

UHL Paediatric Sepsis Guideline Paediatric Sepsis Initial Screening and Action Tool (Paediatric Sepsis 6)

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This document provides guidance to staff on the initial recognition and management of sepsis in children within University Hospitals of Leicester.

1. Introduction and who this guideline applies to

- 1.1. Sepsis is a life-threatening illness caused by the body's response to an infection.



- 1.2. Recognition of sepsis in children is often very difficult as clinical signs and symptoms can be similar to self-limiting or less severe conditions. Early recognition coupled with early antibiotic administration and protocolised management saves lives, reduces morbidity, and reduces hospital length of stay (1).
- 1.3. Bacterial infections are by far the most common cause of sepsis, but it can also be caused by viral or fungal infections. Common causes include: respiratory tract infections, urinary tract infections, congenital infections, bloodstream infections, abdominal infections, infected wounds or indwelling lines and catheters, and cellulitis.
- 1.4. In children Sepsis is defined as a suspected or proven infection associated with a Systemic Inflammatory Response (SIRS). Severe Sepsis is sepsis with organ dysfunction. Septic shock is sepsis with cardiovascular dysfunction (e.g. raised lactate, hypotension) (2).

- 1.5. In simple terms, SIRS is the presence of at least 2 of the following, one of which must be abnormal temperature or white cell count:
 - Core temperature > 38.5°C or < 36°C.
 - Tachycardia for age in the absence of external stimulus
 - Tachypnea for age or mechanical ventilation for an acute process.
 - White cell count elevated or depressed
- 1.6. At UHL we expect to see approximately 2-3 cases of paediatric sepsis per week. Mortality for sepsis in children varies but can be as high as 15 – 20% (PICU all-cause mortality <3%).
- 1.7. This guideline is relevant to all medical and nursing staff employed by UHL, including bank, agency and locum staff.
- 1.8. This guideline applies to all infants and children presenting to UHL as acute admissions or as existing inpatients.
- 1.9. This guideline **does NOT** apply to the Paediatric Emergency Department
- 1.10. This guideline **does NOT** apply to neonates within the UHL Maternity Services (Labour Ward, Neonatal Units, Post Natal Ward)
- 1.11. Infants and Children with cancers on chemotherapy, following a haematopoietic stem cell transplant (bone marrow transplant), or neutropenic sepsis should be treated using this guidance alongside NICE clinical guidance on neutropenic sepsis (NICE CG151) and the UHL Children's Oncology Unit guidelines.

Related documents:

- [Toxic Shock Syndrome UHL Childrens Guideline](#) UHL ref: D5/2019
- [Kawasaki Disease UHL Childrens Medical Guideline](#) UHL ref: C34/2005
- [Meningitis UHL Childrens Medical Guideline](#) UHL ref: C22/2014
- [Antibiotics for Neonatal Infection UHL Neonatal Guideline](#) UHL ref: C54/2019
- [CYPICS Febrile Neutropaenia in Chemotherapy UHL Childrens Hospital Guideline](#) UHL ref: E16/2016
- [Paediatric Observation Priority Score \(POPS\) and Paediatric Early Warning Score \(PEWS\) UHL Childrens Guideline](#) UHL ref: D8/2020
- [Childrens Sepsis UHL Paediatric Emergency Department Guideline](#) C76/2024

2. Guideline Statements

2.1 This guideline is based around 3 practice tools:

- **Paediatric Sepsis Screening & Action Tool** - Appendix A
- **Paediatric AMBER FLAG Sepsis Tool** - Appendix B
- **Paediatric Sepsis Antibiotic Crib Cards** - Appendix C

2.2 Answers to Frequently Asked Questions on Paediatric Sepsis are available. – Appendix D

2.3 **The Paediatric Sepsis Screening and Action Tool** and **AMBER FLAG Sepsis Tool** are based on:

- International guidelines on the management of paediatric sepsis (3)

- NICE [NG51] Sepsis: recognition, diagnosis and early management (4)
- The UK Sepsis Trust Paediatric Sepsis 6 Tool (5)

2.4 **The Paediatric Sepsis Antibiotic Crib Cards** are based on local microbial prevalence and resistance patterns, UHL antibiotic prescribing policies and drug monographs, and has been approved by the UHL Antimicrobial Working Party.

3. The Paediatric Sepsis Screening and Action Tool

3.1 It is the responsibility of the attending clinical team (nurse or doctor) to identify and screen for sepsis in children.

3.2 It is the responsibility of the attending clinical team to document all care and treatment on the Paediatric Sepsis Screening and Action Tool. Once complete, the tool should be filed in the patient's medical records.

3.3 **The Paediatric Sepsis Screening and Action Tool** provides details of the patient care, monitoring and actions that are required to recognise and treat sepsis / severe sepsis / septic shock in children.

3.4 **The Paediatric Sepsis Screening and Action Tool** should be used in ALL children who may have an infection, have medical / family concerns, or have abnormal observations. The tool must be initiated as soon as these concerns have been identified.

(Note PEWS is used in all in-patient areas to help identify infants and children who need to be screened for sepsis.)

3.5 Any RED FLAG Sign should prompt immediate review by a clinician at ST4 level or above (ST4+), and have the Paediatric Sepsis 6 actions completed within 1 hour of Time Zero.

3.6 Time Zero is the booking in time for PED / Children's Assessment Unit (CAU). For inpatients, it is the time when RED FLAG Sepsis signs or observations were noted.

3.7 The clinical team should consider calling for additional assistance to ensure the treatment timeline is adhered to, particularly for sick children.

3.8 If there is to be a delay in senior review (ST4+), the **Paediatric Sepsis Six** actions should be commenced by the clinical team as soon possible to enable completion within 1 hour.

3.9 Note that de-escalation or variation from the Paediatric Sepsis 6 is acceptable. Some conditions may mimic sepsis (e.g. bronchiolitis), and children identified as having or being at high risk of sepsis may not always require all 6 elements of Sepsis Six. This assessment and decision should be made by a senior (ST4+) and reasons documented on the tool.

3.10 It is very important for children identified as having or at high risk of sepsis to receive antibiotics within 1 hour. (NICE [NG51])

3.11 Infants or children with RED FLAG signs must have observations increased to every 15 – 30 minutes, and have their fluid balance monitored. Further investigations may be required and should be discussed with the reviewing clinician at ST4 level or above.

3.12 If the infant or child does not have RED FLAG signs, they may still be at **Medium Risk for Sepsis** – use the **AMBER FLAG Sepsis Tool**. The responsible clinician should be made aware.

3.13 Infants and Children in **AMBER FLAG** category should have observations increased to every hour with re-assessment for **RED FLAG** signs. Urine output should be monitored.

4. The Children's Sepsis Box

4.1 **The Children's Sepsis Boxes** are available on all children's wards and contain appropriate antibiotics and equipment to carry out the Paediatric Sepsis 6 actions. This was designed to aid in delivering the Paediatric Sepsis 6 actions within 1 hour. Whenever possible, the sepsis box should be utilised to complete actions.

4.2 **Paediatric Sepsis Antibiotic Crib Cards** are available within the Children's Sepsis Boxes.

4.3 For Children who are already on an antibiotic, consider whether a change is needed - discuss with the most experienced available Paediatrician or microbiologist.



5. Education and Training

Training and raising awareness are on-going processes. On-going awareness is promoted through the ward based sepsis champions, whose role will be to promote timely, effective sepsis care through use of the Paediatric Sepsis Screening & Action Tool, the Paediatric Sepsis Antibiotic Crib Cards, and the Paediatric Sepsis Box.

Training is provided for medical staff during lunchtime teaching and other sessions, and at junior doctors' induction training.

Nursing education is supported by the Practice Development teams, and by ward based sepsis champions.

6. Monitoring and audit criteria

Key Performance Indicator	Method of Assessment	Frequency	Lead
Infants and children who meet criteria are screened for sepsis.	Audit of children with PEWS/POPS ≥ 3 for use of the paediatric sepsis screening and action tool.	Quarterly	UHL Paediatric Sepsis lead
Children identified as having RED FLAG Sepsis receive antibiotics within 1 hour	Audit of children with RED FLAG Signs for use of the paediatric sepsis screening and action tool and administration times for antibiotics.	Quarterly	UHL Paediatric Sepsis lead
Delivery of Paediatric Sepsis 6 components within 1 hour.	Audit of children with sepsis against adherence to sepsis care pathway.	Quarterly	UHL Paediatric Sepsis lead
Continued involvement of Paediatric Sepsis champions.	Annual confirmation from each champion. To attend annual training update.	Annual	UHL Paediatric Sepsis lead

7. References

1. Paul R, Neuman MI, Monuteaux MC, Melendez E. Adherence to PALS Sepsis Guidelines and Hospital Length of Stay. *Pediatrics*. 2012 Aug; 130(2):e273–80.
2. Goldstein B, Giroir B, Randolph A, International Consensus Conference on Pediatric Sepsis. International pediatric sepsis consensus conference: definitions for sepsis and organ dysfunction in pediatrics. *Pedi Critic Care Med*. 2005 Jan; 6(1):pp. 2–8.
3. Brierley J, Carcillo JA, Choong K, Cornell T, DeCaen A, Deymann A, et al. Clinical practice parameters for hemodynamic support of pediatric and neonatal septic shock: 2007 update from the American College of Critical Care Medicine. *Crit Care Med*. 2009 Feb; 37(2):666–88.
4. NICE Guideline [NG51] Sepsis: recognition, diagnosis and early management. July 2016 <https://www.nice.org.uk/guidance/ng51>
5. The UK Sepsis Trust <https://sepsistrust.org/professional-resources/our-nice-clinical-tools/> (accessed 21/10/2022)

8. Keywords

Paediatric sepsis, Paediatric Sepsis 6, sepsis, septic child, septic infant, septic shock, severe sepsis, septicaemia, children, infant, POPS, PEWS, antibiotic

The Trust recognises the diversity of the local community it serves. Our aim therefore is to provide a safe environment free from discrimination and treat all individuals fairly with dignity and appropriately according to their needs.

As part of its development, this policy and its impact on equality have been reviewed and no detriment was identified.

Contact and review details			
Guideline Lead (Name and Title) Dr Jeremy Tong, PICU Consultant		Executive Lead Chief Medical Officer	
Original authors		Dr Jeremy Tong, PICU Consultant Dr Rachel Rowlands, PED Consultant	
Details of Changes made during review:			
Date	Version	Reviewed by:	Changes made:
Jun 2016	1		Complete Review of Guideline
Apr 2017	2	J Tong	Update of guideline New Sepsis Screening and Action Tool (NICE compliant) New Amber Flag Sepsis Tool
Apr 2019	2.5	J Tong UHL Children's Hospital clinical practice group	Update of Gentamicin Monograph
June 2019	3	UHL Antimicrobial working party UHL P&G Committee	Approved
Sept 2022	4	J Tong D Harris UHL Children's Hospital clinical practice group UHL Antimicrobial working party	Update < 1 Month Monograph Guidelines Trust category changed from B to C
Dec 2022	4.1	D Harris	Missing page – 1 of 2 antibiotics for <1 month added
Dec 2024	4.1	R Roland;	Minor amendments removal of all references to Children's ED and hyperlink to Children's ED Sepsis guideline added Removed ref to Paediatric Inflammatory Multisystem Syndrome – Temporally Associated with SARS-CoV-2 (PIMS-TS) UHL Childrens Guideline D4 (2020) as this document now archived

Age < 5 yrs Paediatric Sepsis Screening & Action Tool

University Hospitals of Leicester
 NHS Trust
 Kettering General Hospital
 NHS Foundation Trust

This tool should be used in ALL children age < 5 yrs with abnormal physiology
 OR clinical concerns (excludes neonatal units and postnatal wards).

Name: _____

Date of Birth: _____

Hospital number: _____

Affix hospital Label if available

At least one of the following present?

PEWS or POPS scoring 3 or more Health care professional concern

Parental concern of sepsis

**** Remember some children are at increased risk of serious infection ****
 i.e. on chemotherapy, indwelling lines or chronic disease

THINK: could this child have an infection?

Some examples of bacterial infections to consider:

- Pneumonia
- Urinary Tract Infection
- Abdominal pain or distension
- Meningitis / meningococcal sepsis
- Cellulitis / septic arthritis / infected wound
- Other unknown source

Low risk of sepsis Tick

Treat as per condition / concerns.

Document safety net advice given. Tick

Moderate risk of sepsis Tick

Monitor and treat as per condition / concerns.

Ensure review within 1 hr for consideration of further investigation or treatment as per AMBER sepsis guideline

Consider possibility of sepsis mimics:
 e.g. asthma, anaphylaxis, DKA, bronchiolitis

ANY of the following red flags present?

	Age (yrs)	Red Flag	
<input type="checkbox"/> Appearance	any	Appears ill to health care professional Looks mottled / ashen Cyanosis of skin, lips or tongue Non-blanching rash	
	any	Grunting / Apnoea SpO ₂ < 90% in air or increased O ₂ requirement over baseline	
		< 1	RR ≥ 60 /min
		1 - 2	RR ≥ 50 /min
<input type="checkbox"/> Breathing	3 - 4	RR ≥ 40 /min	
	any	HR < 60 /min	
	< 1	HR ≥ 160 /min	
<input type="checkbox"/> Circulation	1 - 2	HR ≥ 150 /min	
	3 - 4	HR ≥ 140 /min	
	any	No response to social cues Does not wake If roused, does not stay awake Weak high-pitched or continuous cry	
<input type="checkbox"/> Demeanor	any	Temp < 36°C	
	< 3 months	Temp > 38°C	

High risk of sepsis Tick

This is a time critical condition and immediate action is required.

Arrange IMMEDIATE review by ST4 or above

Start Paediatric Sepsis Six

Discuss management plan with child, parents, and family

Consider possibility of sepsis mimics:
 e.g. asthma, anaphylaxis, DKA, bronchiolitis

Sepsis Screening completed by:

Print Name _____

Sign _____ Grade _____

Date _____ Time _____

Approved by Women's & Children's Q&SB and ED HoS May 2017. Contact: Rachel Rowlands (ED) Jeremy Tong (Paeds)
 Trust Ref: C53/2004 Reviewed 2007, 2009, 2012, 2015. Last Reviewed: May 2017. Next Review: May 2019
 NB: Paper copies of this document may not be most recent version. The definitive version is in the UHL Policies & Guideline Library

Paediatric Sepsis Six Bundle



Use the department sepsis box and work together to complete all elements within 1 hour. Record time of completion for each actions. Take observations every 15-30 min.

Record Time Zero	PED/CAU: Booking in time. Inpatients: Time when red flag sepsis signs/obs develop.			
	Print Name	Grade	Sign	Date

De-escalation or variation from the Sepsis Six is acceptable as some conditions may mimic sepsis (e.g. bronchiolitis), and children identified as having or being at high risk of sepsis may not always require all elements of sepsis six. This assessment and decision should be made by the senior clinician (ST4 and above) and reasons documented here:

Print Name	Grade	Sign	Date	Time
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1	Administer supplementary oxygen <ul style="list-style-type: none"> Via breathing facemask or equivalent. Titrate oxygen aiming for SpO₂ >94% 	Time started	Name
2	Obtain IV/IO access & take blood tests <ol style="list-style-type: none"> Blood culture Blood gas for glucose & lactate FBC, CRP, Coagulation, U&Es Lumbar puncture unless contraindicated in: <ul style="list-style-type: none"> less than 1 month 1-3 months and looks unwell or has WBC <5 or >15 x 10⁹ Consider further investigations but DO NOT DELAY TREATMENT for these: <ul style="list-style-type: none"> e.g. urine, CSF or urine cultures, Meningococcal PCR 	Time IV/IO access	Name
		Time blood culture taken	Name
		Time LP taken	Name
3	Give IV or IO antibiotics <ul style="list-style-type: none"> Broad spectrum cover as per UHL policy (use Sepsis box) Prescribe first dose in STAT dose section and document time 	Time given	Name
4	Consider fluid resuscitation <ul style="list-style-type: none"> Aim to restore normal circulating volume and physiological parameters If lactate >2 mmol/l: <ul style="list-style-type: none"> Give 20ml/kg (10ml/kg if <1 month) of 0.9% Sodium Chloride over 10 minutes, and repeat if necessary Beware of risk of fluid overload (esp. in <1 month) 	Time started	Name
5	Escalation <ul style="list-style-type: none"> Review by senior clinician ST4 or above or equivalent Discuss with Consultant Paediatrician and PICU if: <ul style="list-style-type: none"> Lactate >4 mmol/l No clinical improvement following second fluid bolus 	Time seen	Name
6	Consider inotropic support early <ul style="list-style-type: none"> If normal physiological parameters are not restored after 20ml/kg fluids Adrenaline infusion may be given via peripheral IV or IO access - ask PICU for help 	Time started	Name

Age 5 - 11 Paediatric Sepsis Screening & Action Tool

This tool should be used in ALL children age 5 - 11 with abnormal physiology
OR clinical concerns (excludes neonatal units and postnatal wards).

At least one of the following present?

PEWS or POPS scoring 3 or more Health care professional concern
 Parental concern of sepsis

**** Remember some children are at increased risk of serious infection **
i.e. on chemotherapy, indwelling lines or chronic disease**

Name: _____

Date of Birth: _____

Hospital number: _____

Affix hospital Label if available

THINK: could this child have an infection?

Some examples of bacterial infections to consider:

- Pneumonia
- Urinary Tract Infection
- Abdominal pain or distension
- Meningitis / meningococcal sepsis
- Cellulitis / septic arthritis / infected wound
- Other unknown source

Low risk of sepsis Tick

Treat as per condition / concerns.
Document safety net advice given. Tick

Moderate risk of sepsis Tick

Monitor and treat as per condition / concerns.
Ensure review within 1 hr for consideration of further investigation or treatment as per AMBER sepsis guideline

Consider possibility of sepsis mimics:
e.g. asthma, anaphylaxis, DKA, bronchiolitis

ANY of the following red flags present?

	Age (yrs)	Criteria	
<input type="checkbox"/> Appearance	any	Appears ill to health care professional Looks mottled / ashen Cyanosis of skin, lips or tongue Non-blanching rash	
	any	SpO ₂ < 90% in air or increased O ₂ requirement over baseline	
		5	RR ≥ 29 /min
		6 - 7	RR ≥ 27 /min
<input type="checkbox"/> Breathing	7 - 11	RR ≥ 25 /min	
	any	HR < 60 /min	
		5	HR ≥ 130 /min
		6 - 7	HR ≥ 120 /min
<input type="checkbox"/> Circulation	7 - 11	HR ≥ 115 /min	
	any	Objective evidence of altered behaviour or mental state Does not wake or if roused does not stay awake	
		any	Temp < 36°C

High risk of sepsis Tick

This is a time critical condition and immediate action is required.
Arrange IMMEDIATE review by ST4 or above

Start Paediatric Sepsis Six

Discuss management plan with child, parents, and family

Consider possibility of sepsis mimics:
e.g. asthma, anaphylaxis, DKA, bronchiolitis

Sepsis Screening completed by:

Print Name _____

Sign _____ Grade _____

Date _____ Time _____

Paediatric Sepsis Six Bundle



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Use the department sepsis box and work together to complete all elements within 1 hour. Record time of completion for each actions. Take observations every 15-30 min.

Record Time Zero	PED/CAU: Looking in time. Inpatients: Time when red flag sepsis signs/obs develop.			
	Print Name	Grade	Sign	Date

De-escalation or variation from the sepsis six is acceptable as some conditions may mimic sepsis (e.g. bronchiolitis), and children identified as having or being at high risk of sepsis may not always require all elements of sepsis six. This assessment and decision should be made by a senior clinician (ST4 and above) and reasons documented here:

	Print Name	Grade	Sign	Date	Time
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1	Administer supplementary oxygen <ul style="list-style-type: none"> Via rebreathing facemask or equivalent. Titrate oxygen aiming for SpO₂ >94% 	Time started	Name
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2	Obtain IV/IO access & take blood tests <ol style="list-style-type: none"> Blood culture Blood gas for glucose & lactate FBC, CRP, Coagulation, U&Es Consider further investigations but DO NOT DELAY TREATMENT for these: <ul style="list-style-type: none"> e.g. Urine, CSF and line cultures, Meningococcal PCR 	Time IV/IO access	Name
		Time blood culture taken	Name

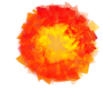
3	Give IV or IO antibiotics <ul style="list-style-type: none"> Broad spectrum cover as per UHL policy (use sepsis box) Prescribe first dose in STAT dose section and document time 	Time given	Name
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4	Consider Fluid Resuscitation <ul style="list-style-type: none"> Aim to restore normal circulating volume and physiological parameters If lactate >2mmol/l: <ul style="list-style-type: none"> Give 20ml/kg of 0.9% Sodium Chloride (max. 500ml) over 5-10 minutes, and repeat if necessary Be aware of risk of fluid overload 	Time started	Name
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5	Escalation <ul style="list-style-type: none"> Review by a senior clinician ST4 or above or equivalent Discuss with Consultant Paediatrician and PICU if: <ul style="list-style-type: none"> Lactate >4mmol/l No clinical improvement following second fluid bolus 	Time seen	Name
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6	Consider inotropic support early <ul style="list-style-type: none"> If normal physiological parameters are not restored after 40ml/kg or 2x 500ml fluid bolus Adrenaline infusion may be given via peripheral IV or IO access - ask PICU for help 	Time started	Name
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Paediatric Sepsis Six Bundle



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Use the department sepsis box and work together to complete all elements within 1 hour.
Record time of completion for each actions. Take observations every 15-30 min.

Record Time Zero	PED/CAU: Looking in time. Inpatients: time when red flag sepsis signs/obs develop.			
	Print Name	Grade	Sign	Date

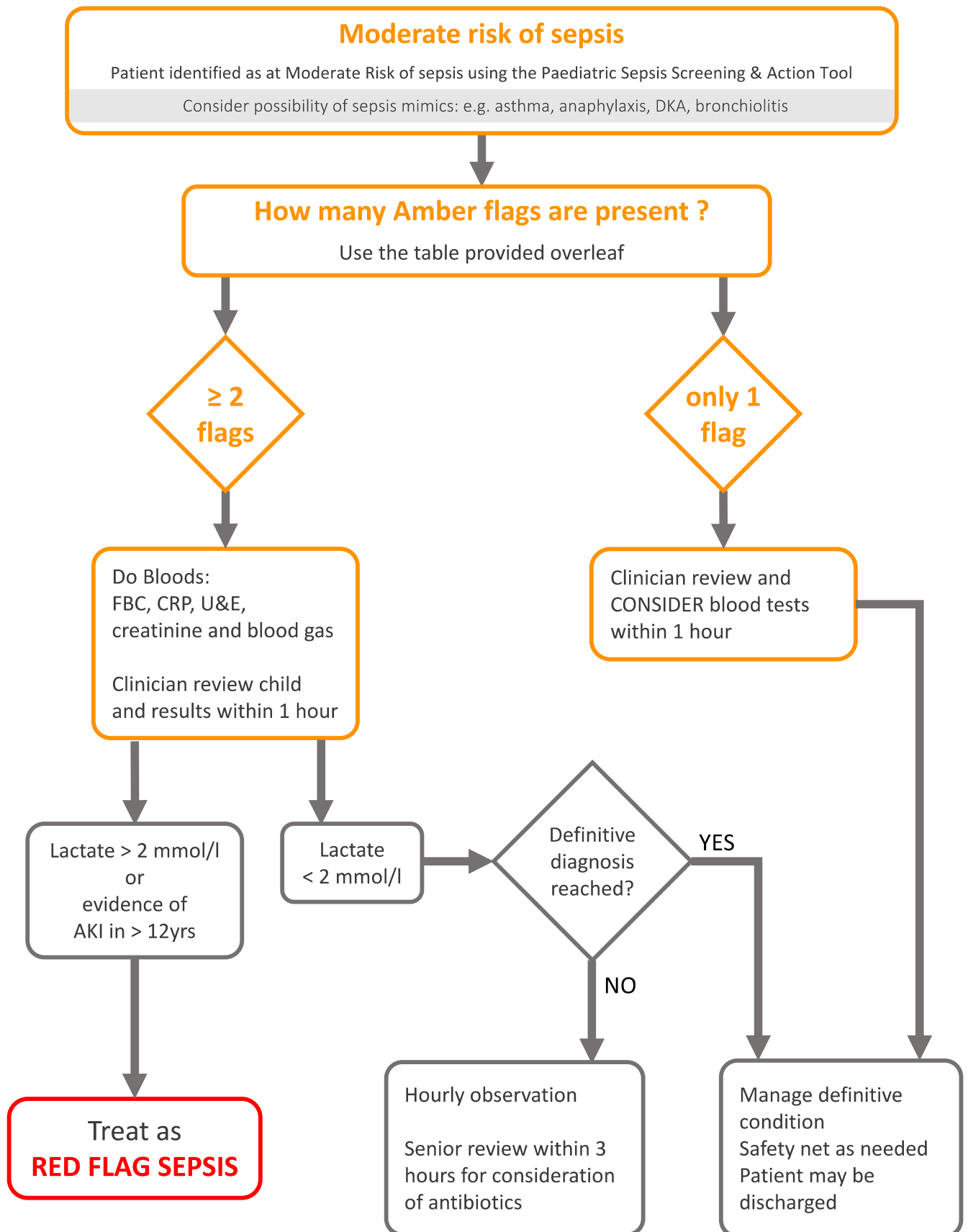
De-escalation or variation from the sepsis six is acceptable as some conditions may mimic sepsis (e.g. bronchiolitis), and children identified as having or being at high risk of sepsis may not always require all elements of sepsis six. This assessment and decision should be made by senior clinician (ST4 and above) and reasons documented here:

	Print Name	Grade	Sign	Date	Time
--	------------	-------	------	------	------

1	Administer supplementary oxygen <ul style="list-style-type: none"> Via rebreathing facemask or equivalent. Titrate oxygen aiming for SpO₂ >94% 	Time started	Name
2	Obtain IV/IO access & take blood tests <ol style="list-style-type: none"> Blood culture Blood gas for glucose & lactate FBC, CRP, Coagulation, U&Es Consider further investigations but DO NOT DELAY TREATMENT for these: <ul style="list-style-type: none"> e.g. Urine, CSF and line cultures, Meningococcal PCR 	Time IV/IO access	Name
		Time blood culture taken	Name
3	Give IV or IO antibiotics <ul style="list-style-type: none"> Broad spectrum cover as per UHL policy (use sepsis box) Prescribe first dose in STAT dose section and document time 	Time given	Name
4	Consider Fluid Resuscitation <ul style="list-style-type: none"> Aim to restore normal circulating volume and physiological parameters If lactate >2mmol/l: <ul style="list-style-type: none"> Give 20ml/kg of 0.9% Sodium Chloride (max. 500ml) over 5-10 minutes, and repeat if necessary Be aware of risk of fluid overload 	Time started	Name
5	Escalation <ul style="list-style-type: none"> Review by senior clinician ST4 or above or equivalent Discuss with Consultant Paediatrician and PICU if: <ul style="list-style-type: none"> Lactate >4mmol/l No clinical improvement following second fluid bolus 	Time seen	Name
6	Consider inotropic support early <ul style="list-style-type: none"> If normal physiological parameters are not restored after 40ml/kg or 2x500ml fluid bolus Adrenaline infusion may be given via peripheral IV or IO access - ask PICU for help 	Time started	Name

Paediatric Amber Flag Sepsis Tool

This tool should be used on ALL children at moderate risk of sepsis identified using the Paediatric Sepsis Screening & Action Tool.



Approved by UHL P&G Committee May 2017. UHL Trust Ref: B31/2016 Version: 2.3 Next Review May 2019 Contact: Jeremy.Tong@uhl-tr.nhs.uk
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Paediatric Amber Sepsis Criteria

	Age (years)	< 1	1 - 2	3 - 4	5	6 - 7	8 - 11	> 12	
Appearance		Pallor of skin, lips or tongue							
Breathing	Respiratory rate	≥ 50 /min	≥ 40 /min	≥ 35 /min	≥ 24 /min	≥ 22 /min	≥ 21 /min		
	Work of breathing	Nasal flaring							
	Saturations	SpO ₂ < 91% in air or increased O ₂ requirement over baseline			SpO ₂ < 91% in air or increased O ₂ requirement over baseline				
Circulation	Heart rate	≥ 150 /min	≥ 140 /min	≥ 130 /min	≥ 120 /min	≥ 115 /min	≥ 91 /min		
	Cap refill time	≥ 3 seconds							
	Blood pressure	Reduced urine output or < 1 ml /kg/hr if catheterised							Systolic BP 91 - 100 mmHg
Dememeanor	Urine output	Not passed urine for >12 hrs or 0.5 - 1 ml /kg/hr if catheterised							
		Only wakes after prolonged stimulation							
Exposure		Altered response to social cues							Altered behaviour of mental state (patient/carer reported)
		Carer concerned child behaving differently							Acute Deterioration in function
	Temp > 39°C 3 - 6 months								Temp < 36°C
		Cold hands and feet							
		Leg pain							
		Trauma, surgery or invasive procedure in the last 6 weeks							
		Impaired Immune system (due to illness or drugs, including oral steroids)							
		Sign of infection at surgical site or wound							

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Sepsis < 1 Month age Dosing and Administration Information

Page 1 of 2 for Sepsis < 1 Month age recommendations

Version 4
UHL AWG 2022
Review: 2025
Authors: JT, DH,
TA, RR

Amoxicillin

Dose	Frequency	Administration
50mg/kg/dose IV	12 hourly (under 7 days old) 8 hourly (over 7 days old)	250mg vial add 4.8ml water for injection (50mg/ml) IVI over 30 minutes Flush with 0.9% sodium chloride

** Consider 100mg/kg/dose for Listeria meningitis

CefoTAXime

Dose	Frequency	Administration
50mg/kg/dose IV	12 hourly (under 7 days old) 8 hrly (7 to 20 days old) 6 hrly (over 20 days old)	500mg vial add 1.8ml water for injection (250mg/ml) IV bolus over 3 - 5 minutes Flush with 0.9% sodium chloride

*** Ceftriaxone may be used as an alternative to cefotaxime once clinical recovery is evident, but ceftriaxone should **not** be used in premature babies or in babies with jaundice, acidosis or hypoalbuminaemia.

* Always prescribe 1st dose in once only/stat section on front of prescription chart

Sepsis < 1 Month age

Dosing and Administration information

Page 2 of 2 for Sepsis < 1 Month age recommendations

Version 4
 UHL AWG 2022
 Review: 2025
 Authors: JT, DH, TA, RR

Gentamicin

ONLY for the following indications:

1. Haemodynamic instability

- E.g., Raised lactate / inotrope requirement / > 40 ml/kg fluid resuscitation / ICU care

2. Concern / high risk for multi-drug resistant organisms

- Risk factors: Frequent hospitalisations / Previous NICU or ICU admission / Previous treatment for NEC / Recent foreign travel/hospitalisation
- Previous known multi-resistant gram-negative organisms – to discuss with microbiology if empiric treatment needs to be adjusted esp. if cefotaxime and/or gentamicin resistant

Post Conceptional age	Dose	Frequency	Administration
< 34 weeks CGA	Use NNU dosing		Slow bolus (over 3 - 5 minutes) Plan to measure levels pre & post third dose
≥ 34 to < 38 weeks CGA	5 mg/kg	36 hourly	
≥ 38 weeks CGA, up to 7 days old	5 mg/kg	36 hourly	
≥ 38 weeks CGA. 7 – 28 days old	5 mg/kg	24 hourly	

Refer to prescription chart for further information

Aciclovir

Indicated for Concerns for Herpes Simplex Virus (HSV) infection

- Risk factors: Maternal HSV or cold sores / peri partum fever or PROM / Scalp electrode monitoring / History of contact / Cutaneous vesicles and/or mucosal ulcers / Seizures – particularly focal seizures / Elevated transaminases

Dose	Frequency	Administration
20mg/kg/dose IV	8 hourly	250mg vial in 10ml (25mg/ml) Or 250mg powder - add 10ml water for injection (25mg/ml) IVI over 60 minutes Flush with 0.9% sodium chloride

*** Always prescribe 1st dose in once only/stat section on front of prescription chart**

Sepsis 1 - 3 Month age Dosing and Administration information

Version 4
UHL AWG 2022
Review: 2025
Authors: J Tong / D Harris

Amoxicillin

Dose	Frequency	Administration
50mg/kg/dose IV	6 hourly	500mg vial add 9.6ml water for injection (50mg/ml) IVI over 30 minutes Flush with 0.9% sodium chloride

Cef**TRIA**Xone

Dose	Frequency	Administration
80mg/kg/dose IV (max 2g)	Once daily	1g vial add 9.3ml water for injection (100mg/ml) IVI over 30 minutes Flush with 0.9% sodium chloride

* Always prescribe 1st dose in once only/stat section on front of prescription chart

Sepsis > 3 Month age Dosing and Administration information

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Review:
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Harris

Cef**TRIA**Xone

Dose	Frequency	Administration
80mg/kg/dose IV (max 2g)	Once daily	1g vial add 9.3ml water for injection (100mg/ml) IVI over 30 minutes Flush with 0.9% sodium chloride

* Always prescribe 1st dose in once only/stat section on front of prescription chart

Piperacillin - Tazobactam

Dose	Frequency	Administration
90 mg/kg/dose IV (max. 4.5g)	Age > 1 month: 6 hourly Age < 1 month: 8 hourly	Reconstitute with a 16.5 ml of water for injection. (225mg/ml) IV bolus over 3 - 5 minutes May be further diluted with 0.9% sodium chloride or 5% glucose for 30 minute infusion

Teicoplanin - refer to IV Monograph

Dose	Frequency	Administration
Age > 1 month: 10 mg/kg IV (max 600mg)	12 hourly FOR FIRST 3 DOSES ONLY THEN DAILY	Slowly add the provided ampoule of water for injection. Gently roll the vial to dissolve all the powder. Avoid shaking as this may cause foaming. If this occurs allow to stand for 15 minutes before using. Final concentration is 400mg in 3ml. IV bolus over 3 - 5 minutes May be further diluted with 0.9% sodium chloride or for 30 minute infusion

*** Always prescribe 1st dose in once only/stat section on front of prescription chart**

Frequently asked questions about sepsis in children

When should a child be screened for Sepsis?

PEWS or POPS score of 3 or more.

If you are concerned your patient looks or is unwell.

If your patient's family is concerned their child may have sepsis.

Who should screen children for Sepsis?

All health care professionals reviewing patients or measuring PEWS or POPS should be aware of the above criteria. You should be prepared to escalate quickly.

What is screening for Sepsis in children?

An assessment of the child using the Paediatric Sepsis Screening and Actions Tool available from the UHL intranet.

Any RED Flag Sign or Observation should prompt an immediate review by a doctor at middle grade/registrar (ST4) level or above in experience. If there is to be a delay in senior review, the Paediatric Sepsis Six actions should be commenced as soon possible to enable completion within 1 hour of time zero.

** Note not all children screened will have sepsis. Conditions such as asthma, anaphylaxis, DKA, bronchiolitis etc. may mimic signs of sepsis. If unsure, ask someone more experienced.*

Do I need to screen for sepsis every time my patient scores a PEWS of 3 or more?

Yes, if there is a change in clinical condition or their PEWS is triggering for different parameters.

If it is obvious that your patient is triggering due to on-going oxygen requirements or other chronic disease, then clinical judgement should be used. This decision should be made by the most senior resident doctor and be documented in the medical record/NerveCentre as: "no evidence of infection/sepsis"

** Ensure there is an appropriate escalation plan documented e.g. if the child is known to score high then document at what point further action is required.*

What is time zero for red flag sepsis?

For patients admitted directly to PED or CAU: **the booking in time.**

For inpatients with signs of infection: **time when the patient develops red flag sepsis signs/observation(s)**

Effective care requires the Paediatric Sepsis Six to be completed within 1 hr of time zero. Use a paediatric sepsis box and work together with colleagues to help meet this goal. Patients identified as sepsis and receiving treatment should continue to be monitored. Further deterioration requires prompt review.

How do I know if my patient has an infection?

Suspicion of infection requires 2 or more pieces of evidence: e.g. symptoms, signs, white cell count, CRP, imaging, or positive microbiology result. A **raised temperature is not essential** to suspect infection.

Consider sepsis if they have been admitted with a suspected/proven infection such as pneumonia, urinary tract infection, appendicitis/abdominal infection, cellulitis/septic arthritis or other sources of infection. Lower the threshold of suspicion for children under 3 months age, with chronic disease, recent surgery or the immunocompromised. Consider if they have new symptoms during hospital stay, e.g. wound redness/erythema, or abdominal pain. Consider infections from indwelling lines or devices.

The diagnosis of sepsis is uncertain and plan is to investigate further

Don't wait – sepsis care is based on **suspicion of sepsis.**

Patients with red flag(s) should have Paediatric Sepsis Six started immediately.

Investigations should occur alongside Paediatric Sepsis Six. However, registrar review should take place as soon as possible, as should informing the consultant. Consultant review must occur **within** 14 hours.

Which antibiotics do I give to children with sepsis?

Follow UHL paediatric antimicrobial guidelines. Appropriate age based antibiotic choices and directions for administration are available in the paediatric sepsis boxes.

What if my patient is on antibiotics and they trigger for red flag sepsis?

Patient deterioration with new red flag(s) requires escalation as per the paediatric sepsis six care bundle. Discuss antibiotic changes with most experienced available registrar/consultant paediatrician/microbiologist. Any outstanding elements of the Paediatric Sepsis Six should also be completed.

Do all elements of the Paediatric Sepsis Six need to be carried out?

A clinical decision should be made by the registrar assessing the child as to whether it is appropriate to carry out each element of the Paediatric Sepsis Six. De-escalation or variation from the Sepsis Six is acceptable as some conditions may mimic sepsis (e.g. bronchiolitis), and children identified as having or being at high risk of sepsis may not always require all 6 elements of Sepsis Six. This assessment and decision should be made by a senior clinician (ST4 and above) and reasons documented here:

My patient is DNAR and is triggering PEWS scores – what should I do?

These children will most often be for **active treatment** of sepsis. All escalation actions (PEWS/Sepsis etc) **must** be adhered to unless there is a clear plan for limitation of treatment documented.

My patient is on an end of life care plan – what should I do?

The medical team will need to decide what management for sepsis is appropriate.

Where do I put the Sepsis Screening tool?

File it in the patient's medical record please.