Whittington Health NHS

Management of Pregnancy Related Sepsis

Subject:	Management of Pregnancy related sepsis
Policy Number	
Ratified By:	Maternity Clinical Guideline and Audit Group
Date Ratified:	March 2012 (v2)
Version:	2nd Edition
Policy Executive Owner:	Women & Family Services ICSU
Designation of Author:	Drs Makinde / Siddiqi / Lewith
Name of Assurance Committee:	Maternity Clinical Guideline and Audit Group
Date Issued:	June 2015
Review Date:	June 2018
Target Audience:	Healthcare staff caring for pregnant women
Key Words:	Sepsis, Pregnancy

Version Control Sheet

Version	Date	Author	Status	Comment
2.0	June 2015	Drs Makinde / Siddiqi / Lewith	Active	• New 'Obstetric Sepsis/Severe Sepsis Care Pathway'. • New 'Is this patient septic?' algorithm. • Changes to the recommended treatment regimens.
2.1	Nov 2016	Dr Makinde / Zoe Broadhead		• New sepsis criteria • Antibiotics updated
2.2	April 2017	Dr Makinde / Zoe Broadhead		• Lactate changes to pathway

➢ Criteria for use

This guideline is to be used for any pregnant woman or woman in the six weeks following delivery, (including those women that have had either a spontaneous or induced miscarriage or termination), with a potential diagnosis of sepsis.

➢ Background/ introduction

Sepsis in pregnant women (or those that have recently delivered) can kill rapidly (sometimes within 12-24 hours of first symptoms) unless identified and treated early.

Sepsis remains a leading contributor to maternal mortality, and was the second most common cause of death in the 2009 – 2012 MMBRRACE-UK report. The report contains the following statement –

'The key actions for the diagnosis and management of sepsis are:

- ***Timely recognition***
- ***Fast administration of antibiotics***
- ***Quick involvement of experts – senior review is essential'***

Remember the 'golden hour' – early administration of antibiotics saves lives.

➢ Definitions

Sepsis (related to pregnancy)

In <u>all women</u> who are either pregnant or who have recently delivered or miscarried, who also have a presumed infection, **perform a qSOFA score.** This is a "quick sepsis-related organ failure assessment score" – it is an easy to use bedside scoring system to help identify sepsis. It has replaced SIRS (systemic inflammatory response syndrome) in defining sepsis.

If **2** or more of the following are present the woman has sepsis: it requires immediate treatment.

It is a MEDICAL EMERGENCY

1. **Systolic B/P** < 100
2. **Respiratory Rate** ≥ 22
3. **New confusion/ GCS** <15

If any of the following red flag symptoms are present, the woman may still have sepsis: if unsure discuss with a senior colleague.

Red flags

- HR ≥ 100
- Lactate ≥ 2 mmol/L
- WCC ≥ 17 or ≤ 4 x 10^9/L
- Temp ≥ 38.3^{o}C or ≤ 36^{o}C
- Non blanching rash/ mottled / ashen / cyanotic
- Urine output < 0.5mls/kg/hr /anuria for > 12hrs
- Clinically suspect sepsis

Septic shock (related to pregnancy):

Women who fulfill the above criteria and also have one or more of the following:

1. A systolic BP of less than 90mmHg despite 500 ml IV Hartmann's STAT
2. Lactate ≥ 2 mmol/L

Sepsis is defined as life-threating organ dysfunction caused by a deregulated host response to infection. q SOFA stands for "**Q**uick **S**epsis-related **O**rgan **F**ailure **A**ssessment" – it is an easy to use bedside scoring system to help identify sepsis. It has replaced SIRS in defining sepsis.

PLEASE REMEMEBER ABSENCE OF A FEVER DOES **NOT** EXCLUDE SEPSIS

➢ Patients at risk

- **Clinical history** – ask about whether the woman or any family members has had a history suggestive of infection: sore throat, abdominal pain, diarrhoea, rigors or breathlessness
- Don't forget the travel history! (consider malaria / Middle East Respiratory Syndrome / Coronavirus)
- First or second trimester miscarriage
- Spontaneous rupture of membranes leading to miscarriage
- Prolonged procedure (if the miscarriage or termination is induced)
- Retained products of conception
- Repeated presentation (to the GP, midwife, or triage) is a worrying sign and should prompt thorough assessment to exclude sepsis.

➢ Clinical signs

Look for signs of sepsis in any woman presenting with the criteria above with the following signs and symptoms:

- **Abdominal or uterine pain**, especially if the pain is constant and severe in a woman who has had a recent termination of pregnancy or spontaneous miscarriage, or if it does not respond to the usual analgesia.
- **Diarrhea** is a common and important sign of pelvic sepsis. Diarrhoea +/- vomiting in a woman with any sign of sepsis is a very serious sign.[1]
- **Chest pain**
- **Sore throat**
- **Spontaneous rupture of membranes** (SROM)
- **Reduced or absent fetal movements**
- **A reduced or absent fetal heart (FH**) with or without placental abruption may be the result of sepsis.[1]
- **Abnormal vaginal discharge**
- **Renal angle pain and tenderness, or a history of kidney stones**
- **Perineal and breast pain**
- Rigors, lethargy, malaise, drowsiness, agitation, disorientation and confusion

Women with **sickle cell disease or trait** were found to be particularly at risk.

The most important thing is to recognise the woman with sepsis as quickly as possible.

➢ Potential problems with diagnosis

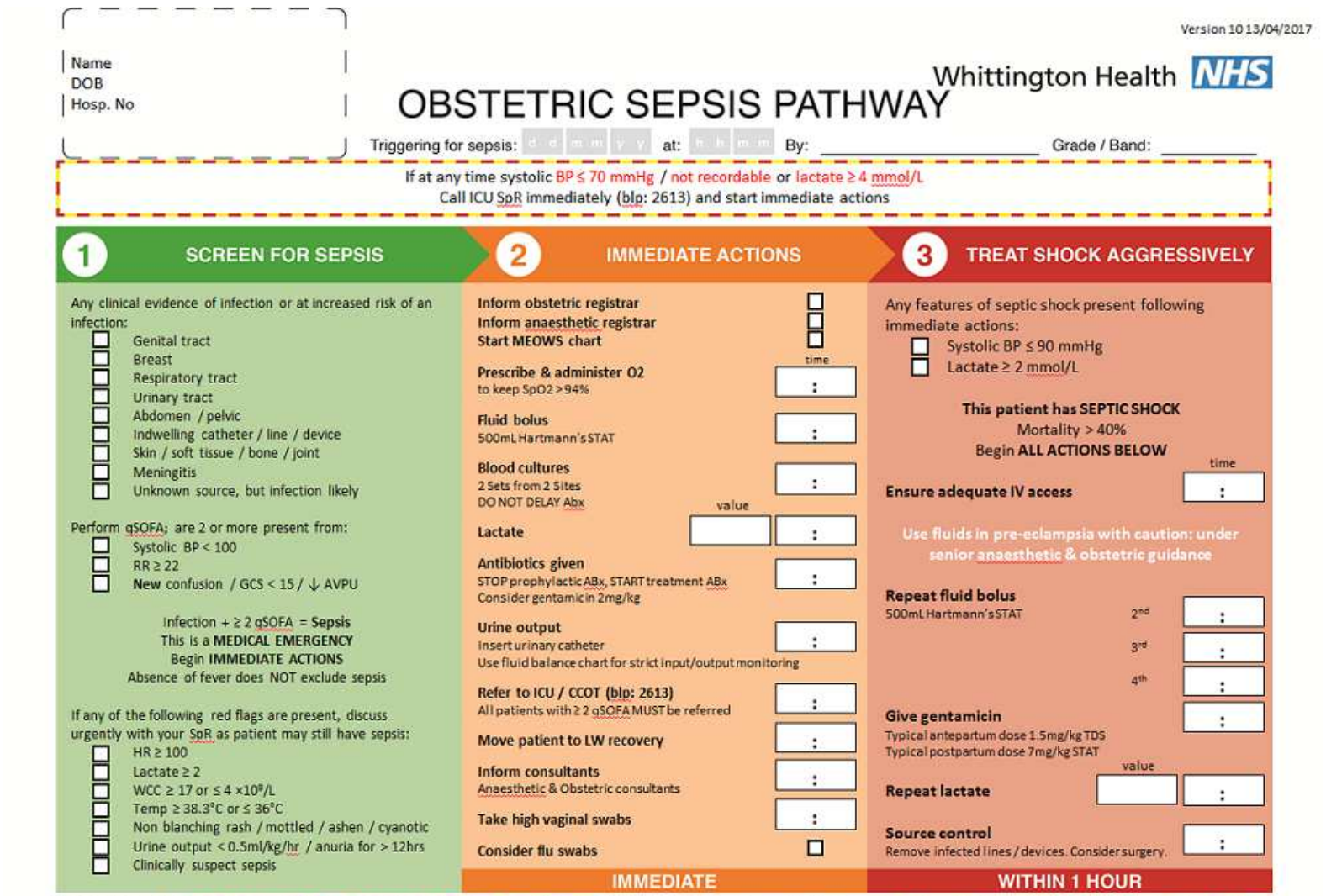
Women may have been started on antibiotics in the antenatal period in the following situations (please refer to the relevant guidelines) –

- **Pre-labour rupture of membranes at term**
- **Pre-term labour – diagnosis and management**
- **Group B streptococcus infection – maternal risk reduction regime**

This is to reduce the incidence of infection in the neonate, and not for the treatment of sepsis in the mother.

If you make a diagnosis of SEPSIS please change the antibiotics prescribed in the antenatal period to the appropriate antibiotics, shown in the chart below.

- **Pathway: Available on Anglia ICE and the Intranet**



Name
DOB
Hosp. No

Version 10 13/04/2017

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OBSTETRIC SEPSIS PATHWAY

Triggering for sepsis: d d m m y y at: h h m m By: _____ Grade / Band: _____

If at any time systolic BP ≤ 70 mmHg / not recordable or lactate ≥ 4 mmol/L
Call ICU SpR immediately (blp: 2613) and start immediate actions

1 SCREEN FOR SEPSIS

Any clinical evidence of infection or at increased risk of an infection:

- ☐ Genital tract
- ☐ Breast
- ☐ Respiratory tract
- ☐ Urinary tract
- ☐ Abdomen / pelvic
- ☐ Indwelling catheter / line / device
- ☐ Skin / soft tissue / bone / joint
- ☐ Meningitis
- ☐ Unknown source, but infection likely

Perform qSOFA: are 2 or more present from:

- ☐ Systolic BP < 100
- ☐ RR ≥ 22
- ☐ **New** confusion / GCS < 15 / ↓ AVPU

Infection + ≥ 2 qSOFA = **Sepsis**
This is a **MEDICAL EMERGENCY**
Begin **IMMEDIATE ACTIONS**
Absence of fever does NOT exclude sepsis

If any of the following red flags are present, discuss urgently with your SpR as patient may still have sepsis:

- ☐ HR ≥ 100
- ☐ Lactate ≥ 2
- ☐ WCC ≥ 17 or ≤ 4 ×10⁹/L
- ☐ Temp ≥ 38.3°C or ≤ 36°C
- ☐ Non blanching rash / mottled / ashen / cyanotic
- ☐ Urine output < 0.5ml/kg/hr / anuria for > 12hrs
- ☐ Clinically suspect sepsis

2 IMMEDIATE ACTIONS

		time
Inform obstetric registrar	☐	
Inform anaesthetic registrar	☐	
Start MEOWS chart	☐	
Prescribe & administer O2 to keep SpO2 > 94%		:
Fluid bolus 500mL Hartmann's STAT		:
Blood cultures 2 Sets from 2 Sites DO NOT DELAY Abx		:
Lactate	value	:
Antibiotics given STOP prophylactic ABx, START treatment ABx Consider gentamicin 2mg/kg		:
Urine output Insert urinary catheter Use fluid balance chart for strict input/output monitoring		:
Refer to ICU / CCOT (blp: 2613) All patients with ≥ 2 qSOFA MUST be referred		:
Move patient to LW recovery		:
Inform consultants Anaesthetic & Obstetric consultants		:
Take high vaginal swabs		:
Consider flu swabs	☐	

IMMEDIATE

3 TREAT SHOCK AGGRESSIVELY

Any features of septic shock present following immediate actions:

- ☐ Systolic BP ≤ 90 mmHg
- ☐ Lactate ≥ 2 mmol/L

This patient has SEPTIC SHOCK
Mortality > 40%
Begin **ALL ACTIONS BELOW**

		time
Ensure adequate IV access		:

Use fluids in pre-eclampsia with caution: under senior anaesthetic & obstetric guidance

Repeat fluid bolus 500mL Hartmann's STAT	2nd	:
	3rd	:
	4th	:
Give gentamicin Typical antepartum dose 1.5mg/kg TDS Typical postpartum dose 7mg/kg STAT		:
	value	
Repeat lactate		:
Source control Remove infected lines / devices. Consider surgery.		:

WITHIN 1 HOUR

Once complete **photocopy this document. File the original** in the patient notes AND place **the copy** in your **local sepsis drop box**

Slide 1 of 2 | "Office Theme" | 120%

PLEASE PRINT OFF THE PROFORMA ON ANGLIA ICE

- **Antibiotics**

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ANTIMICROBIAL THERAPY FOR MATERNAL SEPSIS

In all cases, **stop any prophylactic antibiotics** (eg erythromycin for women with PPROM) and **start therapeutic antibiotics** as detailed below.

	Clinical situation	First line	Non-severe penicillin allergy (eg delayed rash)	Severe penicillin allergy (eg Anaphylaxis, bronchospasm)
PREGNANT	Maternal **antenatal** infection	Ceftriaxone 2g IV OD plus Metronidazole 500mg IV TDS		Clindamycin 600mg IV QDS plus Gentamicin 2mg/kg IV STAT + 1.5mg/kg IV TDS (Take **trough** levels immediately before the 3rd or 4th dose. Aim for trough level < 2mg/L)
PREGNANT	Maternal **antenatal** sepsis	Ceftriaxone 2g IV OD plus Metronidazole 500mg IV TDS plus Gentamicin 2mg/kg IV STAT + 1.5mg/kg IV TDS (Take **trough** levels immediately before the 3rd or 4th dose. Aim for trough level < 2mg/L)		Clindamycin 600mg IV QDS plus Gentamicin 2mg/kg IV STAT + 1.5mg/kg IV TDS (Take **trough** levels immediately before the 3rd or 4th dose. Aim for trough level < 2mg/L)
POST DELIVERY	**Postpartum** infection	Co-amoxiclav 1.2g IV TDS	Ceftriaxone 2g IV OD plus Metronidazole 500mg IV TDS	Clindamycin 600mg IV QDS plus Gentamicin 7mg/kg IV OD (Take a single blood sample 6 to 14 hours after the first dose. Refer to the Hartford Nomogram)
POST DELIVERY	**Postpartum** sepsis	Co-amoxiclav 1.2g IV TDS plus Gentamicin 7mg/kg IV OD (Take a single blood sample 6 to 14 hours after the first dose. Refer to the Hartford Nomogram)	Ceftriaxone 2g IV OD plus Metronidazole 500mg IV TDS plus Gentamicin 7mg/kg IV OD (Take a single blood sample 6 to 14 hours after the first dose. Refer to the Hartford Nomogram)	Clindamycin 600mg IV QDS plus Gentamicin 7mg/kg IV OD (Take a single blood sample 6 to 14 hours after the first dose. Refer to the Hartford Nomogram)

All antimicrobial prescription should be for 24 hours only and then reviewed.
Patient should be discussed with Microbiology team within daylight hours as soon as possible.

WHAT IS qSOFA? WHAT IS SEPSIS?

Sepsis is defined as life-threatening organ dysfunction caused by a dysregulated host response to infection. qSOFA stands for "**Q**uick **S**epsis-related **O**rgan **F**ailure **A**ssessment". qSOFA is an easy to use bedside scoring system to help identify sepsis. It has replaced SIRS in defining sepsis.

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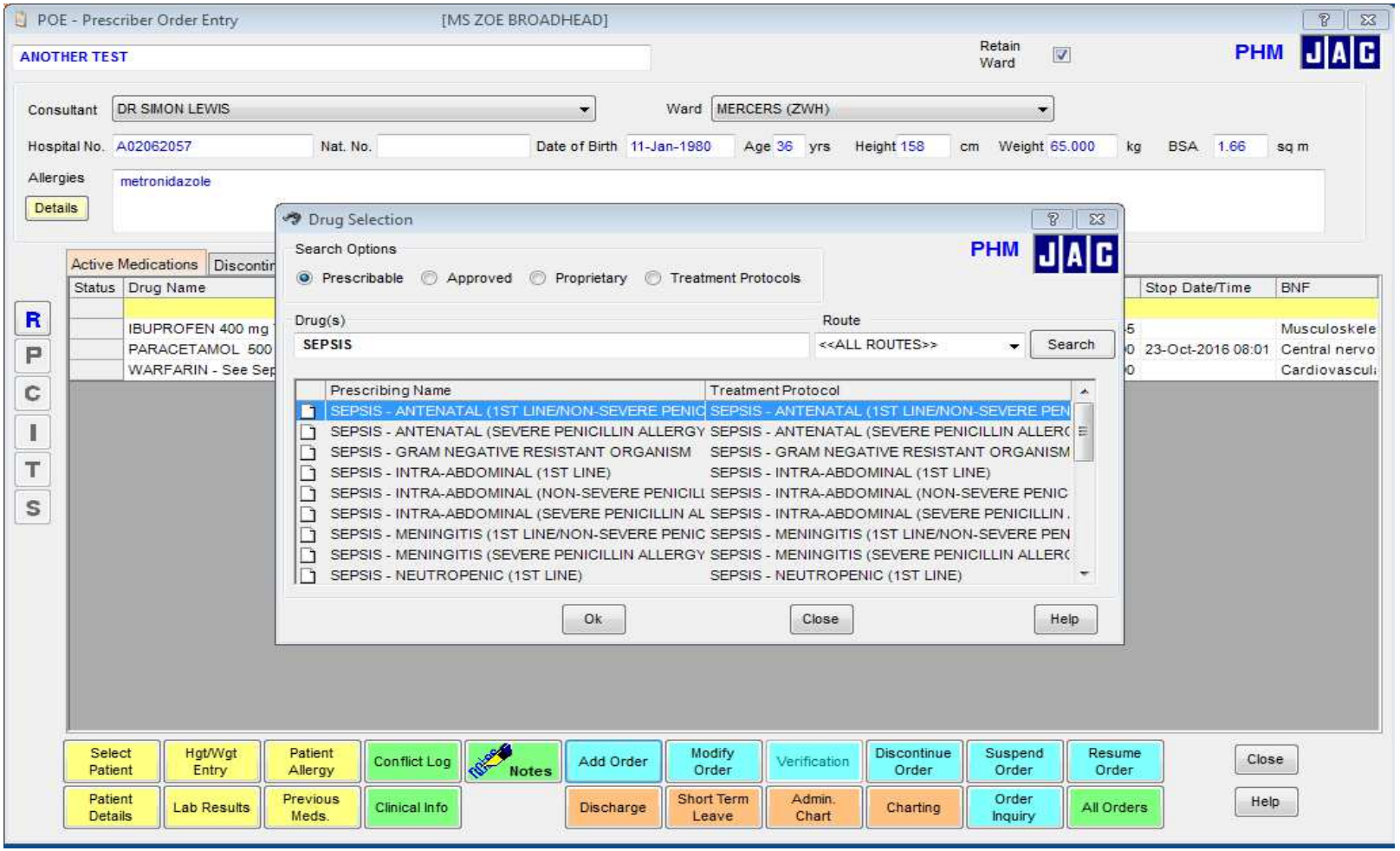
➢ E. Prescribing on JAC – sepsis Protocol



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➢ References (evidence upon which the guideline is based)

1. Saving Lives, improving mothers' care – Lessons learned to improve maternity care from UK and Ireland Confidential Enquires into Maternal Deaths and Morbidity 2009 – 2012 – MBRRACE-UK
2. McClure JH, Cooper GM, Clutton-Brock TH. Saving Mothers' Lives: reviewing maternal deaths to make motherhood safer: 2006-8: a review. Br J Anaesth 2011; 107: 127-32
3. Dellinger, RP et al (2008) "Surviving Sepsis Campaign: International guidelines for management of severe sepsis and septic shock", Critical Care Medicine Vol 36, No 1, pp 296-327
4. Singer M et al. The Third International Consensus Definitions for Sepsis and Septic Shock (Sepsis-3). *JAMA* 2016;315 (8):801-810.
5. '*Sepsis: Just Say Sepsis!'*, National Confidential Enquiry into Patient Outcome and Death (NCEPOD), 2015 - available at NCEPOD website

- **Compliance with this guideline (how and when the guideline will be monitored e.g. audit and which committee the results will be reported to) Please use the tool provided at the end of this template**

To be completed and attached to any procedural document when submitted to the appropriate committee for consideration and approval

		Yes/No	Comments
1.	**Does the procedural document affect one group less or more favourably than another on the basis of:**		
	• Race	No	
	• Ethnic origins (including gypsies and travellers)	No	
	• Nationality	No	
	• Gender	No	
	• Culture	No	
	• Religion or belief	No	
	• Sexual orientation including lesbian, gay and bisexual people	No	
	• Age	No	
	• Disability - learning disabilities, physical disability, sensory impairment and mental health problems	No	
2.	**Is there any evidence that some groups are affected differently?**	No	
3.	**If you have identified potential discrimination, are any exceptions valid, legal and/or justifiable?**	No	
4.	**Is the impact of the procedural document likely to be negative?**	No	
5.	**If so can the impact be avoided?**	N/A	
6.	**What alternatives are there to achieving the procedural document without the impact?**	N/A	
7.	**Can we reduce the impact by taking different action?**	N/A	

If you have identified a potential discriminatory impact of this procedural document, please refer it to the Director of Human Resources, 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 the Director of Human Resources.

Checklist for the Review and Approval of Procedural Document

To be completed and attached to any procedural document when submitted to the relevant committee for consideration and approval.

	Title of document being reviewed:	Yes/No	Comments
1.	**Title**		
	Is the title clear and unambiguous?	Yes	
	Is it clear whether the document is a guideline, policy, protocol or standard?	Yes	
2.	**Rationale**		
	Are reasons for development of the document stated?	Yes	
3.	**Development Process**		
	Is it clear that the relevant people/groups have been involved in the development of the document?	Yes	
	Are people involved in the development?	Yes	
	Is there evidence of consultation with stakeholders and users?	Yes	
4.	**Content**		
	Is the objective of the document clear?	Yes	
	Is the target population clear and unambiguous?	Yes	
	Are the intended outcomes described?	Yes	
5.	**Evidence Base**		
	Are key references cited in full?	N/A	
	Are supporting documents referenced?	N/A	
6.	**Approval**		
	Does the document identify which committee/ group will approve it?	Yes	
7.	**Dissemination and Implementation**		
	Is there an outline/plan to identify how this will be done?	Yes	
8.	**Document Control**		
	Does the document identify where it will be held?	Yes	
9.	**Process to Monitor Compliance and Effectiveness**		
	Are there measurable standards or KPIs to support the monitoring of compliance with and	Yes	

	Title of document being reviewed:	Yes/No	Comments
	effectiveness of the document?		
	Is there a plan to review or audit compliance with the document?	Yes	
10.	**Review Date**		
	Is the review date identified?	Yes	
	Is the frequency of review identified? If so is it acceptable?	Yes	
11.	**Overall Responsibility for the Document**		
	Is it clear who will be responsible for co-ordinating the dissemination, implementation and review of the document?	Yes	

Executive Sponsor Approval			
If you approve the document, please sign and date it and forward to the author. Procedural documents will not be forwarded for ratification without Executive Sponsor Approval			
Name		Date	
Signature			
Relevant Committee Approval			
The Director of Nursing and Patient Experience's signature below confirms that this procedural document was ratified by the appropriate Governance Committee.			
Name		Date	
Signature			
Responsible Committee Approval – only applies to reviewed procedural documents with minor changes			
The Committee Chair's signature below confirms that this procedural document was ratified by the responsible Committee			
Name		Date	
Name of Committee		Name & role of Committee Chair	
Signature			

Tool to Develop Monitoring Arrangements for Policies and guidelines

What key element(s) need(s) monitoring as per local approved policy or guidance?	**Who will lead on this aspect of monitoring?** **Name the lead and what is the role of the multidisciplinary team or others if any.**	**What tool will be used to monitor/check/observe/Assess/inspect/ authenticate that everything is working according to this key element from the approved policy?**	**How often is the need to monitor each element?** **How often is the need complete a report ?** **How often is the need to share the report?**	**What committee will the completed report go to?**
Element to be monitored	**Lead**	**Tool**	**Frequency**	**Reporting arrangements**
Ensure the Obstetric Sepsis / Severe Sepsis Care Pathway is commenced appropriately Ensure Antibiotics are commenced within one hour of diagnosis	Lead Obstetrician for Labour Ward	In-house audit tool	An individualised review date as low frequency event	These reports will be reviewed by the Maternity Clinical Guidelines and Audit Group. It is their responsibility to monitor the findings from each report. Evidence to support this will be found in the form minutes. Key factors to be noted are: • Audit findings • Deficiencies • Whether this is improvement from previous audit findings • Action planning with a named person who is responsible • Next date where an update will be given and by whom