak	Bounding	
Capillary refill (compare central and peripheral)	≥ 3 seconds	Flash	
Skin	Mottled, cool	Flushed, ruddy, erythroderma (other than face)	Petechiae below the nipple, any purpura
Mental status			Decreased, irritability, confusion, <u>inappropriate</u> crying or drowsiness, poor interaction with parents, lethargy, diminished arousability, obtunded

Data Supplement 3: a. Enumeration of missing data in vital sign fields across study population. b. Summary statistics for heart rate (HR), respiratory rate (RR), and systolic blood pressure (sBP) across age categories. Values are listed as initial (first value obtained in ED) and either maximum value (HR and RR) or minimum value (sBP).

Variable	Number of subjects with missing data (n=19,524)
Heart rate	23
Respiratory rate	58
Blood pressure	6,399
Capillary refill*	0
Mental status*	0

*these values are auto-populated in triage and defaulted to normal

Variable	57 days to <1 year	1 year to <4 years	4 years to <13 years	≥ 13 years
HR initial	162 (161-163)	151 (150-152)	129 (129-130)	112 (111-114)
HR max	171 (170-171)	158 (158-159)	135 (134-136)	119 (117-120)
RR initial	42 (41-43)	35 (35-35)	26 (26-26)	22 (22-23)
RR max	48 (48-49)	39 (39-39)	29 (29-30)	26 (25-26)
sBP initial	104 (104-105)	109 (108-109)	111 (111-111)	119 (118-120)
sBP min	98 (97-98)	102 (101-102)	103 (102-103)	105 (104-106)

Data are reported as mean (95% CI)

HR in beats per minute; RR in breaths per minute; sBP = mm Hg