1 Introduction

Sepsis, also referred to as blood poisoning or septicaemia, is a potentially life-threatening condition triggered by an infection or injury. One in three people with Sepsis will die; the condition kills more people than breast, bowel and prostate cancer combined. Additionally, there is substantial long term physical and psychological health problems associated with sepsis which significantly reduce patients’ independence and increase their contact with the healthcare profession. As well as the impact on patient outcome sepsis costs the NHS approximately £2.5 billion per year.

Red Flag Sepsis is a definition from the National Sepsis Trust which identifies 7 easy-to-identify clinical parameters the presence of one of which in the context of infection define sepsis with a high risk of death and a requirement for urgent treatment.¹ When Sepsis is associated with organ dysfunction or failure, its management is time critical. In the most severe cases, each hour of delay in antibiotic administration, carries a 7.6% increase in mortality.²

The Sepsis Six is an initial care bundle which should be delivered within the first hour of recognition of Red Flags. Its use in sepsis has been shown to reduce the risk of death from Sepsis from 44% to 20%, a reduction unmatched in any other area of medicine.³

2 Scope

This policy applies to inpatients in the acute setting. It excludes critical care and maternity patients who are managed by specialist treatment protocols and guidelines out with the basic ward environment.

This policy relates to patients with suspected or confirmed ‘Red Flag’ sepsis.

It also applies to all health care practitioners who identify and respond to patients with Red Flag Sepsis in the course of their work.

This policy should be viewed in conjunction with the ‘NEWS’ [LINK] policy and PEWS [LINK] guideline.
3 Aims

The aims of this policy are to ensure:
- To raise awareness of the impact of sepsis
- To improve knowledge of recognition and management of sepsis
- To improve outcomes of mortality and morbidity in patients with sepsis

4 Duties (Roles and responsibilities)

Roles and responsibilities of the following:

**Trust Board** supports the Sepsis Steering Group to ensure the policy is fully embedded to reduce the risk of patient harm throughout the Trust

**Chief Executive** has responsibility for ensuring the Trust has robust policies relating to sepsis to reduce patient harm

**Directorate Managers and Clinical Directors** Have the responsibility to ensure the clinical areas in their directorate implement and comply with the policy

**Nursing and auxiliary staff** will be responsible for the recognition of Red Flags during NEWS observations and escalation of Red Flags to ensure prompt medical review

**Medical staff & Nurse Practitioners** will respond prioritise high risk NEWS observations including Red Flags and ensure medical review within 30 minutes of identification of a Red Flag. Diagnosis of infection in the presence of one or more Red Flags will require activation of the Sepsis 6 pathway on eRecord.

The list above is not exhaustive and there may be occasion where additional stakeholders/specialist personnel with a specific role and or responsibility should be listed.

5 Definitions

**Red Flag Sepsis** is a definition from the national Sepsis Trust which identifies a set of easy-to-identify clinical parameters the presence of one of which in the context of infection define sepsis with a high risk of death and a requirement for urgent treatment. See section 6.1 for adults and 6.2 for paediatrics.

**Sepsis 6** is an initial care bundle which should be delivered within the first hour of recognition of Red Flag Sepsis. See section 6.3 for adults and 6.4 for paediatrics.

**NEWS** - National Early Warning Score is a simple physiological scoring system that can be calculated at the patient’s bedside, using agreed parameters which are measured in unwell patients. It is a tool which alerts health care practitioners to abnormal physiological parameters and triggers an escalation of care and review of the unwell patient. It is only applicable to adult inpatients.
**NICE** – The National Institute for Health and Clinical Excellence provides guidance, sets quality standards and manages a national database to improve people’s health and prevent and treat ill health. It makes recommendations to the NHS on new and existing medicines, treatments and procedures, and on treating and caring for people with specific diseases and conditions.

6 **Diagnosing and Treating Red Flag Sepsis**

Red Flag sepsis is a time critical condition. It is vital that it is recognised and treated promptly.

6.1 **Diagnosing Red Flag Sepsis in ADULTS** (see Appendix 1 for flow chart)

There are 2 aspects to diagnosis of Red Flag Sepsis in adults;

I) The identification of a Red Flag. Red Flags are defined as follows:

- Systolic blood pressure ≤90
- Heart rate ≥130
- Respiratory rate ≥25
- A ‘V’ or less on the AVPU scale (level of consciousness)
- Requirement for supplemental Oxygen to maintain saturations of ≥92%
- Lactate of ≥2
- Purpuric rash

**OR**

II) The presence of any of the following:

- Mottled skin/ Non blanching rash
- New onset confusion
- Acutely unwell or deteriorating patient (especially if recent surgery/immunosuppressed)
- A total aggregate NEWS of 5 or more

**AND**

III) The presence of an infection

The identification of Red Flags will be an integral part of NEWS observations and the frequency of subsequent NEWS observation will not be changed by the identification of a Red Flag.

After identification of a Red Flag on routine NEWS observations, an urgent medical review should be triggered as would occur with any high risk NEWS. The covering doctor should be contacted within 10 minutes and a documentation of that telephone call should be made in the nursing notes. This should include the exact time of identification of the Red Flag.
A medical review should occur within 30 minutes of identification of the Red Flag and the medical assessment should be clearly documented and timed in the medical notes. A diagnosis of infection should be clearly documented ideally as “Red Flag Sepsis.” If an infection is not present, the patient is still unwell and treatment should continue as appropriate.

6.2 Diagnosing Red Flag Sepsis in **PAEDIATRICS** (see Appendix 2 for flow chart)

There are 2 aspects to diagnosis of Red Flag Sepsis in children;

I) The identification of a Red Flag. Red Flags are defined as follows:

- CNS: Change in behaviour - Doesn’t wake or won’t stay awake if roused. Weak, high pitched / continuous cry
- CVS: Severe tachycardia (see chart)
- Bradycardia ( < 60 per minute)
- RS: Severe tachypnoea (see chart)
- SpO2 Less than 90% / new need for oxygen / Grunting / apnoea
- Skin: Non-blanching rash/Mottled / Ashen / blue
- Temperature <36C >380C

OR

II) Family or clinician concern

AND

III) The presence of an infection

The identification of Red Flags will be an integral part of PEWS observations and the frequency of subsequent PEWS observations will not be changed by the identification of a Red Flag.

After identification of a Red Flag on routine PEWS observations, an urgent medical review should be triggered as would occur with any high risk PEWS. The patient should receive a reviews within 15 minutes by an ST4 or above and a documentation of that telephone call should be made in the nursing notes. This should include the exact time of identification of the Red Flag.

6.3 Treating Red Flag Sepsis in **ADULTS** (see Appendix 1 for flow chart)

The most effective way to treat Red Flag sepsis is by administrating the Sepsis 6 pathway within 60 minutes.

The Sepsis 6 pathway for **ADULTS** consists of the following 6 interventions:

I) IV Antibiotics (as per Trust guidelines)
II) Lactate (venous, arterial or capillary all acceptable. Consider fluids if lactate>2 even if BP is normal)
III) Cultures (plus relevant blood tests. Consider other specimen cultures as appropriate)
IV) Oxygen (keep SpO2 between 94-98%)
V) Fluids (appropriate to requirements)
VI) Fluid balance (commence hourly charting)

The sepsis 6 pathway should be immediately activated using the eRecord ‘Sepsis Order-Set’ found within the PowerChart app.
The nurse looking after the patient or deputy should be advised that time-critical antimicrobials have been prescribed. All steps within the sepsis 6 pathway should be completed within 60 minutes.

The administration of antimicrobials should be documented on eRecord according to the standard protocol.

See Antimicrobial Stewardship Policy

A patient can be excluded from this pathway if vigorous treatment is inappropriate, for example if a patient is recognised to be dying. This decision should be clearly documented in the patient’s medical notes and on the NEWS Observation Chart.

6.4 Treating Red Flag Sepsis in PAEDIATRICS (see Appendix 2 for flow chart)

The most effective way to treat Red Flag sepsis is by administrating the Sepsis 6 pathway within 60 minutes.

The Sepsis 6 pathway for PAEDIATRICS consists of the following 6 interventions:

I) Give high flow oxygen
II) Obtain IV/IO access and take blood tests
   o Blood cultures
   o Blood glucose. Give 2ml/kg 10% dextrose if < 2.6mmol/l
   o Blood gas (check lactate); FBC, Coagulation, U&E, CRP
   o Further investigations may be required (e.g. LP, urine) but do NOT delay treatment for these
III) Give maximum doses IV or IO antibiotics
   o Age under 1 month: Cefotaxime and Amoxicillin (see cBNF)
   o Age over 1 month: Cefotaxime or Ceftriaxone (see cBNF)
   o If true penicillin/cephalosporin allergy: Meropenem (discuss withMicrobiology or ID)
IV) Start fluid resuscitation if cardiovascularly unstable
   o Give 20ml/kg 0.9% Saline over 10-15min with aim to restore normal circu-lating volume and physiological parameters
   o Repeat 20ml/kg 0.9% saline if cardiovascular stability not restored
   o Watch for signs of fluid overload (e.g. new crepitation’s or hepatomegaly, especially if under 1 month)
V) Involve paediatric ST3+ or consultant /NECTAR
VI) Start peripheral/IO Adrenaline
The nurse looking after the patient or deputy should be advised that time-critical antimicrobials have been prescribed. All steps within the sepsis 6 pathway should be completed within 60 minutes.

The administration of antimicrobials should be documented on eRecord according to the standard protocol.

See Antimicrobial Stewardship Policy

A patient can be excluded from this pathway if vigorous treatment is inappropriate, for example if a patient is recognised to be dying. This decision should be clearly documented in the patient’s medical notes and on the PEWS Observation Chart.

7 Training

The importance of prompt recognition and treatment is taught alongside the NEWS training at Basic Life Support (BLS) sessions. Additional training sessions can be arranged on request, please contact Ben Messer, Clinical Lead for Sepsis.

8 Equality and Diversity

The Trust is committed to ensuring that, as far as is reasonably practicable, the way we provide services to the public and the way we treat our staff reflects their individual needs and does not discriminate against individuals or groups on any grounds. This document has been appropriately assessed.

9 Monitoring Compliance

<table>
<thead>
<tr>
<th>Standard / process / issue</th>
<th>Monitoring and audit</th>
</tr>
</thead>
<tbody>
<tr>
<td>To ensure that ‘Red flags’ are identified promptly</td>
<td>Audit of case notes, CGARD, Sepsis</td>
</tr>
<tr>
<td></td>
<td>Steering Group, Monthly</td>
</tr>
<tr>
<td>To ensure that when a ‘Red flags’ is identified the ‘sepsis 6’ is administered in a timely</td>
<td>Audit of case notes, CGARD, Sepsis</td>
</tr>
<tr>
<td>fashion (i.e. within 60mins)</td>
<td>Steering Group, Monthly</td>
</tr>
</tbody>
</table>
10 Consultation and review

This policy has been informed nationally and locally. The use of Red Flag Sepsis and the Sepsis Six has been endorsed by the national Sepsis Trust. The recently published NICE guidance for the recognition of Sepsis uses almost identical parameters to the Red Flags to identify high risk patients with infectious illnesses. The use of Red Flag Sepsis has been agreed by the Sepsis Steering Group which reports to the Sign up to Safety Steering Group.

11 Implementation (including raising awareness)

The Sepsis Steering Group has an intranet page which contains links to the Sepsis education video and slides on how to access the e-record Sepsis pathway as well as other educational material.
Teaching has been delivered to junior doctors within the Trust and nursing staff via the clinical nurse educators.
The Sepsis work has been presented at the Trust Patient Safety Briefing. All Trust and Deanery employees working within the Trust have been emailed with educational resources and instructions of duties and actions to take when managing a patient with Red Flag Sepsis.
Sepsis posters have been placed in clinical areas along with Sepsis cards to be kept in Trust lanyards.

12 References


13 Associated documentation

Appendix 1: **ADULT** RED FLAG SEPSIS SCREENING AND TREATMENT TOOL

Appendix 2: **PAEDIATRIC** RED FLAG SEPSIS SCREENING AND TREATMENT TOOL
**APPENDIX 1**

**ADULT RED FLAG SEPSIS SCREENING AND TREATMENT TOOL**

- **Red Flag present?**
  - Systolic blood pressure >90
  - Heart rate >130
  - Respiratory rate >25
  - A ‘V’ or less on the AVPU scale (level of consciousness)
  - Lactate of >2
  - Pupuric rash
  - Requirement for supplemental Oxygen to maintain saturations of >92%

- **Mottled skin?**
  - Non blanching rash?
  - New onset confusion?
  - Acutely unwell or deteriorating patient *(Especially if recent surgery/immunosuppressed)*
  - A total aggregate NEWS of 5 or more

- **DO YOU SUSPECT AN INFECTION ?**
  (If no, the patient is still sick and needs review and management)

- **SUSPECT SEPSIS AND MANAGE AS AN EMERGENCY**
  **COMPLETE A SEPSIS SIX BUNDLE**

- **60 MINUTES!**

<table>
<thead>
<tr>
<th>Sepsis 6</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Oxygen</td>
<td>Keep SpO2 between 94-98% <em>(88-92%, if risk of hypercapnic respiratory failure)</em></td>
</tr>
<tr>
<td>2 Blood Cultures</td>
<td>plus relevant blood tests including lactate. Consider other specimen cultures as appropriate.</td>
</tr>
<tr>
<td>3 IV Antibiotics</td>
<td>(as per Trust guidelines) and Source control. Consider imaging investigations, surgical referral if appropriate</td>
</tr>
<tr>
<td>4 Fluid Resuscitate</td>
<td>Use crystalloid if BP ≤ 90mmHg systolic up to 2 litres in average size adult</td>
</tr>
<tr>
<td>5 Check Lactate</td>
<td>Venous, arterial or capillary all acceptable. Consider fluids if lactate&gt;2 even if BP normal</td>
</tr>
<tr>
<td>6 Fluid Balance</td>
<td>Charting to commence. Consider a urinary catheter.</td>
</tr>
</tbody>
</table>

If no, the patient is still sick and needs review and management. Treat to standard protocols.
Paediatric Sepsis Screening and Action Tool

This should be used in ALL children with suspected infection or abnormal observations without a clear cause

Identify: Does the child look sick?

OR has PEWS triggered?

Date ________ Time ________ Sign ________

THINK: Could this be an infection?

Risk factors:
- Aged under 3 months
- Recent surgery/trauma/invasive procedure (In Last 6 weeks)
- Impaired illness due to illness or drugs (steroids, chemotherapy, immunosuppressants)
- Indwelling lines/catheters
- History of chronic disease (Neurodisability, chest disease)

THINK SEPSIS: Is ONE Red Flag Present?

- CNS: Change in behaviour
  - Doesn’t wake or won’t stay awake if roused
  - Weak, high pitched / continuous cry
- CVS: Severe tachycardia (see chart)
  - Bradycardia (< 60 per minute)
- RS: Severe tachypnoea (see chart)
  - SpO₂ Less than 90% / new need for oxygen / Grunting / apnoea
- Skin: Non-blanching rash
  - Mottled / Ashen / blue
- Temperature <36°C >38°C

Immediate review senior clinician
(ST4 or above within 15 minutes)

IF YES complete
PAE DI AT RI C SEPSIS 6 i n 60 mi nu tes

Date ________ Time ________ Sign ________

SEPSIS NOT SUSPECTED

No clinical cause for concern

No risk factors

Use standard protocols—review if deteriorates

May discharge with safety netting (SAM Form)

Date ________ Time ________ Sign ________

FAMILY OR CLINICIAN CONCERN?

Date______Time_______ Sign ________

SEPSIS STILL POSSIBLE

Clinician review with results

Take bloods

WITHIN 60 MINUTES

Date______Time_______ Sign ________
**Paediatric Sepsis 6**

Treat red flag sepsis using the Paediatric Sepsis 6.

**Treatment should commence URGENTLY and must be completed within one hour.**

The patient should continue to be managed after Paediatric Sepsis 6 has been completed.

**N.B.** It is recognised that certain conditions may mimic sepsis and antibiotics may not be required (e.g. bronchiolitis). This decision **MUST** be made by a senior doctor (ST3 or above). Deviations should be documented below.

---

1. **Give high flow oxygen**

2. **Obtain IV/IO access and take blood tests**
   - Blood cultures
   - Blood glucose. Give 2ml/kg 10% dextrose if < 2.6mmol/l
   - Blood gas ([check lactate](#)): FBC, Coagulation, U&E, CRP
   - Further investigations may be required (e.g. LP, urine) but do **NOT** delay treatment for these

3. **Give maximum doses IV or IO antibiotics**
   - Age under 1 month: **Cefotaxime and Amoxicillin** (see cBNF)
   - Age over 1 month: **Cefotaxime or Ceftriaxone** (see cBNF)
   - If true penicillin/cephalosporin allergy: **Meropenem** (discuss with Microbiology or ID)

4. **Start fluid resuscitation if cardiovascularly unstable**
   - Give 20ml/kg 0.9% Saline over 10-15min with aim to restore normal circulating volume and physiological parameters
   - **Repeat 20ml/kg 0.9% saline** if cardiovascular stability not restored
   - Watch for signs of fluid overload (e.g. new crepitation's or hepatomegaly, especially if under 1 month)

5. **Involve paediatric ST3+ or consultant /NECTAR referral**

6. **Start peripheral/IO Adrenaline**
   - If cardiovascular stability **not** restored after 40ml/kg fluid
   - Continue fluid resuscitation, consider Hartmanns, HAS 4%

---

**Date/time** | **Sign**
---|---

**Document any reasons for variation below:**

---

**Peripheral Adrenaline**

Put 30microgram/kg adrenaline in 50ml 0.9% saline.

1ml/h = 0.01 microgram/kg/minute

---

**North East Children’s Transport and Retrieval**

0191 2826699
The Newcastle upon Tyne Hospitals NHS Foundation Trust

Equality Analysis  Form A

This form must be completed and attached to any procedural document when submitted to the appropriate committee for consideration and approval.

PART 1

1. Assessment Date: 03/01/2017

2. Name of policy / strategy / service:
   Policy on the recognition and management of Red Flag Sepsis

3. Name and designation of Author:
   Dr Ben Messer, Consultant Anaesthetist & Amelia Woolley, Head of Quality Assurance and Clinical Effectiveness

4. Names & designations of those involved in the impact analysis screening process:
   Dr Ben Messer, Consultant Anaesthetist & Amelia Woolley, Head of Quality Assurance and Clinical Effectiveness

5. Is this a:  Policy ☑ Strategy ☐ Service ☐
   Is this: New ☑ Revised ☐
   Who is affected Employees ☑ Service Users ☑ Wider Community ☐

6. What are the main aims, objectives of the policy, strategy, or service and the intended outcomes? (These can be cut and pasted from your policy)
   The aims of this policy are to ensure:
   • To raise awareness of the impact of sepsis
   • To improve knowledge of recognition and management of sepsis
   • To improve outcomes of mortality and morbidity in patients with sepsis

7. Does this policy, strategy, or service have any equality implications? Yes ☐ No ☑
   If No, state reasons and the information used to make this decision, please refer to paragraph 2.3 of the Equality Analysis Guidance before providing reasons:
8. **Summary of evidence related to protected characteristics**

<table>
<thead>
<tr>
<th>Protected Characteristic</th>
<th>Evidence, i.e. What evidence do you have that the Trust is meeting the needs of people in various protected Groups</th>
<th>Does evidence/engagement highlight areas of direct or indirect discrimination? If yes describe steps to be taken to address (by whom, completion date and review date)</th>
<th>Does the evidence highlight any areas to advance opportunities or foster good relations. If yes what steps will be taken? (by whom, completion date and review date)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Race / Ethnic origin (including gypsies and travellers)</td>
<td>This policy relates to all adult and paediatric inpatients no matter what race/ethnicity</td>
<td>No</td>
<td>n/a</td>
</tr>
<tr>
<td>Sex (male/ female)</td>
<td>This policy relates to all adult and paediatric patients no matter what sex</td>
<td>No</td>
<td>n/a</td>
</tr>
<tr>
<td>Religion and Belief</td>
<td>This policy relates to all patients and is not dependent on their religion or belief</td>
<td>No</td>
<td>n/a</td>
</tr>
<tr>
<td>Sexual orientation including lesbian, gay and bisexual people</td>
<td>This policy relates to all adult and paediatric inpatients no matter what their sexual orientation is</td>
<td>No</td>
<td>n/a</td>
</tr>
<tr>
<td>Age</td>
<td>This policy relates to all adult and paediatric inpatients</td>
<td>No</td>
<td>n/a</td>
</tr>
<tr>
<td>Disability – learning difficulties, physical disability, sensory impairment and mental health. Consider the needs of carers in this section</td>
<td>This policy relates to all adult and paediatric inpatients</td>
<td>No</td>
<td>n/a</td>
</tr>
<tr>
<td>Gender Re-assignment</td>
<td>This policy does not discriminate with patients that have had gender re-assignment</td>
<td>No</td>
<td>n/a</td>
</tr>
<tr>
<td>Marriage and Civil Partnership</td>
<td>This policy relates to all adult and paediatric inpatients</td>
<td>No</td>
<td>n/a</td>
</tr>
<tr>
<td>Maternity / Pregnancy</td>
<td>This policy relates to all adult and paediatric inpatients</td>
<td>No</td>
<td>n/a</td>
</tr>
</tbody>
</table>

9. **Are there any gaps in the evidence outlined above? If ‘yes’ how will these be rectified?**

   No

10. **Engagement has taken place with people who have protected characteristics and will continue through the Equality Delivery System and the Equality Diversity and Human Rights Group. Please note you may require further engagement in respect of any**
significant changes to policies, new developments and or changes to service delivery. In such circumstances please contact the Equality and Diversity Lead or the Involvement and Equalities Officer.

Do you require further engagement? Yes ☐ No ✓

11. Could the policy, strategy or service have a negative impact on human rights? (E.g. the right to respect for private and family life, the right to a fair hearing and the right to education?)

No

PART 2

Name: Amelia Woolley

Date of completion: 24/02/2017

(If any reader of this procedural document identifies a potential discriminatory impact that has not been identified, please refer to the Policy Author identified above, together with any suggestions for action required to avoid/reduce the impact.)