Document Control

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Severely Ill Pregnant Women Guideline			
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Superseded Documents			
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Consulted with the following stakeholders: (list all) • Maternity Staff • Anaesthetics • Obstetric Consultants • Intensive Care Physicians • Outreach • Resuscitation • Sepsis Matron
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Policy categories for Trust's internal website (Bob)	**Tags for Trust's internal website (Bob)**
Maternity Services	Deteriorating patient

CONTENTS

1. Introduction

This document sets out Northern Devon Healthcare NHS Trust's best practice guidelines to ensure the early recognition and prompt management of severely ill pregnant women. Early recognition and effective management improves clinical outcomes with reduced morbidity and mortality.

2. Purpose

General principles can be applied in order to improve the recognition and subsequent management of severely ill pregnant women by;

1. Initial recognition of acute illness
2. The use of the Modified Early Obstetric Warning Score Chart (MEOWS)
3. Timely referral to senior medical staff
4. Timely referral to critical care

in accordance with best practice guidance Acutely Ill Patients in Hospital (NICE 2007).

This guideline applies to clinical staff and must be adhered to. Non-compliance with this guideline may be for valid clinical reasons only. The reason for non-compliance must be documented clearly in the patient's notes.

3. Definitions

3.1. Modified Early Obstetric Warning Score (MEOWS)

This is an obstetric early warning chart, similar to those in use in other areas of clinical practice, which can be used for all obstetric women. It facilitates timely recognition, treatment and referral of women who have, or are developing, a critical illness. The chart allows recording of physiological observations, with a clear action associated with any abnormal findings.

3.2. Critical Care

People with life-threatening injuries and illnesses benefit from critical care. Critical care involves close attention by a team of specially-trained health professionals, with a high ratio of staff to patients, providing support for failing organ systems. Within North Devon District Hospital, this care is provided in the combined High Dependency/Intensive Care Unit. It may rarely be necessary to refer patients to other highly specialised Intensive Care Units for specific expertise or therapies which are not available locally. Some enhanced monitoring and specific enhanced care may be provided within the Maternity Unit, with appropriately trained maternity staff and with input from Anaesthetic and Critical Care teams. Some Maternity staff are now trained to enhanced care standard, so addition to previous facility in last version.

4. Background

It is essential to note that pregnant women usually have the physiological reserve to compensate for problems until a point of abrupt deterioration. Therefore an anomaly of the physiological observations can be the first early warning sign of a critical deterioration.

Admissions to maternity services should have physiological observations recorded at the time of their admission or an initial assessment, together with a clear written monitoring plan that specifies which physiological observations should be recorded and how often (Maternal Critical Care Working Group, 2011).

There is a need for staff to recognise their limitations and to know when, how and to whom to escalate their concerns, whilst calling for appropriate assistance. The actions dictated by the MEOWS observations facilitate this for all staff groups.

All clinical staff in the Maternity Unit must undertake regular documented and audited training for the recognition and response of the severely ill pregnancy or postpartum woman.

5. Use of the Modified Early Obstetric Warning Score

The aim of the MEOWS is to identify those women at risk of deterioration as per the 'Patient at risk of deterioration' policy.

Triggering the MEOWS does not imply that the woman requires admission to critical care and does not define treatment. A clearly documented plan should take into account

- Whether the woman has a high or low risk pregnancy.
- The reason for the admission.
- The presence of co-morbidities.
- Agreed treatment plan.

A key feature of early warning systems is the link between recording abnormal observations and action. These abnormal observations prompt rapid referral to senior midwifery and medical staff, so that a plan of care can be made and instituted.

Any member of staff should refer to a more senior person if they have cause for concern.

5.1. Monitoring patients in Maternity Unit

Women admitted to Delivery Suite in active labour:

Follow appropriate monitoring guideline

If the woman becomes significantly unwell during her labour, the midwife will use the MEOWS chart for monitoring, and follow the algorithms for referral etc as directed the MEOWS chart.

Women in Maternity Unit who are not in active labour (antenatal or postnatal):

Monitoring on the MEOWS chart, at frequency as laid out in MEOWS, or more often if directed by medical staff.

NOTE: patients in theatre or under care of Recovery Team will have observations recorded on the anaesthetic chart. The MEOWS chart will be used after discharge from Recovery, and note should be made of the last observations in Recovery on the MEOWS chart.

The MEOWS is simply a tool to alert midwives to women who require urgent medical review and to empower junior medical staff and midwifery staff to seek senior help and advice. Any member of staff should refer to a more senior person if they have cause for concern.

See Appendix A for MEOWS monitoring chart and actions depending on Triggers.

At all times, consider conversations and use of Treatment Escalation Plan		
Stable No triggers	Low score group	Normal Observations minimum 12 hourly: respirations, pulse, oxygen sats, temp, AVPU
Low Risk 1 yellow trigger	Potential for deterioration	Inform Midwife in Charge who must assess patient and decide on monitoring plan or if escalation required Observations at least 4 hourly (more frequent could be required)
Medium Risk 1 Red or 2 Yellow Triggers or nurse/midwife concern	Deteriorating patient	Observations at least 2 hourly, (more frequent could be required) Ensure urine output is monitored and recorded Urgent Doctor F2 or higher (Bleep 299) review, who must define medical plan. If unable to improve vital signs in one hour, or serious concern call the SpR/SAS (Bleep 013) or Consultant Obstetrician Consider informing Duty obstetric Anaesthetist on Bleep 822 Consider call Outreach team on Bleep

		007
High Risk 2 or more Red Triggers	Critically ill patient	Observations at least hourly (more frequent could be required) Consider calling Obstetric Emergency Team Urgent Doctor F2 or higher (Bleep 299) review: must define medical plan, complete critically ill sticker. Resident Obstetrician (Bleep 013), on call consultant Obstetrician and Duty Obstetric Anaesthetist (Bleep 822) must be informed. If unable to improve vital signs in one hour consider escalation to Consultant Anaesthetist, Critical Care Consultant. Consider contacting Outreach Team Bleep 007.
Patient Imminent chance of cardio-respiratory arrest	Dial 2222 and request the Cardiac arrest team and the Obstetric Emergency Team If antenatal, consider need for imminent delivery of baby and Neonatal/Paediatric Teams	

The medical staff must make a clear management plan, and record this in the medical notes. If the patient improves following this plan, monitoring is continued following the MEOWS.

Multidisciplinary involvement is essential. The Consultant Obstetrician or senior Obstetrician on duty may need to contact other clinicians outside of the maternity services depending on the clinical condition and needs of the woman eg Cardiology, General Medicine, Anaesthesia, Critical Care doctors and Hospital coordinator (Bleep 500) may be contacted if appropriate. Some specialist services are covered by neighbouring hospitals eg neurosurgery, or by neighbouring hospitals out of hours eg cardiology.

5.1 Responsibility of Staff Groups:

All staff

Summon help in emergency situations by dialling 2222 or 2333 and asking switchboard to summon the appropriate emergency teams:

Cardiac arrest team, Obstetric Emergency Team (+/- Neonatal/Paediatric teams)

Consultant on call for Obstetrics

Consultants on call for Anaesthetics and/or Critical Care as appropriate

Should attend promptly when summoned to emergencies

Treatment and care should take into account patients' individual needs and preferences. Discussions and decisions made regarding the care of the woman and her baby must be documented in the woman's healthcare records, and as far as possible the woman should be enabled to make informed decisions about her ongoing care.

5.11 Midwives

MEOWS observations are recorded by the midwife or maternity care assistant on the score chart. This monitoring includes:

- Physiological observations according to the MEOWS, unless advised by a senior obstetrician to increase or decrease frequency for that individual patient.
- Monitor:
  - Respiratory Rate
  - Heart Rate
  - Temperature
  - Systolic and diastolic Blood Pressure
  - Oxygen Saturation
  - Inspired oxygen concentration
  - Whether the woman has passed urine or not
  - Lochia
  - Proteinuria
  - Colour of Liquor
  - Neurological Response
  - Pain Score
  - Feeling nausea or not
  - Look of the woman

Reduced or altered conscious level is not an early warning sign; it is a red flag which indicates established illness and should trigger urgent clinical review (MBRRACE, 2016).

Also consider monitoring biochemistry/haematology parameteres eg Hb, lactate, blood glucose, base deficit, arterial (or venous) pH. Changes in maternal condition must be escalated to the senior Obstetrician on duty. Maternity care plans to be reviewed/updated with clear reference to the Obstetric management plans.

For patients in Critical Care, appropriate daily midwifery care should continue

5.12 Obstetric Team

Overall management of the severely ill pregnant or recently pregnant woman will be the responsibility of the Consultant Obstetrician with multi-disciplinary support. While patients are in Critical Care, the Consultant Obstetrician will remain the 'named consultant' with responsibility for overall care, but management will be by Critical Care medical team.

To have the knowledge, understanding and expertise to respond to midwifery/medical team concerns triggered by the MEOWS and have an understanding of the parameters and trigger points.

To escalate concerns to the appropriate level of expertise within the service.

To refer appropriately to other specialist healthcare professionals who are involved in the care of pregnant or recently delivered women.

To document clearly in the patient notes all management plans following EACH review, and to communicate the management plan at each handover.

For patients in Critical Care, daily review and record in notes, and timely review when requested by Critical Care doctors.

5.13 Obstetric Duty Anaesthetist

The Obstetric Duty Anaesthetist will be involved in the assessment and management of the severely unwell pregnant or recently pregnant women. They will provide guidance in the decision to refer patients to the Critical Care Unit, in discussion with the Critical Care Consultant and the General On Call Consultant Anaesthetist. They will work with the Obstetricians and Midwives in order to provide optimal care for these patients.

5.14 Critical Care staff

Respond to the needs of the deteriorating patient by providing specialist care in conjunction with the obstetric, anaesthetic and midwifery team.

For patients in Critical Care who are ill from non-obstetric causes, keep the relevant medical teams informed of progress and management plans.

6. Escalation

Early recognition of critical illness, prompt involvement of senior clinical staff and authentic multi-disciplinary team working remain the key factors in providing high quality care to sick pregnant and postpartum women (MBRRACE, 2016).

All members of staff escalating concerns should do so as per the 'Handover of Care Maternity' guidelines.

Any member of the multi-disciplinary team can escalate concerns. However it is important to remember it is not a hierarchal process, but ensuring concerns are raised to the appropriate clinicians.

If the person escalating still has further concerns, it is important to continue to escalate to other members of the multidisciplinary team.

SBAR
The SBAR framework can be used to guide conversations, especially critical ones requiring immediate attention and action. It allows staff to communicate assertively and effectively, reducing the need for repetition (Institute of Innovation, 2009).

Escalation of concerns must include communication of;

- reason for the request to review in addition to
  - assessment findings and how they vary from the previous findings and/or normal ranges,
  - a current working diagnosis
  - a timeline in which the review is required,

The clinician who is escalating their concerns must record this action in the patient notes. SBAR stickers are available to provide this record (see Appendix).

6.1. When to involve clinicians outside the Maternity Service

In order to provide a safe effective Maternity service, all Maternity Staff must work within the limits of their competence. When necessary, additional expertise from other specialties should be sought to ensure safe patient care. This may include Critical Care clinicians, medical and surgical specialties as well as physiotherapy and pharmacology services.

There should be clear lines of communication between referring clinicians and Critical Care Consultants. Referral to Critical Care Consultants should be documented in the notes and should be communicated during handover using the SBAR tool. All admissions to Critical Care must be agreed by the Critical Care consultant.

Some examples of clinical conditions requiring specialist input:

- Covid-19
- Diabetic ketoacidosis.
- Recurrent Thromboembolic episodes.
- Poorly controlled Epilepsy.
- Serious cardiac disease.

Referral by Obstetricians to other Specialists should be documented in the medical notes and communicated during handover. SBAR stickers are available to help keep this record. These referrals should be verbal, clinician to clinician, and NOT made solely by email or letter or through third parties=. Referral to Critical Care should be directly by senior Obstetrician (usually Consultant) to Critical Care Consultant.

7. Risk Factors for Deterioration

It is essential that staff identify and respond to seriously ill pregnant/recently pregnant women and those at risk of deterioration, early. This has been shown to significantly reduce morbidity and mortality.
Some more common conditions in Maternity Unit with potential to deteriorate include:

- Antepartum and Postpartum Haemorrhage.
- Sepsis.
- Venous thromboembolism.
- Hypertensive disorders of pregnancy including pre-eclampsia, eclampsia, and HELLP.
- Any woman requiring general anaesthesia e.g. aspiration problems.
- Anaphylaxis.
- Covid-19, Influenza, Pneumonia.

Women with pre-existing medical co-morbidities further add to the risk of deterioration, for example:

- Diabetes (including gestational diabetes).
- Cardiac Conditions.
- Liver/Renal Conditions.
- Obesity.
- SLE (Lupus).

For any of these women, or where changes in the physiological observations have been identified, relevant guidelines should be sought and followed, and escalated as appropriate.

8. Agreed Criteria for transfer to Critical Care

The following conditions indicate transfer to Critical Care from the Maternity Unit:

- Requirement for Non-Invasive or Invasive ventilation.
- Invasive cardio-vascular monitoring (may be provided in Maternity Unit if midwifery staff with specific training are available).
- Vasopressor therapy.
- Organ failure requiring support.
- Decreasing conscious level.
- Deterioration of condition necessitating more intensive management.

The decision to admit a woman to Critical Care is made at Consultant level, and will involve Consultant Obstetrician, General On Call Consultant Anaesthetist and Consultant Critical Care Physician. Early communication of anticipated problems and review by General On Call Consultant Anaesthetist and/or Critical Care consultant may help prevent delay in appropriate management. Appropriate involvement of colleagues from other disciplines should be considered (e.g. Physicians/ Surgeons).

Admission to Critical Care should be timely: within 4 hours of making the decision to admit (MBRRACE, 2016).

However, Critical care support can be initiated in a variety of settings. Consider moving the woman to a theatre or recovery area to initiate critical care supportive treatment if Critical Care beds are not immediately available. The location for ongoing care will be decided by the Critical Care Consultant.

The decision to transfer severely ill woman must be clearly documented in the woman's healthcare records by each relevant clinician, including the criteria for transfer.

8.1 Transfer to Critical Care

Severely ill women who require transfer to Critical Care are transferred accompanied by the midwife, anaesthetist, trained assistant to the anaesthetist +/- hospital porter. Any other specialist clinicians directly involved in her care should be informed of the transfer. Appropriate monitoring, medications and emergency equipment which might be needed should be taken for the transfer.

8.2 Care in Critical Care

While patients are in Critical Care, the Consultant Obstetrician will remain the 'named consultant' with responsibility for overall care, but management will be by Critical Care medical team.

It is also essential that pregnant and postpartum women on the critical care ward receive routine antenatal and postnatal care, involving Obstetric and Midwifery Teams.

Midwives and Obstetricians have a responsibility to discuss with Critical Care staff the obstetric plan for antenatal women: any plan for delivery, timing and mode, will need to take into account balance of risks, with discussion between all involved specialty teams.

For post-natal women, midwives, neonatologists and Critical Care staff will facilitate bringing together the critically ill mother and her baby when it is possible and safe.

9. Equipment

Equipment for the Maternity Unit, Obstetric Theatre, and Critical Care will be as laid out in the relevant national guidelines for each area.

Emergency Boxes in Maternity Unit

Specific emergency boxes are available for managing some common and/or serious Obstetric emergencies:

- Sepsis
- Haemorrhage
- Pre-eclampsia and Eclampsia
- Airway

These boxes are stored prominently in the Delivery Suite and Obstetric Ward areas, and should be used in addition to the usual monitoring, cardiac arrest trolley etc for these specific emergencies.

Equipment is also immediately available for Perimortem Caesarean Section

10. Education and Training

Midwifery and obstetric medical staff attend an annual PROMPT training day (or equivalent) as a minimum, which includes the Recognition of severely ill pregnant/recently pregnant woman.

The Maternity Services Training Needs Analysis identifies the training required for all staff.

Annual resuscitation training is undertaken as per the Trust Resuscitation Policy.

11. Monitoring Compliance with and the Effectiveness of the Guideline

Process for Implementation and Monitoring Compliance and Effectiveness

An up to date copy of this guideline is available to all staff on the Trust intranet. Reporting for non-compliance and review of effectiveness of the guideline will be identified through the risk process within maternity and led by appointed maternity risk leads. The maternity services audit process will include review of this guideline. All versions of these guidelines will be archived in electronic format by the author within the Maternity Team policy archive. Any revisions to the final document will be recorded on the Document Control Report. To obtain a copy of the archived guidelines, contact should be made with the Maternity team.

12. References

- Guidelines for the Provision of Intensive Care Services Edition 2 2019 https://www.ficm.ac.uk/sites/default/files/gpics-v2.pdf

- Marian Knight, Kathryn Bunch, Derek Tuffnell, Judy Shakespeare, Rohit Kotnis, Sara Kenyon, Jennifer J Kurinczuk (Eds.) (Eds.) on behalf of MBRRACEUK. Saving Lives, Improving Mothers' Care. University of Oxford (2019). https://www.npeu.ox.ac.uk/assets/downloads/mbrrace-uk/reports/MBRRACE-UK%20Maternal%20Report%202019%20-%20WEB%20VERSION.pdf

- Maternal Critical Care Working Group. Providing equity of critical and maternity care for the critically ill pregnant or recently pregnant woman (2011).

- Royal College of Obstetricians and Gynaecologists, Royal College of Midwives, Royal College of Anaesthetists, Royal College of Paediatrics and Child Health. Safer Childbirth (2007)Care of the Critically Ill Woman in childbirth: enhanced maternal care August 2018 RCOA, ICS, RCOG, FICM, RCM, OAA https://www.rcoa.ac.uk/sites/default/files/documents/2020-06/EMC-Guidelines2018.pdf

- ICS Covid-19 Resource Hub https://www.ics.ac.uk/ICS/COVID-19/COVID-19/COVID-19_Home.aspx?hkey=d176e2cf-d3ba-4bc7-8435-49bc618c345a

- Coronavirus Covid -19 infection in pregnancy information for healthcare professionals version 11: 24 July 2020 https://www.rcog.org.uk/globalassets/documents/guidelines/2020-07-24-coronavirus-covid-19-infection-in-pregnancy.pdf

13. Associated Documentation

- Patients at Risk of Deterioration Policy
- Handover of Care (Maternity) Guidelines
- Antepartum Haemorrhage Guidelines
- Post-partum Haemorrhage Guidelines
- Maternal Sepsis Guideline
- Investigation and Management of Acute Venous Thromboembolism in Pregnancy Guideline
- Management of severe pre-eclampsia & eclampsia guidelines
- Obesity in pregnancy guideline
- Diabetes in Pregnancy guideline
- Resuscitation Policy
- Critical care admissions guideline
- Contingency Plan for Increased Demand on Critical Care Services Policy

Appendix A – Modified Obstetric Early Warning Score

MEOWS March 2019 DRAFT 2.pdf

Northern Devon Healthcare NHS Trust

Name: D.O.B. No:

Escalation Policy
It is your professional responsibility to seek help if required, especially when there is cause for concern. If the situation is not resolved, continue to a more senior person.

Modified Early Obstetric Warning System - ME(O)WS

For use in Maternity only

The aim of this ME(O)WS chart is to identify those women at risk of deterioration. 'Triggering' the ME(O)WS helps to flag up women who require urgent medical review.

It is your professional responsibility to seek help if required, especially when there is cause for concern. If the situation is not resolved, continue to a more senior person.

Please note that raised respiratory rate is often the clearest indicator of critical illness, yet is monitored least!

Mandatory ME(O)WS scoring for:

All women who require observations

as per Patient at Risk of deterioration (PAR) policy Appendix C

Recovery observations:

In recovery one-to-one observation until airway control (recorded on yellow form) if general anaesthetic.

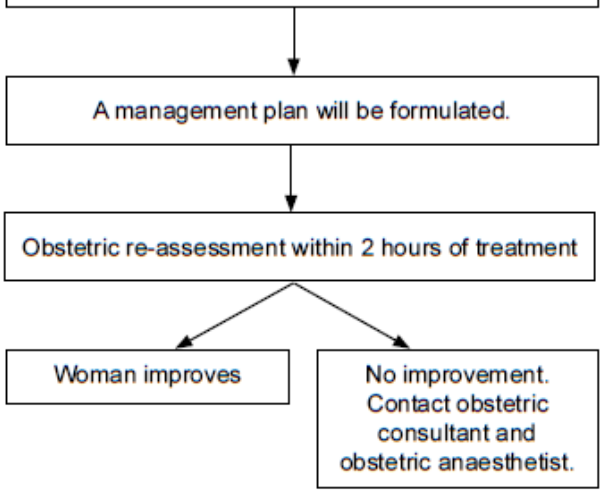
- Every 5 mins for 15 mins
- Every 15 mins for 30mins
- Every 30 mims for 1 hour
- Then 2 hourly and 4 hourly

If one yellow trigger, review observations schedule with co-ordinator and obstetrician.

If ME(O)WS is triggered:

1 yellow – alert trained midwife / fresh eyes

1 red or 2 yellow – escalate to co-ordinator and obstetrician



Appendix B - SBAR sticker

Patient Name:		**Date + Time**
S	**Situation** (Gest, Parity, Stage of labour, reason for admission etc)	
B	**Background** (AN history, Risk Factors, Birth preferences etc)	
A	**Assessment** (Actions/Interventions if any, Monitoring, Reviews etc)	
R	**Recommendations** (Actions required eg Escalate, continue, repeat VE. NOTE TIMELINE)	
Escalate to (name and grade) **Handover to** (sign and print)		**Escalated by/Handover from** (sign and print)

Appendix C
Covid-19

Due to rapidly changing information and management regarding this new disease, please refer to latest updated information on care for patients with Covid 19

Trust information in BOB

- **Publications by relevant organisations with up to date versions of guidance**

eg

https://www.rcog.org.uk/globalassets/documents/guidelines/2020-07-24-coronavirus-covid-19-infection-in-pregnancy.pdf

https://www.ics.ac.uk/ICS/COVID-19/COVID19.aspx?hkey=d176e2cf-d3ba-4bc7-8435-49bc618c345a

The latest version of these documents should be used