Maternity Early Warning System

MEWS factsheet for nurses

While most childbearing women move through pregnancy, birth and postpartum uneventfully, early recognition of and response to acute illness is crucial for those who become unwell.

At times, the failure to recognise deterioration, escalate care and respond appropriately can cause preventable harm.

Normal changes in physiology during and shortly after pregnancy can mean the adult vital signs chart is less suited to detection of early deterioration in pregnant or recently pregnant women than in the general adult inpatient population.

To address this, we are encouraging maternity services, and the wider hospital, to establish the **maternity early warning system (MEWS)**. This is a parallel system for managing the care of pregnant, or recently pregnant (up to and including 42 days later), women who deteriorate while receiving care in hospital.

Important points for nurses

- Nurses are key in identifying the deteriorating maternity patient
- Both systolic and diastolic blood pressures contribute to the total MEWS score
- Apply exemption 'EX' only in maternity services
- Level of consciousness
  - normal is equivalent to A ('alert')
  - abnormal is equivalent to V, P and U
- Women transferring from ICU, HDU or PACU need to be on a MEWS

Your role

Nurses play an important role in identifying deterioration early and escalating care during pregnancy and after birth, or when a pregnancy ends.

If you are caring for women who are pregnant or have been in the last 42 days (such as post-medical termination or postnatal, or if they are attending hospital for other reasons and are currently/recently pregnant), the observations you record should be on a maternity vital sign chart (MVSC). The frequency of vital sign observations should be planned with the woman and medical team, and clearly documented in the woman's care plan or clinical notes.

Women who have complex conditions during pregnancy, labour or birth that involve an in-hospital stay will need closer monitoring and assessment through the MEWS.

About the MEWS

The MEWS consists of a nationally standardised MVSC or electronic equivalent with an early warning score and a localised escalation pathway. It is supported by measurement, a clinical communication tool, education and clinical governance.

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Effectively implementing the MEWS will lead to improved outcomes for women and relies on having a culture of care where it is normal for clinicians to seek, and receive, timely advice from appropriately skilled responders.[1]

Evidence to support having a maternity vital signs chart (MVSC)

Pregnant women have a different physiology from the general adult population. For example:

- the vital sign values of a pregnant woman could be interpreted as abnormal in a non-pregnant woman[2, 3]
- when a usually healthy pregnant woman becomes unwell, she often has the ability to compensate for a period of time before suddenly and rapidly deteriorating.[2]

Therefore, measuring vital signs against a standard adult vital signs chart may be less sensitive in accurately recognising a pregnant woman's health status.

Evidence shows the use of a maternity-specific vital signs chart helps to effectively recognise when a pregnant woman is unwell.[4, 5, 6]

An early warning system specifically designed for pregnant women sets tighter parameters and thresholds for identifying specific pregnancy-related conditions. It also supports clinicians to recognise any sudden or rapid changes in a woman's condition, and to respond appropriately.

When to use the MVSC with pregnant or recently pregnant women

You should use the MVSC for any pregnant, or recently pregnant (≤ 42 days), woman who is assessed as needing or admitted requiring repeat observations of vital signs, as per hospital vital signs policy.

Women who require intensive or high-dependency care do not require the MVSC until they are transferred to the ward area, when the final vital signs should be charted on an MVSC with a plan to address any ongoing abnormalities in a set timeframe.

Women who are well and healthy and under primary maternity care should plan the frequency of observations with their lead maternity carer (LMC) midwife, who documents them in the care plan or clinical record (as usual).

The escalation and response systems your area establishes will follow a mandatory pathway for getting help from progressively more senior and appropriately skilled responders as a woman's condition deteriorates. These systems make it possible for responders to intervene early, prevent adverse outcomes, reduce severe maternal morbidities – such as needing a blood transfusion, admission to an intensive care unit, or stroke – and foster a clinical culture of routinely calling for help when needed.[7, 8]

How the MEWS works

Maternity vital signs

The eight core vital signs set to establish a total MEWS score includes:

- respiratory rate (RR)
- supplemental oxygen administration
- oxygen saturation determined by pulse oximetry (SpO_2)
- heart rate (HR)
- systolic blood pressure (SBP)
- diastolic blood pressure (DBP)
- body temperature (temp)
- level of consciousness (LOC).

Total MEWS score

You use the eight core vital sign set to calculate a total MEWS score. In both pregnant and non-pregnant women, early warning scores help to identify acute illness and deterioration.

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The score increases the further a woman's vital signs are from the normal range. Higher scores are linked with increased morbidity and mortality.

Because of the importance of hypertensive disease in pregnancy, both systolic and diastolic blood pressure are involved in this calculation. Systolic blood pressure and diastolic blood pressure are recorded as separate parameters to make it easier to assign the appropriate triggers to two separate results from one recording. This approach differs from the general adult chart, which only scores systolic blood pressure. Both high systolic and diastolic blood pressures are important parameters in screening, diagnosing and treating pre-eclampsia. High systolic blood pressure with the need for treatment[9] and low systolic blood pressure as a screening for sepsis are both strong reasons for the separate scores.

Additional observations may also include documentation of pain score, intrathecal opiates or patient-controlled analgesia.

Possible scores for each core vital sign parameter range from 0 (normal range) to 3 (grossly abnormal). You add together the individual scores for each core vital sign parameter to calculate the total score. The total MEWS score can trigger escalation of clinical care and review according to your local escalation pathway.

Single vital signs that are very abnormal can also trigger a rapid escalation, regardless of the total MEWS score.

What 'apply exemption (EX)' means in the total MEWS score box

When calculating a total MEWS score, 'apply exemption (EX)' only applies if you are working in **maternity services**. It is applied when it is not necessary to take all vital signs for a woman.

In this instance, please record 'EX' for 'exemption' in the total score box for:

- regular repeated blood pressure recordings, such as every 15 minutes following antihypertensive administration
- a woman who requires repeated respiratory rate observations following intrathecal opioid administration
- a woman who requires repeated respiratory rate observations because of a patient-controlled analgesia pump
- a woman requiring an iron infusion.

In non-maternity services a full set of vital signs is always completed. It is not an option to use 'EX' for exemption.

Record all vital signs on the one chart (rather than an MVSC and an alternative chart such as an intrathecal chart). This is to both visualise change and to prompt initiation of a full set of observations and appropriate assessment, either as part of a routine observation schedule or in response to deterioration.

This requirement also makes it clear that you should never leave the total MEWS score box blank. If any of the observations taken between routine full sets of recordings are in the pink or blue zones when using 'EX', this should still trigger activation of the relevant response.

Level of consciousness

Changes in level of consciousness may be obvious (unconscious) or subtle (personality change) and may reflect a variety of causes.

Assessing level of consciousness as 'normal' or 'abnormal' is a simple approach. 'Normal' on the MVSC relates to 'A' ('alert') on the adult chart and 'abnormal' on the MVSC relates to 'V' ('voice'), 'P' ('pain') or 'U' ('unresponsive') on the adult chart.

An abnormal level of consciousness is always a significant abnormality in the maternity population.

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Escalation pathway

The escalation pathway specifies what actions to take when a total MEWS score, or a single parameter score, indicates the woman is deviating from the normal range.

The escalation pathway outlines a tiered clinical response to increasingly abnormal MEWS scores. The rapid response team becomes involved if a woman reaches the threshold for this level of care.

Remember you can escalate care for any woman you, they or their family or whānau are worried about regardless of vital signs or early warning score.

Monitoring plan

A monitoring plan sets out the requirements for frequency of vital sign monitoring and any observations in addition to the core observation set.

The lead clinician (for some this may be their LMC) and/or clinical team with overall responsibility for the woman's care agree to the plan and include it in the woman's clinical record.

Rapid response team

The rapid response team includes doctors and nurses with skills in critical care. They attend when critical physiological deterioration is recognised and provide immediate bedside clinical support 24 hours a day, seven days a week.

For maternity patients, this care may also include consulting with or directly involving midwives and relevant medical (obstetric, physician, anaesthetic) staff.

Why NOT FOR CPR and NOT FOR RRT are not on the MVSC

Maternity patients are usually young well women and it would be highly unlikely they would not be for CPR or RRT, therefore these have not been included in the MVSC.

Managing the privacy of the MVSC if the woman is concealing her pregnancy

By taking a good history of the woman, you will know where to best display the chart and document it accordingly. For example, a pregnant woman admitted to an orthopaedic ward at eight weeks' gestation after a motor vehicle accident may not have disclosed her pregnancy to her family or whānau, so having or taking the chart at the bedside would be inappropriate.

All practitioners should be aware of the Privacy Act 1993 and their individual hospital protocols when using documentation, remembering all clinical notes should be treated as confidential.

More information

If you require more information about MEWS email your query to mews@hqsc.govt.nz and we will pass it on to the appropriate team member

The clinical leads for the MEWS national programme team are:

Gail Austin, maternity specialist (midwife) Health Quality & Safety Commission

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Dr Suzanne Esson, clinical lead obstetrics.

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