## **Fever Pathway**

## Clinical Assessment / Management Tool for Children





## **Management - Acute Setting**

Patient presents with o has a history of fever (Temp\_>38<sub>0</sub>)

Triage / ABC

Complete PEWS
Alert medical team if concerned even if PEWS normal
Give antipyretics

Do the symptoms and/or signs suggest an immediately life threatening (high risk) illness?

Yes

PEM/EM Cons to attend +/- 2222 Move to Resus Initiate management of sepsis

Refer to Paediatrics for immediate transfer to PAU

unless shocked

48 hours of Men B vaccine and

clinically well, consider safety netting

No

Is the child older or younger than  ${\bf 3}$  months of age ?

Younger

Bile-stained vomiting

Sustained tachycardiaNon-blanching rash

Focal neurological signs

Neck stiffness

Focal seizures

Table 1

Other

Clinical Findings	Green - low risk	Amber - intermediate risk	Red - high risk  • Pale/mottled/ashen/blue		
Colour	Normal colour of skin, lips and tongue	Pallor reported by parent/carer			
Activity	Responds normally to social cues     Content / smiles     Stays awake or awakens quickly     Strong normal cry / not crying	Reduced response to social cues     Wakes only with prolonged stimulation     Decreased activity     No smile     Poor feeding in infants	No response to social cues     Unable to rouse or if roused does not stay awake     Weak, high pitched or continuous cry     Appears ill to a healthcare professional		
Respiratory	None of the amber or red symptoms or signs	<ul> <li>Nasal flaring</li> <li>Tachypnoea - above normal values below, not red flag values</li> <li>Oxygen saturation ≤ 95% in air</li> <li>Crackles</li> </ul>	Grunting     Tachypnoea - as per red flag values below     Moderate or severe chest indrawing		
Circulation and Hydration	Normal skin and eyes	Tachycardia: see table 1     Dry mucous membranes     Reduced urine output     Central refill 2-3 seconds	Severe or sustained tachycardia - see table 1     Central capillary refill >3 seconds     Moderate or severe signs of dehydration—reduced skin turgor, sunken eyes, sunken fontanelle     Very reduced or no urine output		
	None of the amber or red symptoms or signs	• Fever for ≥ 5 days	Bulging fontanelle     *If 1-3 months of age with fever within		

For all patients, continue monitoring following PEWS Chart recommendation

• New-fever >3 days after start of chicken pox or spreading erythema around lesions

Swelling of a limb or joint / non-weight bearing / not using an extremity

Age 3-6 months temp ≥39°C (102.2°F) with no clear focus of infection

Recent return from malaria endemic area in preceding 3 months

## **Green Action**

- · Assess for focus of infection
- If no focus in child under 5 years of age ensure clean catch urine specimen to evaluate for UTI

### Provide discharge / send home advice

- Provide the parent/carer with appropriate **parent advice sheet**
- verbally advise on signs, symptoms and changes
- Signpost the parent/carer where to go, should things change.

#### **Amber Action**

## Follow local guidelines if source clear AND discuss with St4+ to consider

Blood culture, FBC + CRP

Additional parental/carer support required?

Urine dip +/- MC+S

Discharge

A new lump ≥ 2 cm

- Nasal Pharyngeal Aspirant /Viral respiratory PCR (throat swab)
- Consider chest X-ray.
- Consider Lumbar Puncture if <1 year old or has signs of meningitis (if no contraindications).

If results concerning/source remains unclear discuss with PEM Cons or Paeds

### Urgent Action

Immediate Senior Review (ST4+)
Investigation and treatment as per
Resus Council Septic Shock
Guidelines

Age 0-3 months with axillary temp ≥ 38°C (100.4°F) in a healthcare setting\*

Inform
Paediatrics
2222 unless
response
<5mins

CS51313

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Review

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## **Management - Acute Setting**





# Table 1

Normal Paediatric Values (APLS):						
	Respiratory Rate at rest: [b/min]	Red Flag values	Heart Rate [bpm]	Systolic Blood Pressure [mmHg]		
<1 year	30 - 40	>60	110 - 160	80 - 90		
1 - 2 years	25 - 35	>50	100 - 150	85 - 95		
>2 - 5 years	25 - 30	>50	95 - 140	85 - 100		
5 - 12 years	20 - 25	>30	80 - 120	90 - 110		
>12 years	15 - 20	>25	60 - 100	100 - 120		



# Septic shock and sepsis-associated organ dysfunction in children

#### **RECOGNITION**

#### Assess with ABCDE approach

#### A, B assessment

- Airway, RR, work of breathing, oxygen saturations, breath sounds, recognition respiratory distress/failure.
- Open airway and start high-flow oxygen via non-rebreather mask with reservoir or BMV as appropriate.

#### C assessment

- HR, CRT, BP, peripheral and central perfusion, rhythm recognition; recognition circulatory failure/shock.
- Establish IV/IO access (take blood cultures, full blood count, blood glucose, urea and electrolytes, lactate\*, blood gas and other bloods as indicated\*\*) and give fluid resuscitation as below.

#### D assessment

• AVPU score; recognition of altered mental status secondary to poor perfusion.

#### E assessment

• Rash, temperature (high or low).

Sepsis is diagnosed if there is evidence of infection as cause of the acute illness (suspected or proven) plus at least two of the following: core temperature  $< 36^{\circ}$ C or  $> 38.5^{\circ}$ C; white cell count elevated or depressed for age; inappropriate tachycardia; altered mental state; reduced peripheral perfusion.

#### 10-15 MIN

#### Initial resuscitation

- If no signs fluid overload (hepatomegaly, crackles at lung bases) then give 10 mL kg<sup>-1</sup> balanced crystalloids\*\*\* IV bolus over 5–10 min and re-assess after each bolus up to 40–60 mL kg<sup>-1</sup> or until perfusion improved.
- Therapeutic end points: CRT < 2 s; normal BP for age; UO > 1 mL  $kg^{-1}$   $h^{-1}$ , normal pulses, normal mental state.
- Watch for signs of fluid overload; if present stop bolus therapy and start inotropic support.
- Correct hypoglycaemia and hypocalcaemia.
- Start broad-spectrum antibiotics; seek and aggressively control any infection source.
- Call for more senior help and an anaesthetist urgently; call PICU for bed +/- PICU transfer team.
- If mechanical ventilation is required, then cardiovascular instability during intubation is less likely after appropriate cardiovascular resuscitation.

#### 15-60 MIN

#### Fluid refractory shock?

Start IV/IO inotrope infusion; central (preferable) or peripheral IV (clinical signs unreliable at differentiating 'warm' and 'cold' shock in children).

**Adrenaline** 0.05–0.3 mcg kg<sup>-1</sup> min<sup>-1</sup> (use more dilute infusion if peripheral) and/or

Noradrenaline via central IV or IO, starting infusion rate 0.05 mcg kg<sup>-1</sup> min<sup>-1</sup>

Titrate inotropes upwards according to clinical response and haemodynamic effects using haemodynamic monitoring (where possible)\*\*\*\*

Use ketamine +/- atropine IV/IO/IM to gain central access and airway if needed.

#### Fluid and catecholamine-resistant shock?

Further management as per Paediatric Intensive Care/retrieval service advice.

**Warm shock** – high cardiac output with low systemic vascular resistance.

**Cold shock** – low cardiac output with high systemic vascular resistance.

Fluid in mL kg<sup>-1</sup> should be dosed for ideal body weight (max bolus 500 mL)

- lactate measurements are useful if available as they have prognostic ability if measured serially.
- \*\* Other bloods that may be indicated: coagulation studies, liver function tests, magnesium levels or any others indicated by the child's clinical picture.
- \*\*\* Balanced (buffered) fluids are used in preference to 0.9% sodium chloride, but if not available, 0.9% sodium chloride should be used.
- \*\*\*\* These are starting dose ranges for these inotropes, and increases may be necessary but should be guided by

PICU retrieval team/senior clinicians. Choice of inotropes is dictated by clinician preference, response to treatment and monitored parameters, and again decisions should be made in conjunction with PICU teams.