1. Introduction and Who Guideline applies to

For the vast majority of women, childbearing is a normal life event. Physiological adaptations enable safe pregnancy, childbirth and postnatal recovery. However, these physiological adaptations, combined with the relative rarity of severe maternal illness can come together to make recognition of impending maternal collapse difficult.

Implementation of an early warning scoring system, modified for pregnancy / postnatal period, offers the opportunity to recognise the early warning signs for impending maternal collapse (arrest) which can be very sudden, unexpected, or difficult to predict and initiate appropriate response.

The implementation of such a system is in line with numerous best practice recommendations (including CEMACH 2007 & MBRRACE-UK 2016).

This guideline applies to all staff (including those on bank contracts) working within UHL caring for pregnant or postnatal women. This includes care in all settings (midwifery led or shared care; community or hospital setting). This is likely to include midwives, obstetricians, anaesthetic, critical care staff and nursing and medical staff where pregnant or postnatal women are on non-maternity wards.

This guideline applies to all pregnant or postnatal women, irrespective of location Within UHL.

For the purpose of this guideline the postnatal period is considered to be from delivery up to 6 weeks after the birth of the baby (irrespective of gestation at delivery).

Related Documents

Intrapartum Care in Labour
Pyrexia and Sepsis in Labour- A guideline for management
Pregnant Women Admitted Outside Maternity Unit
**Background:**

Early Warning Scoring Systems are a simple, quick-to-use tool based on routine physiological observations. The scoring of these observations can provide an indication of the overall status of the patient’s condition. Prompt action and urgent medical review when indicated, allow for appropriate management of women at risk of deterioration. This guideline therefore applies to all pregnant, labouring and postnatal women as identified in section 2.

There are other Early Warning Scoring Tools within UHL. The Trust now uses the National Early Warning Scoring tool (NEWS2) for all adult patients, within this there is a NEWS2 model for patients diagnosed with hypercapnia. Paediatrics use a PEWS version.

The Maternity Early Obstetric Warning System (MEOWS) tool has been specifically modified to reflect the physiological adaptations of normal pregnancy and should therefore be used for pregnant, labouring and postnatal.

### 2. When to use the maternity early warning scoring system

MEOWS assessments must be undertaken and documented, regardless of location, on initial assessment and thereafter 12 hourly or as indicated by the score, for:
- All women in active labour and all women following delivery. Routine intrapartum observations should also be performed as per the intrapartum care guideline.
- All antenatal admissions to hospital
- All postnatal admissions to hospital
- All in-patients to have ongoing MEOWS assessments, regardless of the reason for admission / stay (see below)
- All non-routine and / or non-scheduled contacts, either antenatal or postnatal
- If any health problem is suspected at any time
- If the mother ever reports feeling 'unwell'

### 3. Who should perform MEOWS:

- This will usually be performed by Midwives
- It may also be performed by Maternity Care Assistants providing they have undergone the appropriate training as per the Training Needs Analysis
- It may also be performed by student midwives under the supervision (direct/indirect) of the midwife mentoring them providing they have been assessed competent to do so.

### 4. The Scoring System: Parameters

MEOWS assessments must be undertaken when indicated, as detailed in section 6.0, and documented on eObs on the Nervecentre platform (see Nervecentre user guide on InSite). Should Nervecentre not be available, the paper MEOWS assessment tool should be used (Appendix I). MEOWS paper assessment charts should be filed as follows:
- MEOWS charts generated during an in-patient episode are to be filed in the green maternity notes on discharge from hospital.
- MEOWS charts generated in the community are to remain with the mother, securely attached in the hand-held / post-natal record.

Scoring is based on the following parameters:

<table>
<thead>
<tr>
<th>Score</th>
<th>3</th>
<th>2</th>
<th>1</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
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<td>91-99</td>
<td>100-130</td>
<td>131-139</td>
<td>140-160</td>
<td>&gt;160</td>
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<tr>
<td>Diastolic BP</td>
<td>≤ 49</td>
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<td>90-99</td>
<td>100-109</td>
<td>&gt;110</td>
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<td>60-100</td>
<td>101-110</td>
<td>111-129</td>
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<td>Respiratory Rate</td>
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<td>26-30</td>
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<tr>
<td>Conscious level</td>
<td>New agitation/confusion</td>
<td>ALERT</td>
<td>V Responds to VOICE</td>
<td>*P Responds to PAIN</td>
<td>*U Unconscious</td>
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</tbody>
</table>

*key indicators*

- Additionally, there are obstetric parameters on the chart which do not have a numerical score but may trigger actions if response falls into amber or red area.

5. The Scoring System: Actions (Dr to review if any RED scores)

| Score 0: | - Repeat in twelve hours for all in patients  
- Community assessment for non-scheduled contact, score of 0 and NO other risk factors / indications: repeat not necessary.  
- Exercise professional judgement and document rationale |
| Score 1-2: | - Refer to Qualified/Registered Professional  
- Midwife devises plan & documents when to repeat (i.e. in 1 hour / 4 hours / 12 hours)  
- Continue with at least 12 hourly observations |
| Score 3: | - Refer to Qualified/Registered Professional  
- Increase frequency of observations to 4 hourly  
- Consider need to increase frequency of observations to intervals of less than 4 hours |
| Score 3 within 1 parameter: | - Refer to Qualified/Registered Professional to re-check observations  
- Observation frequency increased to at least hourly  
- Commence fluid balance monitoring, consider urinary catheter  
- Midwife to inform Medical staff of at least Middle Grade (Registrar) level: request to review as soon as possible and within 60 minutes  
- Consider transfer to delivery suite  
- Inform resident anaesthetist  
- Check oxygen saturations and administer oxygen as appropriate  
- Check for sepsis |
|---|---|
| Score 4-5 | - Refer to Qualified/Registered Professional to re-check observations  
- Minimum of hourly observations  
- Commence fluid balance monitoring  
- Medical staff of at least Middle Grade (Registrar) level to review within 30 minutes  
- Registrar seeks senior advice  
- Inform resident anaesthetist  
- Transfer to delivery suite /inform delivery suite coordinator (if within Women’s Unit)  
- Check oxygen saturations and administer oxygen as appropriate  
- Check for sepsis |
| Score 6 or more | - Immediate transfer to delivery suite/inform delivery suite coordinator  
- Request immediate review by most senior resident doctor (within 30 minutes)  
- Senior resident doctor refers to Consultant Obstetrician and review within an hour  
- Inform resident anaesthetist  
- Anaesthetist to inform Anaesthetic Consultant  
- Contact Deteriorating Adult Response Team (DART) /consider direct contact with ITU  
- Observations documented at least every 15 minutes  
- Check oxygen saturations and administer oxygen as appropriate  
- Commence HDU chart where score >6  
- Check for sepsis |
| Score ≥ 4 in Women admitted outside Maternity | - Please contact the delivery suite coordinator to plan care and contact Obstetric and Anaesthetic SpR on call |

Please note that actions may need to deviate from the above in individual cases; where this applies, the management plan should be documented.

### 6. Ongoing Observations: Normal Scores (0):

- ‘Normal’ in a MEOWS context is a woman who has had two consecutive MEOWS scores of 0 and no additional indications.
- In-patients who have two consecutive MEOWS scores of 0 can have MEOWS observations reduced to once daily.

- If the woman reports any problems, feeling unwell, if score is >0, or any problem is suspected, then MEOWS frequency is increased back to 12 hourly (minimum, dependent on findings), until ‘normal’ again.

### 7. Education and Training

- Education will be provided for all clinical staff working with the UHL Maternity Services by the Maternity Education Team; this is detailed in the Training Needs Analysis and includes the use of MEOWS as a tool for the recognition of the severely ill woman and maternal resuscitation.

### 8. Monitoring Compliance

<table>
<thead>
<tr>
<th>What will be measured to monitor compliance</th>
<th>How will compliance be monitored</th>
<th>Monitoring Lead</th>
<th>Frequency</th>
<th>Reporting arrangements</th>
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<tbody>
<tr>
<td>All MEOWS charts should be completed on initial assessment</td>
<td>Audit of the MEOWS charts</td>
<td>Midwifery Matrons</td>
<td>Monthly</td>
<td>Reported on the Clinical Dashboard</td>
</tr>
<tr>
<td>All MEOWS charts should be completed 12 hourly or as indicated by the score</td>
<td>Audit of the MEOWS charts</td>
<td>Midwifery Matrons</td>
<td>Monthly</td>
<td>Reported on the Clinical Dashboard</td>
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<tr>
<td>Appropriate action has been taken according to each score</td>
<td>Audit of the MEOWS charts</td>
<td>Midwifery Matrons</td>
<td>Monthly</td>
<td>Reported on the Clinical Dashboard</td>
</tr>
</tbody>
</table>

### 9. Supporting References

- MBRRACE-UK (2016) Saving Lives, Improving Mothers’ Care
- Maternal collapse in pregnancy and puerperium RCOG green top guideline NO: 56, January 2011

10. Key Words

Assessment, Deterioration, Maternal, MEOWS, Observation

The Trust recognises the diversity of the local community it serves. Our aim therefore is to provide a safe environment free from discrimination and treat all individuals fairly with dignity and appropriately according to their needs. As part of its development, this policy and its impact on equality have been reviewed and no detriment was identified.

<table>
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<th>Development and approval record for this document</th>
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<tr>
<td><strong>Author / Lead Officer:</strong></td>
</tr>
<tr>
<td><strong>Reviewed by:</strong></td>
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<table>
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Appendix I: Modified Early Obstetric Warning Scoring Assessment Tool

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### UHL MATERNITY RISK ASSESSMENT

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<th>MEOWS indication (please tick all that apply)</th>
<th>Health problem suspected</th>
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<tbody>
<tr>
<td>Labour</td>
<td></td>
</tr>
<tr>
<td>Antenatal admission</td>
<td>Mother reports feeling 'unwell'</td>
</tr>
<tr>
<td>Postnatal admission</td>
<td>Allergies</td>
</tr>
<tr>
<td>Inpatient</td>
<td></td>
</tr>
<tr>
<td>Non-scheduled/Non-routine contact</td>
<td></td>
</tr>
</tbody>
</table>

### SBAR Reporting

For good communication about patients between all health professionals, use SBAR tool before calling

- **S (Situation)** what is going on now?
  - State your name and ward / department
  - I am calling about patient's name
  - The reason I am calling is .................
  - Observations are

- **B (Background)** what has happened?
  - State the admission diagnosis and date of admission
  - Relevant medical history
  - A brief summary of treatment

- **A (Assessment)** what you found / think is going on?
  - State your assessment of the patient
  - Have appropriate documents available, e.g. EWS, nursing and medical records, resus status, allergies etc

- **R (Recommendation)** what you want to happen
  - I would like (state what you would like done)
  - Determine timescales, e.g. NOW!
  - Is there anything I should do?
  - Other referrals? e.g. Acute Care Team

### RISK ASSESSMENT CONTENTS

- Modified Early Obstetric Warning Score (MEOWS)
- Adult Sepsis Screening and Immediate Action Tool
- Infection Risk Management Tool
- Pregnancy and Postnatal VTE Risk Assessment
- Waterlow/Patient Handling Risk Assessment
- Nutritional Assessment
- Peripheral IV Cannula Care Bundle
- Urinary Catheter Care Pathway
MEOWS ASSESSMENT

Score 0
- Repeat in twelve hours for all in patients.
- Community assessment for non-scheduled contact, score of 0 and NO other risk factors/indications: repeat not necessary. Exercise professional judgement and document rationale.

Score 1 - 2
- Refer to Qualified/Registered Professional.
- Midwife devises plan & documents when to repeat (i.e. in 1 hour / 4 hours / 12 hours).
- Continue with at least 12 hourly observations.
- Refer to Qualified/Registered Professional to recheck observations.
- Consider need to increase frequency of observations to 4 hourly.

Score 3
- Check oxygen saturations and administer oxygen as appropriate.
- Refer to Qualified/Registered Professional to recheck observations.
- Observation frequency increased to at least hourly.
- Commence fluid balance monitoring. Consider urinary catheter.
- Midwife to inform Medical staff of at least Middle Grade (Registrar) level: request to review within 60 minutes.
- If Doctor not available: contact Critical Care Outreach Team.
- Consider transfer to delivery suite.
- Inform resident anaesthetist.
- Check for Sepsis.

Score 3 within 1 parameter ANY OBSERVATION
- Check oxygen saturations and administer oxygen as appropriate.
- Refer to Qualified/Registered Professional to recheck observations.
- Minimum of hourly observations.
- Commence fluid balance monitoring.
- Medical staff of at least Middle Grade (Registrar) level to review within 30 minutes.
- If Doctor unable to attend: contact Critical Care Outreach Team and ask for review.
- Registrar seeks senior advice.
- Inform resident anaesthetist.
- Transfer to delivery suite / inform Delivery Suite Coordinator (if within the Women's Unit).
- Check for Sepsis.

Score 4 - 5
- Check oxygen saturations and administer oxygen as appropriate.
- Immediate transfer to delivery suite / inform Delivery Suite Coordinator.
- Request immediate review by most senior resident doctor (within 30 minutes).
- Senior resident doctor refers to Consultant and review within an hour.
- Inform resident anaesthetist.
- Anaesthetist to inform Anaesthetic Consultant.
- Contact Critical Care Outreach Team / consider direct contact with ITU.
- Observations documented at least every 15 minutes.
- Commence HDU chart where score is greater than 6.
- Check for Sepsis.

Score 6 or more
- Please contact the delivery suite co-ordinator to plan care and contact Senior Obstetric Reg and Anaesthetic SpR on call.

Key:
- Pain
  - 0: None
  - 1: Mild
  - 2: Moderate
  - 3: Severe
- Motor Block
  - 0: Full power / sensation
  - 1: Abnormal power / sensation

Any woman with a score greater than 6 should be commenced on an HDU chart.

Please assess the additional red scores as a minimum twice a day, unless otherwise indicated.
<table>
<thead>
<tr>
<th>Date/Time</th>
<th>Resp.</th>
<th>Temp.</th>
<th>Heart Rate</th>
<th>Systolic Blood Pressure</th>
<th>Diastolic Blood Pressure</th>
<th>Neuro Response</th>
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<td>Pain</td>
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**MEOWS ASSESSMENT Chart**

| Pain Score (0-3) | 3 | 2 | 1 |
|------------------|   |   |   |
| Saturation (%)   | 95 - 100% | 91 - 94% | ≤90% |
| O2 conc (%)      | ≤1% | ≤4% | ≥10% |
| Motor block      | 1 | 2 | 3 |
| Passed urine Y/N | Y | ≤Y | N |
| Proteinuria      | ≤2+ | 2+ | ≥3+ |
| Liqueur          | Clear or Pink | Green | Stagnant |
| LeuNa            | Normal | Heavy | Total |
| Signs of Infection | Yes | No | No |

**Total Bed Score**

| Instler / Signature | 4 |

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This document is a Maternity Early Warning Scoring System V4.1, reviewed by A. Akkad on May 2021. It is part of the Maternity Governance Group's oversight, with the next review scheduled for May 2024. The definitive version is stored on InSite in the Policies and Guidelines Library.
Title: Maternity Early Warning Scoring System V4.1
Reviewed by: A Akkad
Approved by: Maternity Governance Group: 19/05/2021
Trust Ref No: C16/2018
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Title: Adult Sepsis Screening and Immediate Action Tool
Complete and file in medical record

1. At least one of the following present?
   - Early Warning Score 3 or more
   - Patient looks unwell
   - Concern regarding acute change in mental state

2. Is the clinical picture suggestive of an infection?
   - YES
   - NO
   - If there is a high probability of a non-infective explanation for clinical features (e.g. AMI, PE, liver failure, pancreatitis or stroke) then manage as low risk of sepsis

3. At least one red flag present?
   - YES
   - NO
   - A - Respiratory rate 25/min or more
   - B - New need for >40% O2 to keep saturations over 91% (saturations > 87% in COPD)
   - C - Systolic BP < 91mmHg or fall of 40 from normal
   - D - HR >130/min
   - E - New onset delirium
   - F - No urine output for 16hrs or UO<10ml/hr
   - G - New onset dysuria
   - H - Responds only to voice or pain / unresponsive
   - I - Non-blanching rash / mottled / ashen / cyanotic
   - J - Neutropenia or chemotherapy within last 6 weeks

Low Risk of SEPSIS
- Treat to local protocols, review if patient deteriorates. Consider other diagnoses.

Moderate Risk of SEPSIS
- Sepsis Likely / Present
  - Inform responsible clinician
  - Consider Sepsis Six interventions (see overload)
  - Begin at least hourly observations
  - Act on early warning score triggers
  - Send appropriate microbiological samples (including blood culture)
  - Send blood samples for FBC, CRP, U&E, LFT coagulation, Blood gas (venous or arterial)
  - Glucose, ensure results are reviewed
  - Source specific antimicrobial prescribing based on local policy (e.g. 4hr CAP bundle)

  - If EWS 4 or more AND Lactate > 2 or AKI > 2
  - If YES then treat as RED FLAG SEPSIS

Time zero = Time of abnormal blood results availability

HIGH Risk of SEPSIS
- Red Flag Sepsis
  - This is a time critical condition, immediate action is required!
  - Start Sepsis Six bundle NOW (see overload)
  - Inform resident senior doctor
  - Inform outreach team (ward patients):
    - BLEEP LRI 5293 / GH 2808 / LGH 3457
  - Inform Sepsis Team (ED): CALL #6826

  - Time Zero:
  - Target Time:

Delivery of Sepsis Six by junior staff must not be delayed. Resident senior doctor review can stop the process on the following grounds:
- Patient is End of Life
- Patient low suspicion of infection
- Red Flag due to chronic disease

SND106A 06/2017
Sepsis Six Bundle

Complete in one hour.
Actions should be carried out simultaneously.

Use sepsis box / pack to support delivery of sepsis six

• Use sepsis box/pack to support delivery of sepsis six

1 Administer supplementary oxygen (if required)
• Aim to keep saturations > 94%
  COPD: Adjust target saturations to 88-92%

2 Blood Culture & Source Management
• Take blood cultures (before IV antibiotic)
• Think source confirmation and control!
• Consider also sputum, urine, CSF, line culture/removal
• Involve appropriate surgical team / radiologist as indicated
• For Community Acquired Pneumonia start 4 hr CAP Bundle

3 Give IV antibiotics
  PRESCRIBE STAT (TIMED). GIVE YOURSELF OR MAKE SURE SOMEONE DOES
  • Red Flag Sepsis: Meropenem IV 1g stat (+/- second dose at 8hrs) and review at first inpatient consultant assessment (microbiology advice may be needed at this stage)
  • Sepsis: According to local antimicrobial policy

4 Give a fluid challenge
  Check and monitor response
  If SBP <90mmHg or Lactate >2
  • Give 500mls Hartmann’s or 0.9% NaCl over 15 mins, repeat once if necessary
  • Senior resident doctor review to exclude other causes of shock before giving up to 36 ml/kg
  If SBP >90mmHg and Lactate <2 consider IV fluids

5 Measure lactate
• Obtain blood gas - venous or arterial
• If lactate >4mmol/L refer to critical care
• Ensure samples are sent for FBC, CRP, U+E, LFT, coag screen
• Repeat lactate after fluid challenge

6 Measure urine output
• Ensure hourly fluid balance chart commenced
• Catheterise if AKI / SBP <90 / Lactate >2
• Monitor Vital Signs at 15-30mins intervals until EVS below 3

Critical Care Medical Team refer if patient:
• SBP <90 and lactate >2 after fluid resuscitation
• Has Red Flag Sepsis and lactate >4
• Has Red Flag Seps and requires >50% O2
• Has Red Flag Seps and significant respiratory/ cardiovascular CNS or renal dysfunction.

Supporting Resources

Sepsis Frequently Asked Questions
How to: Take a blood culture Draw up meropenem Use a sepsis box

MEOWS ASSESSMENT

Time Started  Name  Reason not administered

Time Taken  Name  Reason not taken

Time Given  Name  Reason for departure from prescribing guidance

Time Given  Name  Reason not given

Time Taken  Name  Reason not done

Time Started  Name  Reason not started

Time Referred  Name of Referrer  Reason NOT Referred:
Name of ICU Doctor

UHL Sepsis Pathway for Adult Patients approved by UHL Sepsis Working Party. April 2017 Contact: John Parker, UHL Sepsis Lead


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**INITIAL PLAN FOLLOWING FIRST MEOWS TOTAL**

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<th>Total MEOWS</th>
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**SUMMARY OF PLANS**

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*Any woman with a score of 4 or 5 on more than two occasions MUST go on the HDU chart*