

Sepsis –recognition & management

IF YOU'RE FEVERISH
AND FEELING REALLY UNWELL


NHS

JUST ASK "COULD IT BE SEPSIS?"

IT'S A SIMPLE QUESTION,
BUT IT COULD SAVE LIVES.

Sepsis is a potentially life-threatening condition,
often triggered by infection.
It's hard to spot, but it kills 44,000 people a year in the UK.
It's easy to treat if caught early.

Donate now at www.sepsistrust.org/donate



The UK Sepsis Trust registered charity number 249424. Charity registered under 1049971. Health Foundation charity number 1049971.



Suspect **SEPSIS**



Save Lives

AIMS

- Facts & figures
- Sepsis 3 definitions .
- At risk groups
- Screening tools to aid recognition
- Red / Amber flag criteria
- Sepsis six pathway .

Facts

- Uk mortality rate for patients admitted with sepsis is 30%- 5 times higher than ST elevation, MI, stroke.
- Sepsis is a life-threatening condition arising when the body's abnormal, or 'dysregulated', immune response to an infection causes organs to begin to fail. Sepsis can be triggered by any infection, but most commonly occurs in response to bacterial infections of the lungs, urinary tract, abdominal organs or skin and soft tissues.
- Approximately 44,000 deaths in the UK – 150,000 admissions
- Sepsis is currently the leading cause of direct maternal death in the United Kingdom.
- Sepsis is time critical . In severe cases / septic shock for every hour antibiotic administration delayed 8% mortality increase.
- The key immediate interventions that increase survival are described in a bundle termed the Sepsis Six. This bundle has been shown to be associated with significant mortality reductions when applied within the first hour.

Sepsis 3 definition -2016

- **INFECTION** – a pathological process caused by invasion of a normally sterile tissue or body cavity by pathogenic or potentially pathogenic micro organisms
- **SEPSIS** – is life threatening organ dysfunction caused by a dysregulated host response to infection.
- Organ dysfunction signs:
 - Systolic Bp < 90 mmHg or mean BP<70mmHg
 - New or increased oxygen requirements to maintain SP02> 90%
 - Creatinine > 177 ummols or urine output < 0.5mls/kg for 2hrs despite adequate fluid resuscitation
 - Coagulopathy with INR > 1.5 (and not on anticoagulants)
 - Bilirubin > 34umol/l
 - Platelets < 100,000/mm
 - Lactate > 2mmols

- **SEPTIC SHOCK – is a sub-set of sepsis in which underlying circulatory and cellular metabolic abnormalities are profound enough to substantially increase mortality**
- Identifying septic shock :
- use the clinical criteria of hypotension requiring the use of vassopressors to maintain a mean BP of 65mmHg or more and having a lactate level of > 2mmols/l persisting after adequate fluid resuscitation .

Risk groups

- Women who are pregnant or who have recently been pregnant (including where the pregnancy did not result in delivery of a live baby) approximately 50% higher risk than non-pregnant individuals of similar age.
- Any woman who is pregnant, has miscarried or aborted, or who has delivered a child is at risk of developing maternal or postpartum sepsis. However, some women do have a higher risk than do others. This includes women who have a history of congestive heart failure, liver disease, or lupus, Women who may be more prone to getting an infection, which can lead to sepsis, are those:
 - With diabetes
 - Who undergo invasive procedures to help them get pregnant
 - Who undergo invasive tests during pregnancy

THINK SEPSIS

- **Miscarriages (spontaneous abortions) or induced abortions:** Infections are a risk after any miscarriage or abortion. Non-sterile abortions, those that may be done outside of a healthcare facility, are a particular risk. Women who have had one should watch for signs and symptoms of an infection (lasting or increasing pain, discoloured or odorous (smelly) discharge, abdominal tenderness, high temperature, fatigue, feeling unwell).
- **Caesarean sections:** Sepsis can develop after any type of surgery. Caesarean sections are major abdominal surgeries with all the associated risks. **Prolonged or obstructed labour:** An unusually long time of labour or labour that stops progressing.
- **Ruptured membranes:** The longer the period between the “water breaking” and the baby’s birth, the higher the chance of an infection.

- **Infection following vaginal delivery:** Although not common in the developed world among women who give birth in healthcare facilities, infections are very common in the developing world.
- **Mastitis:** Infection in the breasts can trigger sepsis.
- **Viral or Bacterial Illnesses:** Any illness that raises the risk of sepsis in the general population will do so in pregnant women as well.
- **ASK YOURSELF “ COULD THIS BE SEPSIS “**

Screening tools to aid recognition- SIRS out

- **SIRS**
- Temp below 36.0C or above 38.3C
- Heart rate over 90 beats per minute
- Respiratory rate over 20 breaths per minute
- Acute confusion, delirium, reduced consciousness
- White cell count below 4.0 or over 12.0
- Glucose over 7.7 (in non-diabetic patients)

- **Red(High) & Amber(moderate) flags .**

Obstetric EWS

Physiological parameter	Score						
	3	2	1	0	1	2	3
Respiration rate (per minute)	≤8		9–11	12–20		21–24	≥25
SpO ₂ Scale 1 (%)	≤91	92–93	94–95	≥96			
SpO ₂ Scale 2 (%)	≤83	84–85	86–87	88–92 ≥93 on air	93–94 on oxygen	95–96 on oxygen	≥97 on oxygen
Air or oxygen?		Oxygen		Air			
Systolic blood pressure (mmHg)	≤90	91–100	101–110	111–219			≥220
Pulse (per minute)	≤40		41–50	51–90	91–110	111–130	≥131
Consciousness				Alert			CVPU
Temperature (°C)	≤35.0		35.1–36.0	36.1–38.0	38.1–39.0	≥39.1	

RED Flags

3. Is **ONE** maternal Red Flag present?

Responds only to voice or pain/ unresponsive

Tick

Systolic B.P \leq 90 mmHg (or drop $>$ 40 from normal)

Heart rate $>$ 130 per minute

Respiratory rate \geq 25 per minute

Needs oxygen to keep SpO₂ \geq 92%

Non-blanching rash, mottled/ ashen/ cyanotic

Not passed urine in last 18 hours

Urine output less than 0.5 ml/kg/hr

Lactate \geq 2 mmol/l

(note- lactate may be raised in & immediately after normal labour & delivery)

AMBER Flags

4. Any Maternal Amber Flag criteria?

Relatives concerned about mental status

Tick

Acute deterioration in functional ability

Respiratory rate 21-24 OR breathing hard

Heart rate 100-130 OR new arrhythmia

Systolic B.P 91-100 mmHg

Not passed urine in last 12-18 hours

Temperature < 36°C

Immunosuppressed/ diabetes/ gestational diabetes

Has had invasive procedure in last 6 weeks

(e.g. CS, forceps delivery, ERPC, cerclage, CVs, miscarriage, termination)

Prolonged rupture of membranes

Close contact with GAS

Bleeding/ wound infection/ vaginal discharge

Non-reassuring CTG/ fetal tachycardia >160

Sepsis Six



Action (complete ALL within 1 hour)		Reason not done/variance
1. Administer oxygen Aim to keep saturations > 94%	Time complete <input type="text"/> Initials <input type="text"/>	<input type="text"/>
2. Take blood cultures At least a peripheral set. Consider e.g. urine, sputum, vaginal swabs, breast milk culture, throat swabs Think source control & timing of delivery of baby-start CTG!	Time complete <input type="text"/> Initials <input type="text"/>	<input type="text"/>
3. Give IV antibiotics According to Trust protocol Consider allergies prior to administration	Time complete <input type="text"/> Initials <input type="text"/>	<input type="text"/>
4. Give IV fluids If hypotensive/lactate >2mmol/l, 500ml stat (can repeat up to 30ml/kg). Ask doctor regarding fluids if not hypotensive and lactate normal. Ask Anaesthetist regarding fluids if patient has pre-eclampsia	Time complete <input type="text"/> Initials <input type="text"/>	<input type="text"/>
5. Check serial lactates Corroborate high VBG lactate with arterial sample If lactate >4mmol/l, call Critical Care and recheck after each 10ml/kg challenge	Time complete <input type="text"/> Initials <input type="text"/>	Not applicable- initial lactate <input type="checkbox"/>
6. Measure urine output May require urinary catheter Ensure fluid balance chart commenced & completed hourly	Time complete <input type="text"/> Initials <input type="text"/>	<input type="text"/>

Summary

- Think sepsis
- Suspect anyone with history of infection
- High risk groups of patients
- Use screening tools
- Red flag sepsis – sepsis 6 within 1 hr
- Amber flags – clinical decision made within 3 hrs

NICE GUIDELINES NG51 <https://www.nice.org.uk/guidance/ng51>

UK sepsis trust -resources education clinical toolkits. <https://sepsistrust.org>