University Hospitals Sussex
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TRUST CLINICAL GUIDELINE
Maternal or Birthing Person Sepsis in Pregnancy and the Puerperium

Overview
To provide evidence-based guidance for obstetric, midwifery and medical staff to assist in the prevention and management of Sepsis in Pregnancy

By providing information to ensure optimal outcomes for mother or birthing person and baby in pregnancies complicated by sepsis, and to act as a resource for staff caring for women and birthing people whose needs fall within the scope of this guideline.

Owner	S. Adamson
Author/further information	A. Davey, Obstetric Consultant K. Abdelrahman, Obstetric SHO
Guideline version	7.1
Related policies	None
Related protocols/procedures	Hospital Obstetric Antimicrobial Formulary Recognition and Management of Severely Ill Pregnant Women Including High Dependency / Intensive Care Guideline Management of Women and Neonates with Risk Factors for Neonatal Sepsis (including Group B Streptococcus)
Standards	NICE NG51 RCOG Green-top Guidelines 64a and 64b
Superseded documents	N/A
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Approval		
Joint Obstetric Guideline Group:	**Date approved:**	15th November 2023
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Consultation as relevant		
Add relevant Trust-wide governance group (see table below)	**Date approved:**	N/A
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Ratification		
Clinical Document Approval Group	**Date approved:**	19th April 2024

Consultation

Please select any appropriate consultation groups/ committees:

Trust Wide Governance Group	**Tick as required:**
Medicines Governance Committee (MGC - replaces 'Medicines Optimisation Committee' and 'Drug and Therapeutics Committee')	✓
Antimicrobial Stewardship Group	
Resuscitation Committee	
Resuscitation Operational Management Group (ROMG)	
Trust Transfusion Committee	
Trust Infection Prevention Committee (Chief Nursing Officer)	
Thrombosis Committee	
Health Records Committee	
BSUH Trauma Committee	
Major Trauma Committee	
Sussex Trauma Network	
Children's Safeguarding Strategy Committee	
Radiation Safety Committee	
Medical Devices & Equipment Committee	
Patient Blood Management Committee	
Patient Safety Committee	
BSUH Diabetes In-Patient Care Committee	
Carer and Patient Information Group (CPIG)	
Women's Safety and Quality Committee	
Food Improvement Group	
NIV Steering Group	
NMAHP Board	
Deteriorating Patient Group	
Other (please specify)	
W&C Clinical Effectiveness Group	✓

Contents

Maternal or Birthing Person Sepsis in Pregnancy and the Puerperium

1.0 Aim

This guideline is intended to cover the management of obstetric patients with suspected sepsis for the use of maternity staff. It also provides guidance on when to involve critical care specialists.

The aim of this guideline is to encourage early recognition of sepsis and the institution of prompt therapeutic measures with involvement of a multidisciplinary team. Early and aggressive treatment has been proven to improve outcomes.

2.0 Scope

This guideline applies to:

- Midwives
- Obstetricians
- Anaesthetists
- Maternity support staff

3.0 Responsibilities

Midwives, Obstetricians, and Anaesthetists have a responsibility to:

- To access, read, understand and follow this guideline.
- To use their professional judgement in application of this guideline.

Management have a responsibility to:

- To ensure the guideline is reviewed as required in line with Trust and National recommendations.
- To ensure the guideline is accessible to all relevant staff.

4.0 Background

Sepsis in pregnancy remains an important cause of maternal and birthing person death in the UK, and worldwide. In 2022 the Centre for Maternal & Child Enquiries (CMACE) published the UK Confidential Enquiry into Maternal Deaths for the period 2018-2020 that found sepsis to be one of the top 5 causes of direct maternal and birthing person death in the UK. The mortality rate for pregnancy related sepsis has continued to increase steadily, and is now statistically significantly higher than at its nadir in 2012-14. Maternal or birthing person sepsis accounts for 10% of all maternal or birthing person deaths worldwide and is a major contributor to other common causes of maternal and birthing person death such as heart disease, thrombosis & thromboembolism, neurological and other indirect causes.
Key to reducing these figures are:

- Timely recognition and diagnosis of sepsis.
- Fast administration of intravenous antibiotics.
- Quick involvement of experts including intensive care specialists.

Sepsis is a time-critical condition. Screening, early intervention and immediate treatment can save lives. Substandard care was identified in many of the cases of maternal mortality, in particular lack of recognition of the signs of sepsis and a lack of guidelines on the investigation and management of genital tract sepsis.

Septic shock is the most extreme end of the sepsis spectrum and carries a high mortality rate.

Pregnant women and birthing people, or any woman or person who has given birth, had a termination of pregnancy, or miscarriage in the last 6 weeks, are more susceptible to develop sepsis. Sepsis in pregnancy is often insidious in onset and can progress very rapidly. In the postpartum period the risk of serious sepsis should not be overlooked.

Common pathogens are from endogenous flora and are sensitive to standard antibiotics and surgical interventions. If timely and aggressive therapeutic measures are implemented the obstetric population should rarely suffer from significant morbidity.

In the UK the most common pathogens are Streptococcus spp. predominantly Groups A and B, followed by Pneumococcus and Escherichia Coli. Other organisms implicated include Staphylococcus aureus, Fusobacteriae spp., Influenza, MRSA, clostridium septicum, Morganella morganii and Obligate Anaerobic Bacteria. Group A Streptococcus (GAS) can cause invasive infections and is associated with maternal and birthing person deaths.

4.1 Pregnant women and people from minority ethnic backgrounds and deprived areas

Women and birthing people and babies from some minority ethnic backgrounds and those who live in deprived areas have an increased risk of death and may need closer monitoring and additional support. 2020 MBRRACE-UK reports showed that:

- Compared with white women and birthing people (8/100,000), the risk of maternal and birthing person death during pregnancy and up to 6 weeks after birth is:
  - 4 times higher in black women and birthing people (34/100,000)
  - 3 times higher in women and birthing people with mixed ethnic background (25/100,000)
  - 2 times higher in Asian women and birthing people (15/100,000; does not include Chinese women and birthing people)
- Compared with white babies (34/10,000), the stillbirth rate is
  - More than twice as high in black babies (74/10,000)
  - Around 50% higher in Asian babies (53/10,000)
- Women and birthing people living in the most deprived areas (15/100,000) are more than 2.5 times more likely to die compared with women and birthing people living in the least deprived areas (6/100,000).

- The stillbirth rate increases according to the level of deprivation in the area the mother or birthing person lives in, with almost twice as many stillbirths for women and birthing people living in the most deprived areas (47/10,000) compared with the least deprived areas (26/10,000).

5.0 Definitions

Sepsis: A life threatening condition that occurs when the body's response to an infection injures its own tissues and organs.

Septic shock: A subset of sepsis where patients become hypotensive despite adequate fluid resuscitation.

Once vasopressors are required to keep the MAP ≥65mmHg and serum lactate levels are ≥2mmol/L the hospital mortality rate is over 40%.

5.1 Abbreviation used within this guideline.

GAS - Group A Streptococcus	**MEOWS -** Modified Early Warning Score
PPH - Postpartum Haemorrhage	**MSU -** Mid-Stream Urine
SSTI - Skin and Soft tissue infection	**U&E -** Urea & Electrolytes
PCR - Polymerase chain reaction	**CCU -** Critical Care Unit
AKI - Acute Kidney Injury	**ERPC -** Evacuation of Retained Products of Conception
HVS - High Vaginal Swab	**CSF -** Cerebro-Spinal Fluid
LFTs - Liver Function Tests	**CRP -** C-Reactive Protein
FBC - Full Blood Count	**ABG -** Arterial Blood Gas
RPOC - Retained Products of Conception	**IUD -** Intrauterine Death
GBS - Group B Streptococcus	**FBS -** Fetal Blood Sample

6.0 Risk factors for sepsis

Obesity	Cervical cerclage
Impaired glucose tolerance / diabetes	Prolonged SROM
Impaired immunity including immunosuppressant medication	Amniocentesis and other invasive intrauterine procedures
Anaemia	Vaginal trauma
Continued heavy bleeding or vaginal discharge	Retained products of conception
Caesarean section / assisted birth	Wound haematoma
History of pelvic infection	Minority ethnic groups

History of Group B streptococcal infection	Acquisition/ carriage of invasive organisms (especially GAS)
IUD	Surgical termination of pregnancy

7.0 Diagnosis of sepsis

Clinicians and healthcare professionals of all kinds, at all levels of seniority and in all clinical settings, can find sepsis difficult to diagnose with certainly.

Although people with sepsis may have a history of infection, fever is not present in all cases.

The signs and symptoms of sepsis are often non-specific and can be missed if clinicians do not think, “Could this be sepsis?”

Gaining information from relatives and carers may be essential when considering a diagnosis of sepsis.

Women and birthing people whose first language is not English are at increased risk of delayed sepsis recognition due to potential communication difficulties. To reduce this risk, a translator should be used for all women and birthing people who are not fluent in written and verbal English to ensure effective communication.

For providing help for patients requiring language support, staff can access interpreting services by opening this this link:

Interpretation & Translation Toolkit

A referral to the overseas team should be considered if there are any questions regarding the patients being eligible for NHS maternity care.

Symptoms and signs of sepsis in the pregnant woman and person may be even less distinctive than in the non-pregnant population and therefore a high index of suspicion is necessary. Pregnant women and birthing people may also become septic more rapidly than non-pregnant patients.

Women and birthing people should be assessed clinically and if unwell, with dehydration or vomiting, admission should be considered.

8.0 Symptoms and signs suggestive of infection and possible sepsis

Symptoms	Signs
Fever	Erythematous wound +/- suppuration
Rigors	Breaches in skin integrity and necrotic changes
Offensive or persistent discharge or lochia	Cardiac murmur

Diarrhoea	Tachypnoea, cyanosis suggestive of hypoxia (may be difficult to pick up peripheral oxygen saturations due to shock)
Vomiting	Tachycardia (baseline HR in pregnancy is higher up to 90bpm, beta blockers such as labetalol may lower heart rate)
Sore throat	Hypotension, prolonged Capillary Refill Time (CRT) >2 seconds – mottled skin or ashen appearance
Rash (Generalised Streptococcal Maculopapular rash)	Decreased urine output
Severe abdominal pain and tenderness (particularly genital tract sepsis)	Altered mental state
Productive cough	Hypothermia temperature <36 degrees Celsius
Urinary symptoms	Hyperglycaemia (7.7mmols/l) in the absence of diabetes
Severe headache associated with photophobia and neck stiffness	Mastitis
Toxic Shock Syndrome caused by Staphylococcal and Streptococcal exotoxins can produce confusing symptoms including nausea, vomiting and diarrhoea, exquisite severe pain out of proportion to clinical signs due to necrotising fasciitis, watery vaginal discharge, generalised rash and conjunctival suffusion	

Repeated self-referral with symptoms should be considered a red flag for sepsis and warrant a thorough investigation for signs of sepsis. MBRRACE-UK 2023

9.0 Possible sources of sepsis

Although the most common site of sepsis in pregnancy and the puerperium is the genital tract (i.e. Chorioamnionitis and Endometritis), causes outside the genital tract should not be forgotten. These include:

- Mastitis (NICE Guidance on treatment and management).
- Urinary tract infection/acute pyelonephritis.
- Pneumonia
- Skin and Soft tissue infection (SSTI) i.e.: IV cannula sites, injection sites, and caesarean or episiotomy wounds. Necrotising Fasciitis may progress extremely quickly.
- Gastroenteritis (Clostridium Difficile is rare but increasingly found in obstetric patients)
- Appendicitis
- Cholecystitis
- Pancreatitis
- Infection related to regional anaesthesia.

- Meningitis
- Viral infections, in particular Influenza (H1N1), Coronavirus COVID-19, HSV (herpes simplex virus).

10.0 Influenza in pregnant women and birthing people

Pregnant women and birthing people are considered to be at high risk of severe illness caused by H1N1 influenza, especially in the 2nd and 3rd trimester.

The main symptoms are:

- Fever
- Fatigue
- Dry cough
- Sore throat
- Headache
- Gastrointestinal disease with nausea, vomiting, diarrhoea and abdominal pain can also be present.

Any pregnant woman or birthing person presenting with either upper or lower respiratory symptoms should have a combined throat then nose swab sent for respiratory viral panel PCR analysis. If a pregnant woman or birthing person has influenza-like symptoms then clinicians should have a low threshold for prescribing antiviral medicine before the results of the PCR is available.

Prompt treatment with in the first 48 hours of onset of symptoms reduces the risk of severe illness. Patients with severe disease should be managed jointly between obstetric and medical teams.

In those presenting with uncomplicated disease Oseltamivir remains the first line option for the vast majority of pregnant women with influenza, including during seasons that are dominated by influenza A(H1N1)pdm09. For pregnant women and birthing people who meet additional criteria for requiring zanamivir first line, further assessment (that is, rapid diagnostics) and antiviral treatment should be discussed with a local infection specialist. Guidance on use of antiviral agents for the treatment and prophylaxis of seasonal influenza (publishing.service.gov.uk)

Novel coronavirus (SARS-CoV-2) is a new strain of coronavirus which causes COVID-19. For further guidance please follow the RCOG Guideline on Covid-19 Infection in Pregnancy (December 2022).

11.0 Assessment and recognition of sepsis

- Early recognition, urgent transfer to hospital and prompt, aggressive treatment is necessary to save lives.
- Complete the ‘Inpatient Maternal or Birthing Person Sepsis Tool’ (Appendix 1) to guide assessment and management.
- If in the community use the ‘Community Midwifery Sepsis Tool’ (Appendix 3).

- For telephone triage use 'Maternal or Birthing Person Telephone Triage Sepsis Tool' (Appendix 4).
- If on attending hospital and commencement of BSOTs 'Antenatal Triage Assessment Care for Unwell/Other' sepsis is suspected, investigations and treatment should be guided by the **'**Sepsis Six' - see section 12.1.
- Early involvement of senior obstetricians, anaesthetists, critical care consultants and microbiologists is crucial.
- An obstetric review must be carried out in all cases of suspected sepsis within 30 minutes as per MEOWS.
- A thorough history and head-to-toe examination should be performed to identify and possible source of infection.
- NICE Guidance on Sepsis (2017) stratifies risk of illness or death from sepsis into high risk, moderate risk, and low risk using parameters based on the patient's history and examination findings. The parameters used in the sepsis screening tools are shown in Appendix 5.

12.0 Management of sepsis

12.1 High-risk sepsis

If patients have a suspected infection and any high-risk criteria, they are at **HIGH RISK** of severe illness or death from sepsis.

If one or more high risk criteria are present assume sepsis start Sepsis Six Pathway actions immediately.

Use Appendix 2 for documentation.

If no high-risk factors are present with a suspected infection, then assess moderate risk factors (see section 12.2).

A sepsis emergency box is available on all maternity wards to use for prompt treatment and guidance.

The treatment of High-Risk Sepsis starts the **SEPSIS 6 PATHWAY:**

Administer oxygen - give 15L/min via facemask with reservoir bag to keep saturations >94%

Take blood cultures & samples - think source, take cultures but don't delay starting antibiotics for microbiology. Blood cultures and other samples as guided by clinical suspicion of focus of infection e.g. Mid-Stream Urine (MSU), High Vaginal Swab (HVS), Cerebro-Spinal Fluid (CSF), sputum, stool, wound or throat swab and rapid MRSA screen. Consider imaging: as guided by clinical suspicion of focus of infection e.g. CXR, Pelvic ultrasound, CT abdomen/pelvis.

Give intravenous antibiotics - give within 60 minutes. Consider allergies. Give according to trust protocol, discuss with microbiologist. Ensure that antibiotics are actually given within the hour not just prescribed.

Give intravenous fluids 500ml immediately - resuscitate using crystalloids. If hypotensive or lactate >2 mmol/L give 500ml stat over less than 15 minutes and repeat bolus if no response. Doctors to advise if not hypotensive or lactate not >2mmol or patient has pre-eclampsia. More rapid and larger volumes may be required in septic shock, however if a maximum fluid challenge of 20ml/kg has been given and the patient remains hypotensive then an urgent review by the critical care team is required re: use of vasopressors.

Check serial lactates – There is a clear correlation between raised lactate and morbidity and mortality (see table below):

Lactate	Mortality
< 2	15%
2-4	25%
>4	38%

The degree of reduction of lactate following resuscitation (lactate clearance) predicts survival.

Lactate can be checked from a capillary or venous sample and if normal this is reassuring. Avoid taking venous sample for lactate from the same limb through which lactate containing IV fluids are running. If a capillary or venous sample is abnormal this should be corroborated with an arterial sample.

Lactate >4 or BP <90	Deliver initial minimum 20ml/kg of crystalloid urgently. Discuss with obstetric consultant. Seek anaesthetic review and critical care referral.
Lactate 2-4	Give fluids urgently, discuss with obstetric consultant.
Lactate <2	Consider IV fluids.

Recheck after each 10ml/kg challenge.

Measure urine output – in sepsis monitor hourly output and commence fluid balance. The patient will need a urinary catheter with a urometer attached.

12.1.1 Investigations and observations

- Other investigations include Urea & Electrolytes (U+E), Liver Function Tests (LFTs), C-Reactive Protein (CRP), Full Blood Count (FBC), clotting Blood Glucose and Arterial Blood Gas (ABG).
- Record the time each of these actions is completed.
- All actions should be completed as soon as possible and ALWAYS within 60 minutes.
- For all patients with high risk sepsis monitor observations at least every 30 minutes and record on a MEOWS chart on MIS.
- Commence fluid balance chart on MIS (see CG21009 Maternity fluid management as an in-patient or in labour)
- Case should be discussed with a consultant obstetrician.

Seek obstetric and anaesthetic consultant reviews for patients who fail to respond to treatment within 60 minutes. Indicators for failure to respond to treatment are:

- Systolic blood pressure persistently below 90 mmHg.
- Reduced level of consciousness despite resuscitation.
- Respiratory rate over 25 breaths per minute.
- Lactate not reduced by more than 20% within 1 hour.
- All patients with severe sepsis / septic shock and those not responding to standard treatment should be managed in the Critical Care Unit (CCU) with multi-disciplinary team input.

12.1.2 Indications for transfer to the Critical Care Unit:

System Indication	Indication
Cardiovascular	Hypotension or raised serum lactate persisting despite fluid resuscitation, suggesting the need for inotrope support
Respiratory	Pulmonary oedema Mechanical ventilation Airway protection
Renal	Renal dialysis
Neurological	Significantly decreased conscious level
Miscellaneous	Multi-organ failure Uncorrected acidosis Hypothermia

(See CG1148 Recognition and management of severely ill pregnant woman-person v8.0.pdf)

12.2 Moderate Risk Sepsis

Patients with suspected sepsis and 2 or more moderate risk criteria and a lactate <2 with no evidence of Acute Kidney Injury (AKI) and in whom a definitive condition cannot be identified:

- Repeat structured assessment at least hourly.
- Ensure review by a senior clinical decision maker within 3 hours of meeting 2 or more moderate risk criteria for consideration of antibiotics.

Patients with suspected sepsis who have 2 moderate risk criteria and have lactate of <2 with no evidence of AKI and in whom definitive condition or infection can be identified and treated:

- Manage the definitive condition.

Patients who meet only 1 moderate risk criterion with suspected sepsis:

- Arrange clinician review within 1 hour of meeting criterion for clinical assessment.
- Perform blood tests if indicated.
- Manage infection if diagnosed.

Patients with suspected sepsis with one moderate risk criteria and lactate <2 with no evidence of acute kidney injury and in whom a definitive condition cannot be identified:

- Repeat structured assessment hourly
- Ensure review by the senior obstetric registrar within 3 hours of meeting moderate criterion for consideration of antibiotics

12.3 Low Risk Sepsis

Patients with no high risk or moderate criteria:

- Arrange clinical review.
- Manage according to clinical judgement.

12.4 Paracetamol

- Consider paracetamol for women and people in labour with a fever, a temperature of 38°C or above on a single reading, or 37.5°C or above on 2 consecutive readings (1 hour apart).
- Be aware that paracetamol is not a treatment for sepsis and should not delay investigation if sepsis is suspected.
- Non-steroidal anti-inflammatory drugs (NSAIDS) may impede the ability of polymorphs to fight infection due to GAS and should be avoided in cases of sepsis.

13.0 Intrapartum care for women and people with suspected or confirmed sepsis

NICE 2019 NG121

13.1 Recognising suspected or confirmed intrapartum sepsis

- Use appendix 1-5 for the recognition of sepsis in pregnant women and birthing people.
- Take into account the normal physiological changes in labour when thinking about the possibility of sepsis, for example, increased maternal or birthing person pulse rate.
- Recognise that women and birthing people in labour with sepsis are at higher risk of severe illness or death.
- A pyrexia >38C in labour should be treated as a sign of possible intrauterine infection and antibiotics given as per the CG11100 Management of risk factors for neonatal sepsis guideline inc GBS v8.3 April24.pdf.
- This is to treat possible infection for the benefit of the baby even if the mother or birthing person is well and does not trigger any of the high or moderate risk criteria for sepsis.

13.2 Management of suspected or confirmed intrapartum sepsis

For women and birthing people in labour with suspected sepsis, ensure ongoing multidisciplinary review from a team with a named lead, including a:

- Senior obstetrician.
- Senior obstetric anaesthetist.
- Senior midwife.
- Labour ward coordinator.

For women and birthing people in labour with sepsis, this should also include a:

- Senior neonatologist.
- Senior microbiologist.

Include a senior intensivist (critical care specialist), if any of the following signs of organ dysfunction are present:

- Altered consciousness.
- Hypotension (systolic blood pressure less than 90 mmHg).
- Reduced urine output (less than 0.5 ml/kg per hour).
- Need for 40% oxygen to maintain oxygen saturation above 92%.
- Tympanic temperature of less than 36°C.

Involve the woman or birthing person and their birth companion(s) in shared decision making about their care, including the following options:

- Induction of labour
- Continuing labour
- Augmenting labour
- Instrumental birth
- Caesarean section

When discussing timing and mode of birth, take into account the woman or birthing person's preferences, concerns and expectations, and the whole clinical picture, including:

- The source and severity of sepsis, if known.
- Weeks of pregnancy
- Fetal wellbeing
- Stage and progress of labour
- Parity
- Response to treatment.

If the source of sepsis is thought to be the genital tract, expedite the birth.

13.3 Fetal monitoring and mode of birth

- Continuous Cardiotocograph is advised for women and people in labour with confirmed or suspected sepsis.
- If the critically ill woman or birthing person is pregnant consider birth. Whenever possible discussion should take place with the woman and person if their condition allows.
- If preterm birth is anticipated, consider steroids for fetal lung maturity despite the presence of sepsis. Beware that steroids should be used cautiously in the presence of infection.
- Attempting birth in the setting of maternal and birthing person instability increases the maternal and birthing person and fetal mortality rates unless the source of infection is intrauterine. Decision on mode of birth should be individualised with consideration of severity of maternal or birthing person illness, duration of labour, gestational age and viability.
- Neonatologists should be informed of the presence of maternal or birthing person sepsis as soon as possible after birth if not present at the time of birth.

13.4 FBS

- Take into account the woman or birthing person's preferences, stage of labour, parity and likelihood of chorioamnionitis.
- Be aware that FBS results with suspected or confirmed sepsis may be falsely reassuring.
- Repeat FBS should be viewed with caution.
- Only repeat fetal blood sampling with caution and in discussion with a consultant obstetrician.
- Explain to the woman or birthing person and their birth companion(s) what fetal blood sampling involves and the uncertainty of the significance of the results, and support their decision to accept or decline testing.

13.5 Anaesthesia for women and birthing people in labour with sepsis and signs of organ dysfunction

Analgesia for women and birthing people in labour with sepsis or suspected sepsis:

- If there are any signs of organ dysfunction (see section 13.2), regional analgesia should only be used with caution and advice from a consultant obstetric anaesthetist.
- With suspected sepsis where concern is insufficient for antibiotic treatment, consider the birthing pool as a form of analgesia only after discussion with a senior midwife and a senior obstetrician.
- If antibiotics are needed for suspected sepsis, start the antibiotics before inserting the needle for regional analgesia.
- With suspected sepsis, carry out a multidisciplinary review of options for pain relief at least every 4 hours.
- If there are concerns about providing a woman or birthing person's choice of regional analgesia, this should be discussed with the consultant obstetric anaesthetist.

14.0 Antimicrobials

- Take into account the whole clinical picture when thinking about antimicrobial treatment.
- Document the rationale for any decision to start antimicrobial treatment and the choice of antimicrobial.
- Take specimens for microbiological culture, including blood cultures, before starting antimicrobials.
- If there is a clear source of infection, use existing local antimicrobial guidance when offering an antimicrobial.
- If there is an unclear source of infection, offer a broad-spectrum intravenous antimicrobial from the agreed local formulary and in line with local or national guidelines.
- Explain to the woman or birthing person there is no evidence to support the use of one broad-spectrum antimicrobial over another and that the choice of antimicrobial will be guided by local antimicrobial guidelines.
- Antibiotics should be given in accordance with this and the current Trust Microguide. Any concerns should be discussed with microbiologist.

Following birth the obstetric team should review the woman or birthing person to decide whether continuation of antibiotics is necessary.

15.0 Antivirals

Antivirals are not currently recommended as first line treatment for suspected bacterial sepsis. However, they may be appropriate in some women, examples include:

- Women and birthing people who continue to deteriorate despite appropriate antibiotic treatment (positive response should occur within 48-72 hours).
- Women and birthing people with respiratory symptoms suggestive of influenza or Covid-19 (see section 10.0).
- Women and birthing people with symptoms suggestive of other viral infection (e.g. a rash consistent with chicken pox or HSV).
- Women and people with immunosuppression.
    - HIV / AIDs.
    - Transplant recipients.
    - Long term immunosuppressive therapies.
- Women and birthing people who have unwell contacts who are being treated for viral illness.

In these women and birthing people consideration of antivirals may be appropriate. Liaison with microbiology is recommended.

16.0 Postnatal care

16.1 Multidisciplinary review in the first 24 hours post birth

This review should document the following:

- Microbiological specimens for culture.
- Antimicrobial treatment.
- Increased frequency of monitoring.
- An enhanced level of care and monitoring.
- Further investigations such as imaging.
- Support to enable the woman or birthing person to feed her baby as they choose (including keeping the woman or birthing person and baby together wherever possible and maintaining skin-to-skin contact).
- Additional support for the woman or birthing person and their family.

16.2 Surgical interventions

The following surgical procedures may be necessary:

- Closed space infections such as wound or pelvic abscesses require removal of sutures, and / or surgical drainage.
- ERPC if RPOC / secondary PPH.
- Fasciotomy or wide debridement for necrotising fasciitis.

If surgical interventions have been necessary, the woman or birthing person should be made aware of signs of infection and who to contact if concerned. GPs should be notified in the discharge summary of any on-going wound management by community midwife at discharge.

If has already discharged by maternity team, the obstetrician to contact GP directly to arrange on-going wound care.

16.3 Infection control

Consider any and all potential sources of infection and take precautions to ensure that infection control policy is strictly adhered to throughout all care. See Standard Infection Prevention and Control Precautions Guideline for further guidance.

16.4 Neonatal considerations post-birth

See CG11100 Management of risk factors for neonatal sepsis guideline inc GBS v8.3 April24.pdf for further guidance on monitoring the neonate following birth in cases where maternal or birthing person sepsis was suspected or confirmed antenatally or in labour.

16.5 Neonatal considerations and maternal or birthing person sepsis with 72 hours postnatally

If a mother or birthing person is identified as having, or readmitted with, infection and at a high risk of developing sepsis within the first 72 hours of birth, the on-call paediatric registrar should be informed as soon as possible to assess the baby. See appendix 7 for neonatal referral process from community.

16.6 Debrief and support

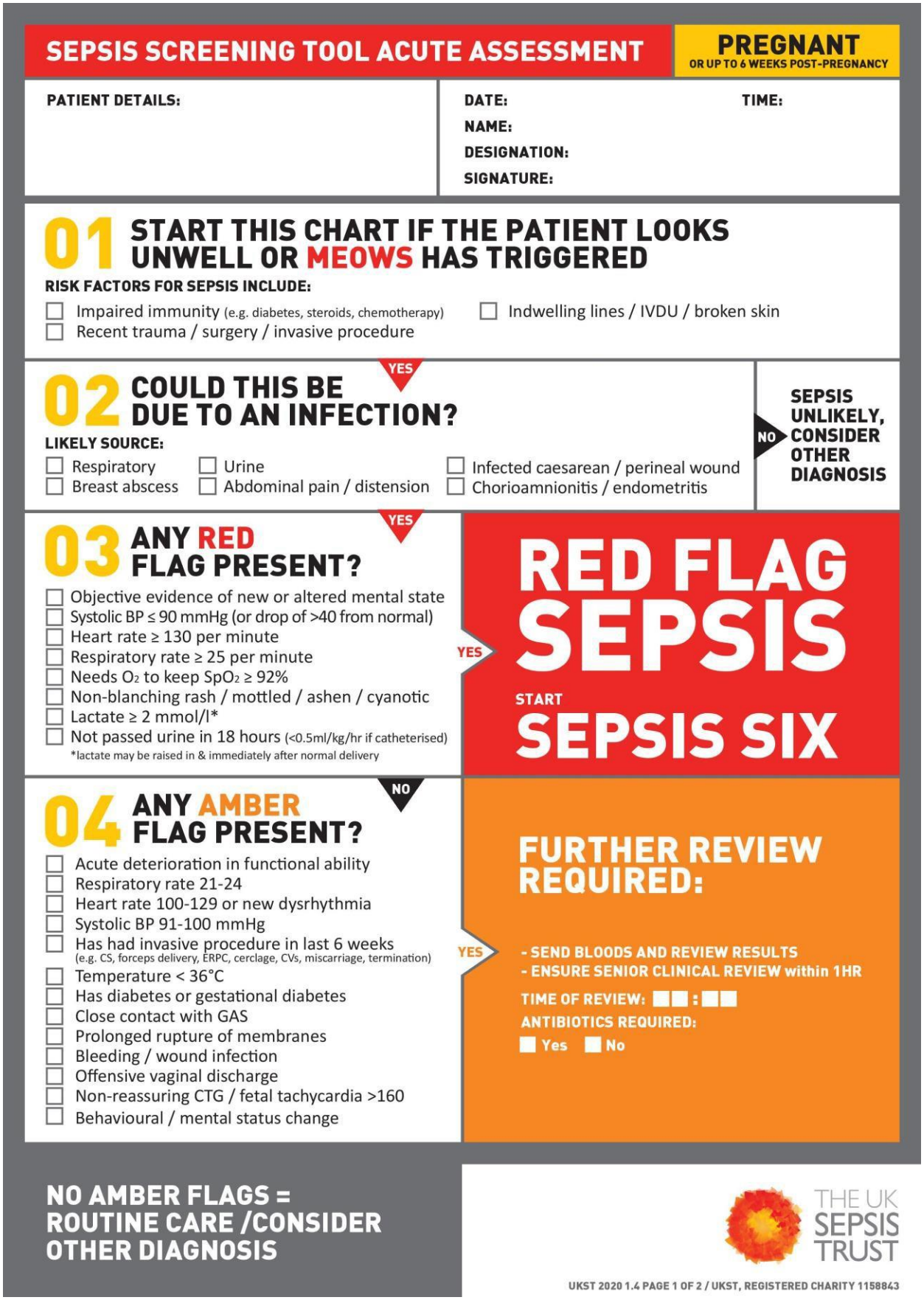
Sepsis diagnosis and treatment can be traumatic for women and birthing people and their partners. It is essential to debrief with women and birthing people and their partners following treatment and referral to Birth Afterthoughts service should be offered for further support.

17.0 Monitoring and Audit

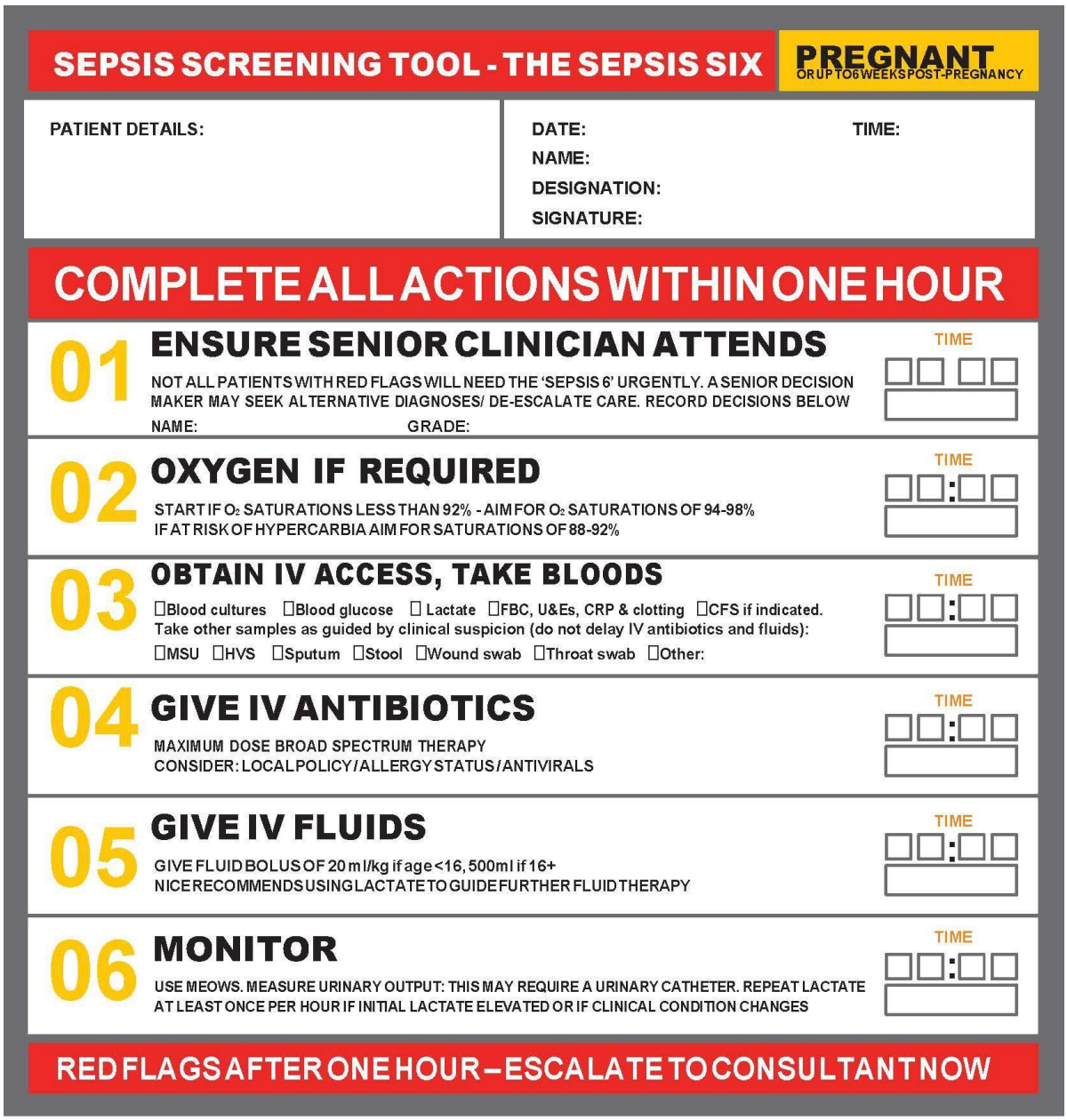
All staff taking observations should have annual training in the use of MEOWS chart.

Hospital number:	Surname:
Datix number:	Date of birth:
Sepsis onset:	
Antenatal	YES / NO / NA
Labour	YES / NO / NA
Postnatal	YES / NO / NA
Escalated appropriately as per protocol:	YES / NO / NA
Reviewed by obstetric team within timeframe as per protocol:	YES / NO / NA
Investigations undertaken as per protocol:	
Serum lactate	YES / NO / NA
Swabs (all applicable)	YES / NO / NA
Bloods	YES / NO / NA
MSU	YES / NO / NA
Specimens (all applicable)	YES / NO / NA
IV antibiotics:	
Administered	YES / NO / NA
Given within timeframe as per protocol	YES / NO / NA
IV fluids:	
Administered	YES / NO / NA
Given within timeframe as per protocol	YES / NO / NA
O2 via face mask administered:	YES / NO / NA
Observations completed as per protocol:	YES / NO / NA
Head to toe assessment completed as per protocol:	YES / NO / NA
Risk factors for sepsis (comment):	
Outcome (comment):	
Datix completed	YES / NO
Name of auditor (PRINT):	Date of audit:

Appendix 1: Inpatient Maternal or Birthing Person Sepsis Tool



Appendix 2: Sepsis Six Pathway



SEPSIS SCREENING TOOL - THE SEPSIS SIX **PREGNANT** OR UP TO 6 WEEKS POST-PREGNANCY

PATIENT DETAILS:

DATE: TIME:
NAME:
DESIGNATION:
SIGNATURE:

COMPLETE ALL ACTIONS WITHIN ONE HOUR

01 ENSURE SENIOR CLINICIAN ATTENDS — TIME □□ □□
NOT ALL PATIENTS WITH RED FLAGS WILL NEED THE 'SEPSIS 6' URGENTLY. A SENIOR DECISION MAKER MAY SEEK ALTERNATIVE DIAGNOSES/ DE-ESCALATE CARE. RECORD DECISIONS BELOW
NAME: GRADE:

02 OXYGEN IF REQUIRED — TIME □□:□□
START IF O_2 SATURATIONS LESS THAN 92% - AIM FOR O_2 SATURATIONS OF 94-98%
IF AT RISK OF HYPERCARBIA AIM FOR SATURATIONS OF 88-92%

03 OBTAIN IV ACCESS, TAKE BLOODS — TIME □□:□□
☐Blood cultures ☐Blood glucose ☐ Lactate ☐FBC, U&Es, CRP & clotting ☐CFS if indicated.
Take other samples as guided by clinical suspicion (do not delay IV antibiotics and fluids):
☐MSU ☐HVS ☐Sputum ☐Stool ☐Wound swab ☐Throat swab ☐Other:

04 GIVE IV ANTIBIOTICS — TIME □□:□□
MAXIMUM DOSE BROAD SPECTRUM THERAPY
CONSIDER: LOCAL POLICY / ALLERGY STATUS / ANTIVIRALS

05 GIVE IV FLUIDS — TIME □□:□□
GIVE FLUID BOLUS OF 20 ml/kg if age <16, 500ml if 16+
NICE RECOMMENDS USING LACTATE TO GUIDE FURTHER FLUID THERAPY

06 MONITOR — TIME □□:□□
USE MEOWS. MEASURE URINARY OUTPUT: THIS MAY REQUIRE A URINARY CATHETER. REPEAT LACTATE AT LEAST ONCE PER HOUR IF INITIAL LACTATE ELEVATED OR IF CLINICAL CONDITION CHANGES

RED FLAGS AFTER ONE HOUR – ESCALATE TO CONSULTANT NOW

RECORD ADDITIONAL NOTES HERE:
e.g. allergy status, arrival of specialist teams, de-escalation of care, delayed antimicrobial decision making, variance

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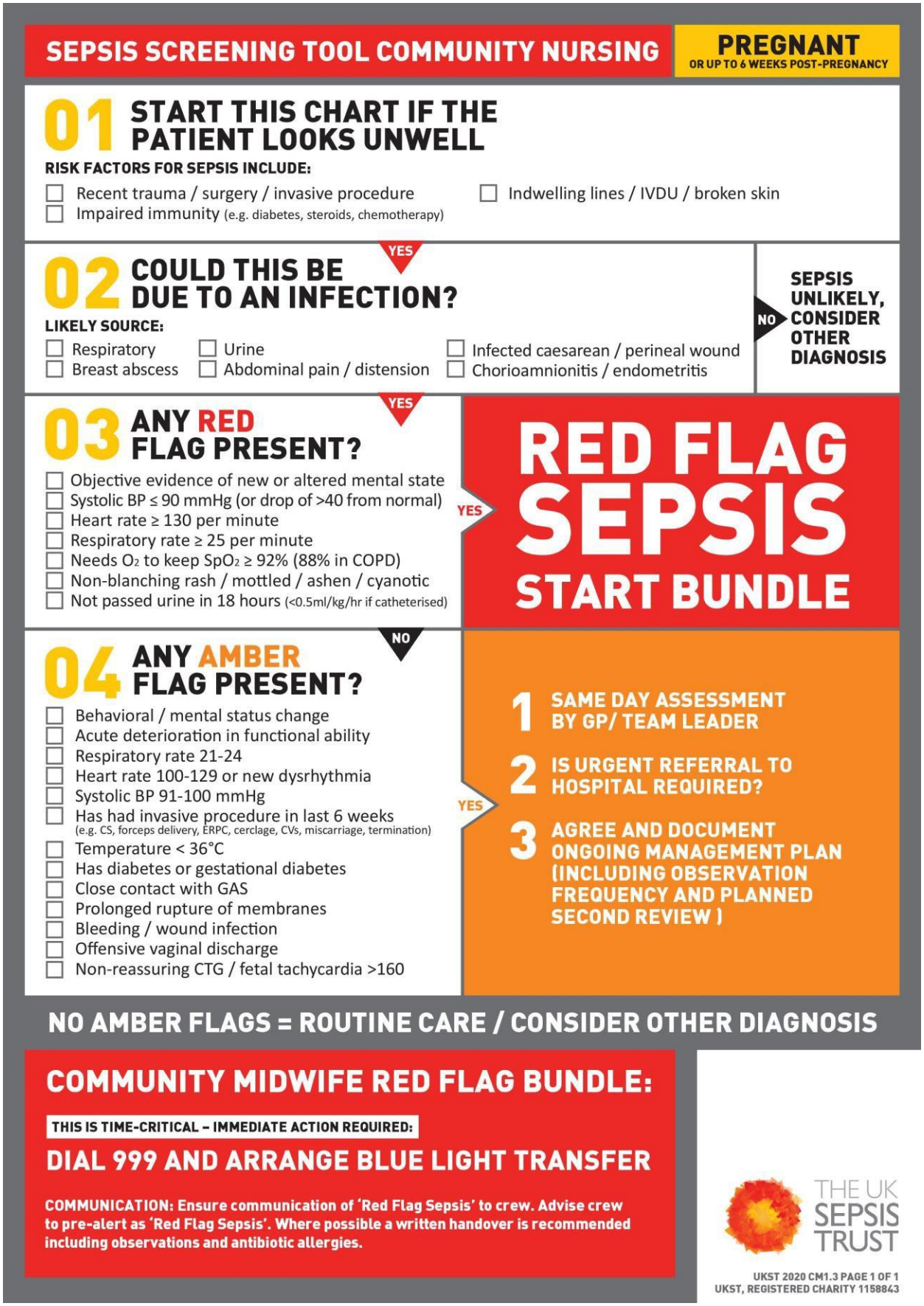
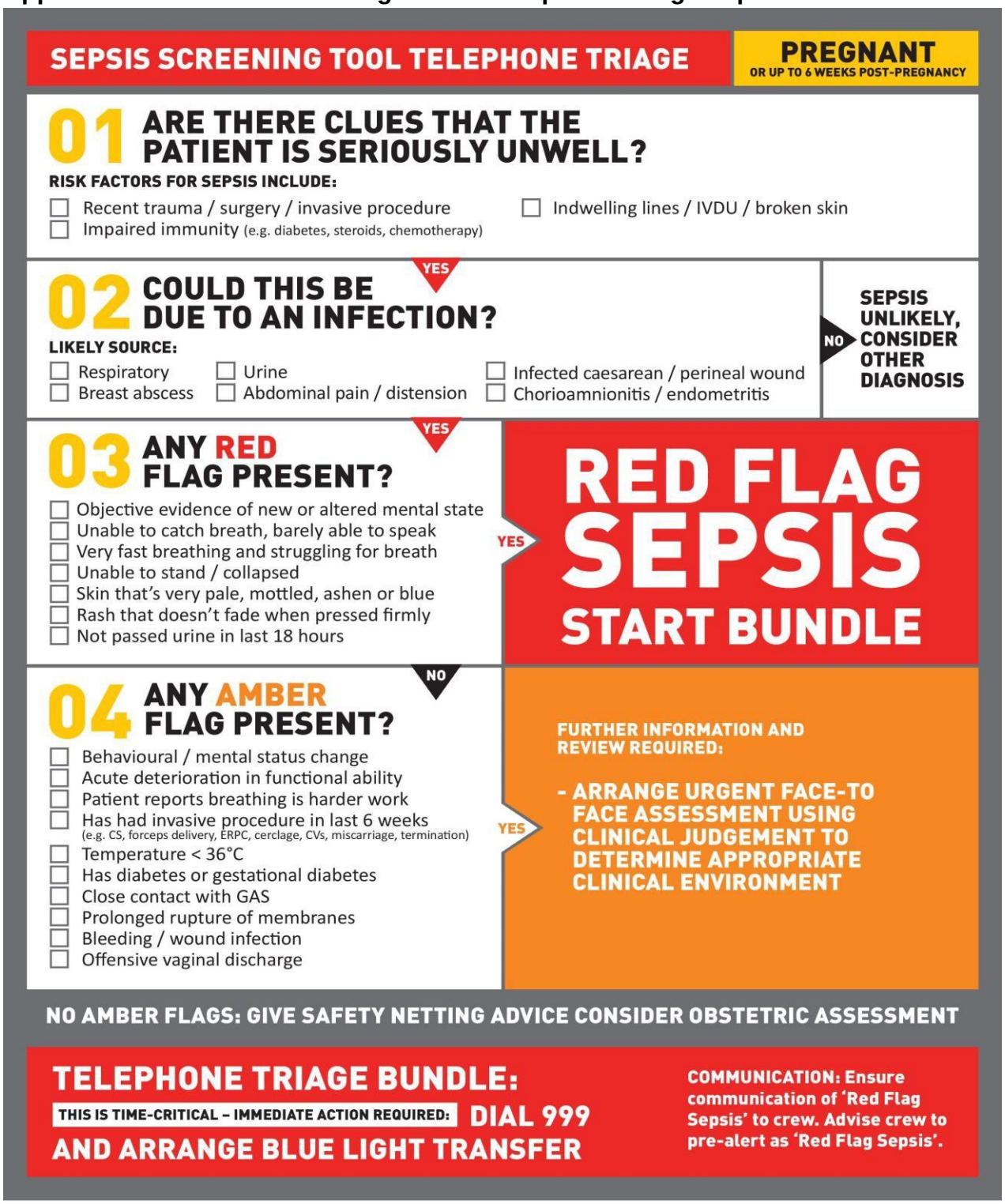
Appendix 3: Community Midwifery Sepsis Screening Action Tool



Appendix 4: Maternal or Birthing Person Telephone Triage Sepsis Tool



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UKST 2018 TT4.2 PAGE 1 OF 1
UKST, REGISTERED CHARITY 1158843

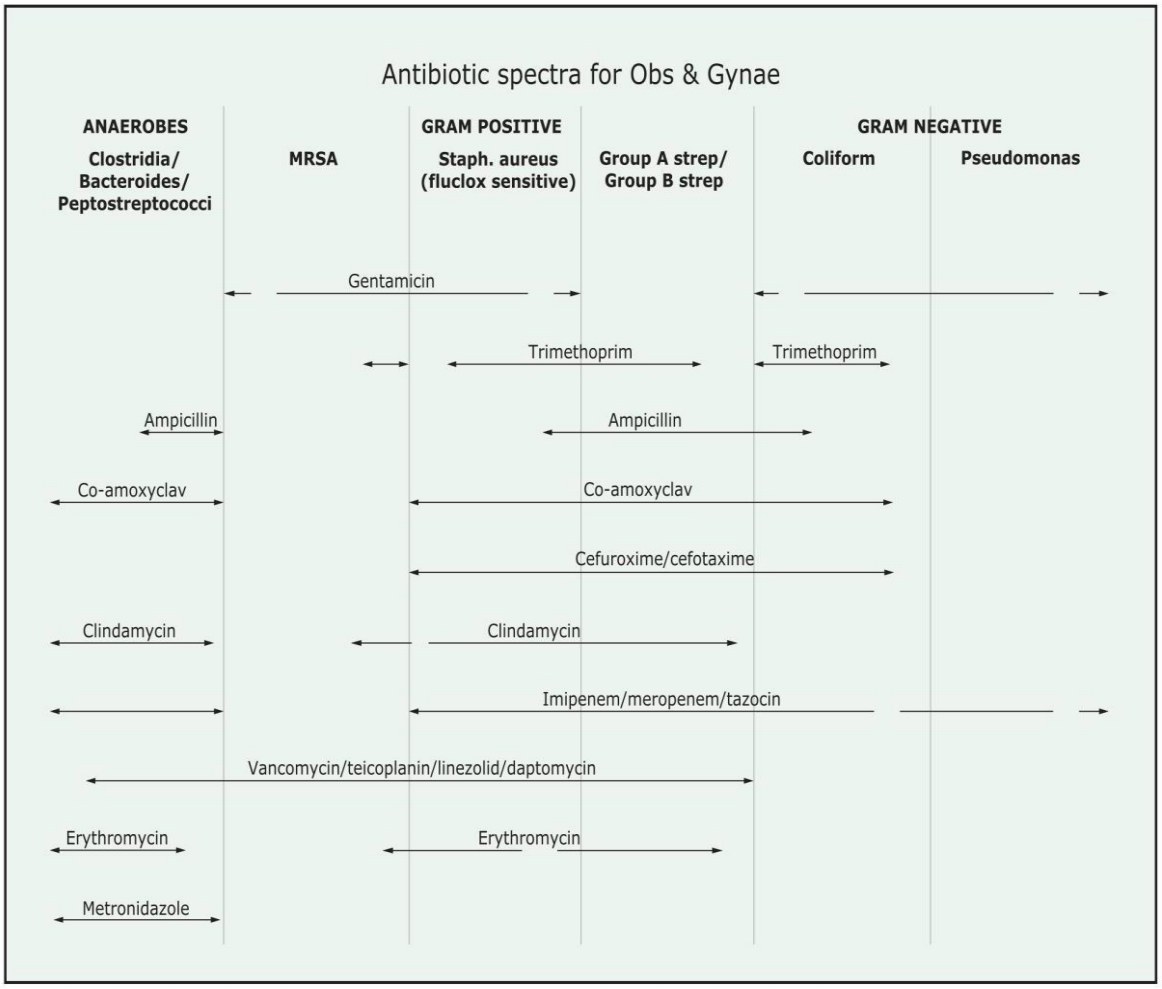
Appendix 5: Risk stratification tool for suspected sepsis

Category	High risk criteria	Moderate to high risk criteria	Low risk criteria
History	Objective evidence of new altered mental state	History from patient, friend or relative of new onset of altered behaviour or mental state History of acute deterioration of functional ability Impaired immune system (illness or drugs including oral steroids) Trauma, surgery or invasive procedures in the last 6 weeks	Normal behaviour
Respiratory	Raised respiratory rate: 25 breaths per minute or more New need for oxygen (40% FiO_2 or more) to maintain saturation more than 92% (or more than 88% in known chronic obstructive pulmonary disease)	Raised respiratory rate: 21–24 breaths per minute	No high risk or moderate to high risk criteria met
Blood pressure	Systolic blood pressure 90 mmHg or less or systolic blood pressure more than 40 mmHg below normal	Systolic blood pressure 91–100 mmHg	No high risk or moderate to high risk criteria met
Circulation and hydration	Raised heart rate: more than 130 beats per minute Not passed urine in previous 18 hours. For catheterised patients, passed less than 0.5 ml/kg of urine per hour	Raised heart rate: 91–130 beats per minute (for pregnant women 100–130 beats per minute) or new onset arrhythmia Not passed urine in the past 12–18 hours For catheterised patients, passed 0.5–1 ml/kg of urine per hour	No high risk or moderate to high risk criteria met
Temperature		Tympanic temperature less than 36°C	
Skin	Mottled or ashen appearance Cyanosis of skin, lips or tongue Non-blanching rash of skin	Signs of potential infection, including redness, swelling or discharge at surgical site or breakdown of wound	No non-blanching rash

Sepsis: recognition, diagnosis and early management NICE guideline NG51 https://www.nice.org.uk/guidance/ng51

Appendix 6: Antibiotic treatment spectra for sepsis

Antibiotic spectra for obstetrics and gynaecology.



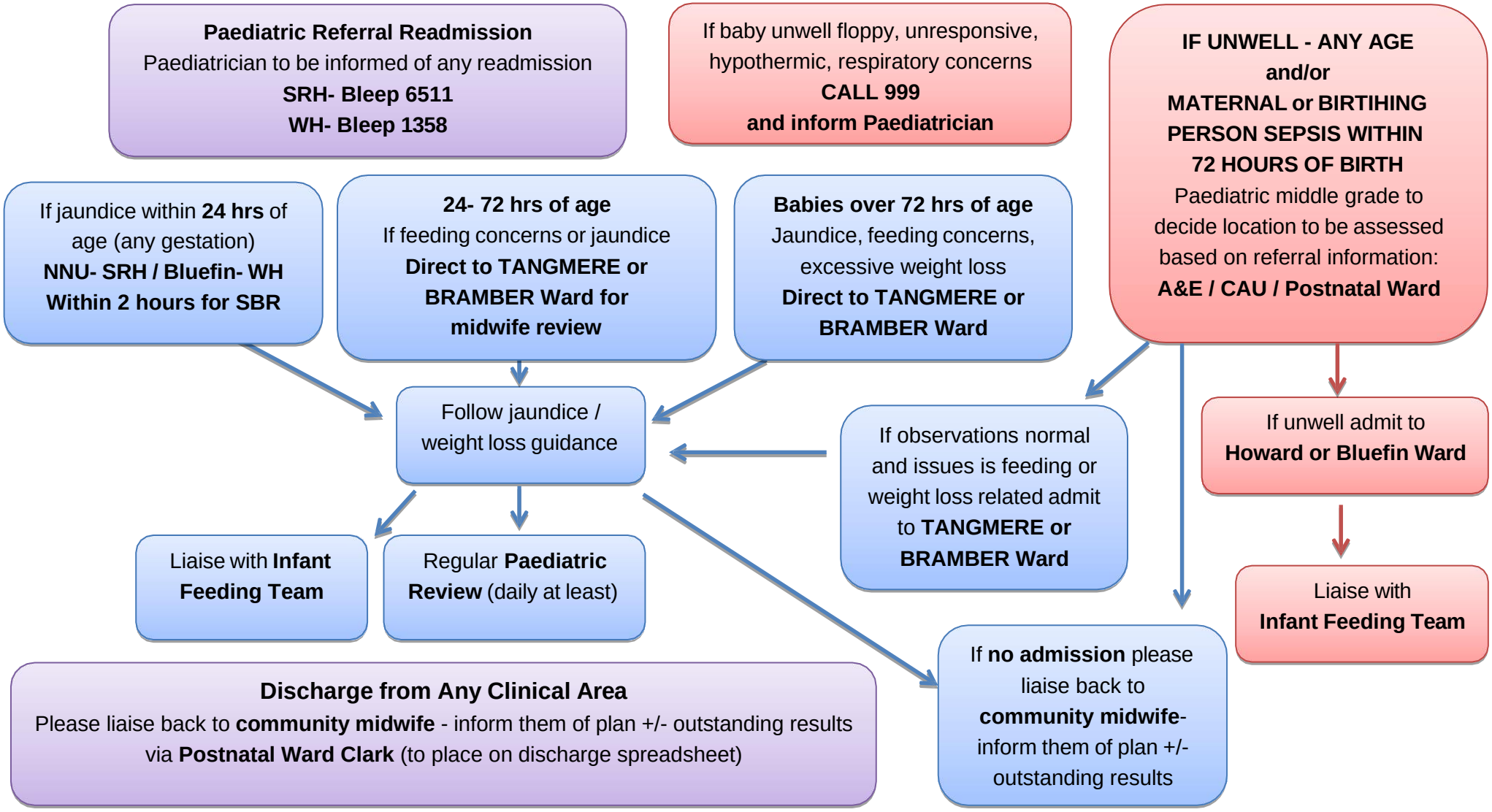
Dr Marina S Morgan, 2012

Solid lines represent roughly the proportion of the bacteria sensitive to that antibiotic.
NB: Tazocin may not be effective against some ESBL producing Gram-negative bacteria, and carbapenemase producing organisms will be resistant to carbapenems.

Please refer to the Adult Antimicrobial & Obstetric Guidelines | UHSussex staff at Worthing and St Richards for further guidance on antibiotic treatment of suspected or confirmed maternal and birthing person sepsis.

University Hospitals Sussex NHS Foundation Trust

Appendix 7: Neonatal referral pathway into hospital from community with suspected maternal or birthing person sepsis



Appendix 8: Guideline Version Control Log

This should be included for all updated guideline, summarising the changes between the current and previous version. (Earlier changes should be deleted from the list when the guideline is updated.)
Do not list minor and stylistic changes or changes which do not alter the processes described.
If the update includes a significant reorganisation of the material, indicate this and list the main areas where the process itself has changed.

Change Log – Maternal or Birthing Parent Sepsis

Version	Date	Author	Status	Comment
1.0	May 2011	R. Mason, M.Bhattacharya	Archived	New guideline
2.0	July 2011	R.Mason S.Jerwood	Archived	Updated following further microbiology input
3.0	April 2014	JOGG	Archived	3-year update
4.0	February 2015	S. Bolger S. Laatz N. Maguire H. Clarke	Archived	Updated to include initial management of sepsis and maternal sepsis proforma
5.0	July 2017	M. Hon	Archived	Incorporating NICE NG51 July 2016
6.0	August 2020	A. Orr- Downey G. Simmonds S. Glass T. Kapoor	Archived	3-year update. Addition of NICE recommendations
6.1	March 2022	C. Ross, Obstetric Registrar J. Collard, Clinical Effectiveness Support Midwife	Archived	• Section added for postnatal maternal/birthing person sepsis triggering paediatric review of neonate if within 72 hours of birth with accompanying appendix. • HVS and antivirals added. • BSTOTs assessment added. • Intrapartum sepsis moved from appendices to main body of guideline. • Sample check boxes add to Sepsis Six proforma. • Guideline reformatted to Trust standard and appendices re-ordered.
7.0	November 2023	A. Davey, Obstetric Consultant K. Abdelrahman, Obstetric SHO	Archived	3 year review. No change to clinical practice.

7.1	July 2024	Clinical Outcomes & Effectiveness Team	LIVE	Transferred onto guideline template.

The interpretation and application of clinical guidelines will remain the responsibility of the individual clinician.
If in doubt contact a senior colleague or expert.

Appendix 9: Due Regard Assessment Tool

To be completed and attached to any guideline when submitted to the appropriate committee for consideration and approval.

		Yes/No	Comments
1.	**Does the document/guideline affect one group less or more favourably than another on the basis of:**		
	Age	*no*	
	· Disability	*no*	
	· Gender (Sex)	*no*	
	· Gender Identity	*no*	
	· Marriage and civil partnership	*no*	
	· Pregnancy and maternity	*no*	
	· Race (ethnicity, nationality, colour)	*no*	
	· Religion or Belief	*no*	
	· Sexual orientation, including lesbian, gay and bisexual people		
2.	**Is there any evidence that some groups are affected differently and what is/are the evidence source(s)?**	*no*	
3.	**If you have identified potential discrimination, are there any exceptions valid, legal and/or justifiable?**	*no*	
4.	**Is the impact of the document likely to be negative?**	*no*	
5.	**If so, can the impact be avoided?**	*N/A*	
6.	**What alternative is there to achieving the intent of the document without the impact?**	*N/A*	
7.	**Can we reduce the impact by taking different action and, if not, what, if any, are the reasons why the guideline should continue in its current form?**	*N/A*	
8.	**Has the document been assessed to ensure service users, staff and other stakeholders are treated in line with Human Rights FREDA principles (fairness, respect, equality, dignity and autonomy)?**	*yes*	

If you have identified a potential discriminatory impact of this guideline, please refer it to A. Davey, Obstetric Consultant & K. Abdelrahman, Obstetric SHO, together with any suggestions as to the action required to avoid/reduce this impact. For advice in respect of answering the above questions, please contact uhsussex.equality@nhs.net 01273 664685).

Appendix 10: Template Dissemination, Implementation and Access Plan

To be completed and attached to any guideline when submitted to Corporate Governance for consideration and TMB approval.

	Dissemination Plan	Comments
1.	Identify:	
	Which members of staff or staff groups will be affected by this guideline?	Midwives and Obstetricians
	How will you confirm that they have received the guideline and understood its implications?	Dissemination of update to all maternity staff is carried out via work emails, notice boards, social media, safety huddles and Leading Learning emails to obstetricians. If indicated, it is included in maternity mandatory training.
	How have you linked the dissemination of the guideline with induction training, continuous professional development, and clinical supervision as appropriate?	All staff are shown how to access maternity guidelines on SharePoint when they join the Trust. It is confirmed at performance appraisals.
2.	How and where will staff access the document (at operational level)?	Maternity clinical documents are uploaded to SharePoint which all maternity staff have access to.

		Yes/No	Comments
3.	Have you made any plans to remove old versions of the guideline or related documents from circulation?	Yes	Archiving of previous version is part of our process.
4.	Have you ensured staff are aware the document is logged on the organisation's register?	Yes	This is part of our dissemination process – see above

Appendix 11: Additional guidance and information

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