HEALTH HOLDING

HAFER ALBATIN HEALTH CLUSTER
MATERNITY AND CHILDREN HOSPITAL

Department:	Pediatric Department		
Document:	Multidiciplinary Policy and Procedure		
Title:	Sepsis Screening & Management Protocol.		
Applies To:	All Physicians & Nurses in Pediatric ED, Pediatric Medical & Pediatric Surgical Inpatients, Pediatric IMC & PICU.		
Preparation Date:	January 05, 2025	**Index No:**	PED-MPP-017
Approval Date:	January 19, 2025	**Version :**	NEW
Effective Date:	February 19, 2025	**Replacement No.:**	
Review Date:	February 19, 2028	**No. of Pages:**	05

1. PURPOSE:

1.1 Screening and early recognition of childhood sepsis and prompt goal-directed therapy improves outcome.

1.2 A key goal is for screening to detect as many children as possible at risk for sepsis and trigger early treatment without increasing unnecessary broad-spectrum antibiotics and preventable hospitalizations.

1.3 Systematic screening is associated with improved outcomes and, therefore, enhance timely recognition of septic shock and other sepsis-associated organ dysfunction in children who present as acutely unwell

1.4 To outline management of paediatric sepsis and septic shock

2. DEFINITONS:

2.1 Sepsis: sepsis is better defined as life-thrreatening organ dysfunction caused by a dysregulated host response to infection, Sepsis pathophysiology involves both pro and anti inflammatory mediators superimposed on genomic, proteomic, and metabolomic reprogramming of the immunoinflammatory response.

2.2 Septic Shock: Septic shock is a serious medical condition that can occur when an infection in the body causes extremely low blood pressure and organ failure due to sepsis. Septic shock is life-threatening and requires immediate medical treatment. It's the most severe stage of sepsis.
life-threatening cardiovascular dysfunction in patients with suspected or confirmed infection and confers a high risk for mortality in children compared to those with uncomplicated infections or sepsis without shock. If this process is not corrected, numerous adverse vascular, inflammatory, metabolic, cellular, and endocrine responses contribute to a state of multiple organ dysfunction syndrome (MODS), cardiovascular collapse, and death

3. POLICY:

3.1 The Surviving Sepsis Campaign recommends 6 key initial management steps for children with suspected sepsis or septic shock:

3.1.1 Obtain intravenous/intraosseous access

3.1.2 Collect a blood culture (and other diagnostic tests for most likely sites of infection), in the first hour i.e septic workup(CSF, Urine, Stool, Sputum cultures as needed according to the presentation).

3.1.3 Measure blood lactate (Initial measure in first hour)

3.1.4 Start empiric broad-spectrum antibiotics

3.1.5 Administer fluid bolus(es) if shock is present

3.1.6 Start vasoactive agents if shock persists.

4. PROCEDURE:

4.1 For Patient in Pediatric Emergency Department: Screening (By Triage staff nurse)

4.1.1 Assess whether FEVER at home or a High Risk patient. Document in patient ED Card.

4.1.1.1 Patient has 2 or more of the following:

4.1.1.1.1 Fever, High Risk, Abnormal HR or RR, Abnormal WBC

4.1.1.1.1.1 Fever (temperature)

4.1.1.1.1.1.1 ED Temp > 38 C or < 36 C, or History of home fever.

4.1.1.1.1.2 High risk:

4.1.1.1.1.2.1 Central Line/PICC/Port

4.1.1.1.1.2.2 Malignancy

4.1.1.1.1.2.3 Neonate 0-4 weeks of age

4.1.1.1.1.2.4 Chronic oral steroid dependence (asthma, autoimmune disease)

4.1.1.1.1.2.5 Asplenia including Sickle Cell Disease

4.1.1.1.1.2.6 Congenital heart disease

4.1.1.1.1.2.7 Bone Marrow or Solid Organ Transplant

4.1.1.1.1.2.8 Complex urogenital anatomy/repair

4.1.1.1.1.2.9 Severe neurologic impairment

4.1.1.1.1.3 Abnormal Heart Rate (HR) or Respiratory Rate(RR) :

Age	Abnormal HR	Abnormal RR
< 1 month	< 100 or > 160	> 60
1 month-< 1 year	< 90 or ≥ 160	> 60
1- 5 years	≥ 140	> 40
6-12 years	≥ 130	> 30
13-14 years	≥ 110	> 18

4.1.1.1.1.4 WBC count 12,000 if available when patient screened.

4.2 SEPSIS SCREEN POSITIVE

4.2.1 Nofify attending physician or resident for immediate assessment and documentation.

4.2.2 Assessment by physician (Attending / Resident) for Sepsis Huddle (which includes but not limited to):

4.2.2.1 Confirm Sepsis Screen Vital Signs

4.2.2.2 Obtain Brief History

4.2.2.3 Assess for :

4.2.2.3.1 Altered MENTAL STATUS

4.2.2.3.2 Mottled, cool SKIN

4.2.2.3.3 Weak, thready or Bounding PULSES

4.2.2.3.4 > 3 SEC Cap Refill

4.2.2.3.5 Hypotension :

4.2.2.3.5.1

Age	Systolic BP
0-1 month	< 60
1 month -1 year	< 70
1-2 year	< 74
3-4 year	< 78
5-6 year	< 82
7-8 year	< 86
9 years and older	< 90

4.2.2.3.6 Other physician concerns

4.2.3 Attending Physician/Resident Assessment Confirms Sepsis

4.2.3.1 Initiate ED PEDIATRIC SEPSIS BUNDLE. Use PEDIATRICS SEPSIS Order Set
4.2.3.2 Establish IV or IO
4.2.3.3 Obtain CBC with diff, loaded blood gas and blood culture, Serum Lactate & RBS, Serum Chemistery & Electrolytes, CRP, PT,PTT,INR)
4.2.3.4 Administer ANTIBIOTICS after blood culture obtained; DO NOT DELAY if culture cannot be drawn.
4.2.3.5 Implement SEPTIC SHOCK ALGORITHM if septic shock suspected
4.2.3.6 Push fluids – 20 ml/kg boluses (x3 if indicated) via pressure bag or syringe within 15". (For justification of Intravenous Fluid Resussitation refere to point 4.3.2 in this policy).
4.2.3.7 Contact PICU for consultation and possible admission to PICU if ≥ 60ml/kg fluid given or physician concern.

4.3 Initial Management
4.3.1 Empirical broad-spectrum antibiotics
4.3.1.1 For children with septic shock, antimicrobial therapy should be administered as soon as possible, ideally within 1 hour of recognition.
4.3.1.2 For children with suspected sepsis without shock, an expedited diagnostic examination to confirm sepsis should be completed, with antibiotics for those most likely to benefit given as soon as possible but not later than 3 hours.
4.3.1.3 A bundled approach in which early antibiotics are administered along with other therapies provides maximal benefit
4.3.1.4 Choice of antibiotics: refer to **PEDIATRIC ANTIMICOBIAL GUIDELINE**
4.3.2 Fluid resuscitation
4.3.2.1 Fluid bolus therapy in 10–20 mL/kg aliquots administered over 5–20 min is recommended for children with septic shock treated in healthcare systems with availability of intensive care (either locally or via transport) over the first hour of resuscitation and titrated to clinical markers of cardiac output.
4.3.2.2 Crystalloids, possibly balanced/buffered solutions, are preferred as first-line option for fluid bolus therapy.
4.3.2.3 Dynamic tests of fluid responsiveness and measures of cardiac output should guide fluid bolus therapy and help reduce harm from fluid overload.
4.3.3 Vasoactive medications
4.3.3.1 Norepinephrine or epinephrine are preferred over dopamine to reverse shock and prevent mortality.
4.3.3.2 Epinephrine is preferred for patients with moderate-severe myocardial dysfunction Norepinephrine is preferred for patients with vasoplegia.

4.4 For Inpatient: Screening by assigned nurse staff.
4.4.1 Pediatric Early Warning Signs (PEWS) Score > 7 or there is concern for sepsis.
4.4.1.1 Complete full set of vitals.
4.4.1.2 Nofify attending physician or resident for immediate assessment and documentation.
4.4.1.3 Assessment by physician (Attending / Resident) for Sepsis Huddle (refere to point 4.2.2 in this policy), then follow the same sequence.

5. MATERIALS AND EQUIPMENT:

5.1 **Forms and Records:**
5.1.1 Traige Form
5.1.2 Clinical Notes Form
5.1.3 Nurses Notes Form
5.1.4 Laboratory Request Forms
5.1.5 Order Sheet
5.1.6 Nursing Task Form

6. RESPONSIBILITIES:

6.1 Pediatrics ED Doctors & Nurses
6.2 Pediatrics Ward Doctors & Nurses
6.3 PICU Doctors & Nurses

7. APPENDICES:

7.1 Pediatric Early Warning Score (PEWS)

8. REFERENCES:

8.1 Nelson Textbook Of Pediatrics 20th Edition
8.2 Neonatal Guidelines 2019-2021
8.3 Surviving Sepsis Campaign Guidline (SSCM)

9. APPROVALS:

	Name	Title	Signature	Date
Prepared by:	Mrs. Rasha Anwar	Nursing Quality Supervisor		January 05 2025
Prepared by:	Dr. Shaimaa Bayoumi Emara	Asst. Medical Director for Medical Quality		January 05, 2025
Reviewed by:	Mr. Sabah Turayhib Al Harbi	Director of Nursing		January 06, 2025
Reviewed by:	Dr. Amal Abdullah Al Harbi	Pediatric Emergency Room Head		January 06, 2025
Reviewed by:	Dr. Fahad Obaid Al Shammari	Paediatric Head of the Department		January 07, 2025
Reviewed by:	Dr. Sarhan Hamdan Al Shammari	NICU Head of the Department		January 08, 2025
Reviewed by:	Dr. Afif El Essid	Head of the Department of PaediatricSurgery		January 08, 2025
Reviewed by:	Dr. Ali Alfayez	PICU Head of the Department		January 09, 2025
Reviewed by:	Mr. Abdulelah Ayed Al Mutairi	QM&PS Director		January 09, 2025
Reviewed by:	Dr. Tamer Mohamed Naguib	Medical Director		January 12, 2025
Approved by:	Mr. Fahad Hazam Al Shammari	Hospital Director		January 19, 2025

APPENDICES: 7.1 Pediatric Early Warning Score (PEWS)

If PEWS Score is ≥ 7 → Activate PRRT

Age	Item	Item Sub score			
0 to < 3 month		0	1	2	4
	Heart Rate (bpm)	>110 and < 150	≥ 150 or ≤ 110	≥ 180 or ≤ 90	≥ 190 or ≤ 80
	Systolic BP (mmHg)	>60 and < 80	≥ 80 or ≤ 60	≥ 100 or ≤ 50	≥ 130 or ≤ 45
	Respiratory Rate (b/m)	>29 and < 61	≥ 61 or ≤ 29	≥ 81 or ≤ 19	≥ 91 or ≤ 15
3 – 12 month	Heart Rate (bpm)	>110 and < 150	≥ 150 or ≤ 100	≥ 170 or ≤ 80	≥ 180 or ≤ 70
	Systolic BP (mmHg)	>80 and < 100	≥ 100 or ≤ 80	≥ 120 or ≤ 70	≥ 150 or ≤ 60
	Respiratory Rate (b/m)	>24 and < 51	≥ 51 or ≤ 24	≥ 71 or ≤ 19	≥ 81 or ≤ 15
1 – 4 years	Heart Rate (bpm)	>90 and < 120	≥ 120 or ≤ 90	≥ 150 or ≤ 70	≥ 170 or ≤ 60
	Systolic BP (mmHg)	>90 and < 110	≥ 110 or ≤ 90	≥ 125 or ≤ 75	≥ 160 or ≤ 65
	Respiratory Rate (b/m)	>19 and < 41	≥ 41 or ≤ 19	≥ 61 or ≤ 15	≥ 71 or ≤ 12
>4 -12 years	Heart Rate (bpm)	>70 and < 110	≥ 110 or ≤ 70	≥ 130 or ≤ 60	≥ 150 or ≤ 50
	Systolic BP (mmHg)	>90 and < 120	≥ 120 or ≤ 90	≥ 140 or ≤ 80	≥ 170 or ≤ 70
	Respiratory Rate (b/m)	>19 and < 31	≥ 31 or ≤ 19	≥ 41 or ≤ 14	≥ 51 or ≤ 10
>12 to 14 year	Heart Rate (bpm)	>60 and < 100	≥ 100 or ≤ 60	≥ 120 or ≤ 50	≥ 140 or ≤ 40
	Systolic BP (mmHg)	>100 and < 130	≥ 130 or ≤ 100	≥ 150 or ≤ 85	≥ 190 or ≤ 75
	Respiratory Rate (b/m)	>11 and < 17	≥ 17 or ≤ 11	≥ 23 or ≤ 10	≥ 30 or ≤ 9
0 to 14 Years	Capillary Refill Time	< 3 Seconds			≥ 3 Seconds
	Respiratory Effort	Normal	Mild Increase	Moderate Increase	Severe Increase / Apnea
	Oxygen Saturation %	>94 %	91 % to 94 %	< 90 %	
	Oxygen Therapy	Room Air		< 4 L/min or < 50%	≥ 4 L/min or ≥50%