

# Maternity Early Warning System



## MEWS factsheet – the eight vitals

This factsheet sets out the rationale for 'the eight vitals'. These are the parameters that create the maternity early warning system (MEWS) score on the national maternity vital signs chart (MVSC).

### Respiration rate (RR)

Research has identified respiratory rate as the earliest and most sensitive indicator of early deterioration in maternal wellbeing. Until proven otherwise, tachypnoea is strong evidence of sepsis.<sup>1</sup>

### Supplemental oxygen administration

Any woman who develops a new need for supplemental oxygen to maintain normoxia is at higher risk of deterioration. To recognise this risk, give a score weighting of (2). Where women are hypoxaemic even after receiving additional oxygen, score them twice (once for their hypoxaemia and once for the supplemental oxygen). They are at greater risk of adverse outcomes so require more senior review. They may need other methods of oxygen delivery, such as high-flow devices or non-invasive ventilation.

### Oxygen saturation determined by pulse oximetry (SpO<sub>2</sub>)

Oxygen saturation levels reflect the percentage of arterial haemoglobin saturated with oxygen in the blood, which is referred to as SpO<sub>2</sub>. Arterial partial pressure of oxygen (PaO<sub>2</sub>) is 6 percent higher in pregnancy. Therefore you should identify a drop below 95 percent as an abnormality with the potential to compromise oxygenation of the fetus.<sup>2</sup>

### Heart rate (HR)

If a woman experiences a persistent tachycardia over 100 bpm, it may indicate serious underlying disease and should be investigated.<sup>1</sup>

### Blood pressure (BP)

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. A high diastolic blood pressure is an important parameter in screening and diagnosing pre-eclampsia. High systolic blood pressure with the need for treatment<sup>3</sup> and low systolic blood pressure as a screening for sepsis are both strong reasons for the separate scores.

### Temperature (Temp)

Both high and low temperatures can be markers of underlying sepsis.

### Level of consciousness (LOC) using 'normal' or 'abnormal'

Changes in level of consciousness may be overt (unconscious) or subtle (personality change) and may reflect a variety of causes. Any change in level of consciousness from normal to abnormal in a normally healthy pregnant, or recently pregnant (up to and including 42 days later), woman indicates deterioration. It is essential to have an objective way to measure level of consciousness, for which we have referred to adult, non-pregnant evidence. A score of 'normal' or 'abnormal' is simple to use.

1 National Clinical Effectiveness Committee. 2014. *The Irish Maternity Early Warning System (IMEWS): National clinical guideline No. 4*. Dublin: Department of Health.

2 McAuliffe F, Kametas N, Krampfl E, et al. 2001. Blood gases in pregnancy at sea level and at high altitude. *British Journal of Obstetrics Gynaecology* 108(9): 980–5.

3 Carle C, Alexander P, Columb M, et al. 2013. Design and internal validation of an obstetric early warning score: secondary analysis of the intensive care national audit and research centre case mix programme database. *Anaesthesia* 68(4): 354–67.