The Irish Maternity Early Warning System (IMEWS)

Abstract:

In the acute hospital setting, the use of early warning scores (EWS) to monitor vital signs (including heart rate, respiratory rate [RR], blood pressure and temperature) has been shown to be beneficial in the early diagnosis and prompt initiation of treatment in adults with a critical illness[1]. This led to the development of the National Early Warning Score (NEWS) in Ireland by the Health Services Executiveâ s (HSE) Acute Medicine Clinical Care Programme. The NEWS was the first guideline endorsed by the National Clinical Effectiveness Committee (NCEC) and was launched by the Minister of Health Dr James Reilly in 2013. The implementation of NEWS is now mandatory in all acute hospitals. However, NEWS is not suitable for use in pregnancy because a womanâ s vital signs change physiologically from early in pregnancy. National reports in Ireland and the United Kingdom (UK) on maternal mortality have led to recommendations that a modified obstetric EWS be introduced[2,3]. In Ireland, these recommendations have been further supported by separate investigations in 2008 and 2013 on two maternal deaths from sepsis[4,5].

In April 2012, the HSE Clinical Care Programmes in Anaesthesia, Critical Care, and Obstetrics and Gynaecology commenced work on critical care pathways for the obstetric patient. As part of the task, it was decided to develop a standardised modified EWS for the Irish maternity services in collaboration with the HSE Directorate of Nursing and Midwifery. An audit found that a modified EWS was in use in half of the 20 maternity units in the country. The charts used were diverse in design, the clinical circumstances for usage varied and there was no standardisation in triggering a clinical response when vital signs abnormalities were detected. While well-intended, these EWS often lacked multidisciplinary support and systematic training. Obstetric or midwifery staff who moved hospital would have to familiarise themselves with different charts and different clinical escalation policies.

A multidisciplinary design team led by Ms Ina Crowley set about developing a national Irish Maternity Early Warning System (IMEWS)[6]. Drafts were distributed nationally and feedback was obtained from the different disciplines and the different maternity units. A national training programme and an associated clinical guideline were developed to assist implementation[6]. The IMEWS was introduced nationally by the HSE in April 2013. From the outset, it was decided to call it a â systemâ and not a â scoreâ and to emphasise that the IMEWS is there to assist clinical judgement and not replace it. The focus is on the early identification of the woman with a critical illness and not on the treatment of a score in isolation. The implementation of the IMEWS has consolidated the recording of the womanâ s vital signs on a dedicated chart in the obstetric records where omissions are more obvious, and trends showing clinical deterioration can be identified sooner rather than later. The measurements should be recorded contemporaneously and the recordings of the vital signs, particularly the RR, have improved[7]. There is now a national standard not only for measurement and recording of vital signs, but also for the clinical escalation in response to predefined triggers.

While EWSs have been recommended nationally and internationally, they have not yet been clinically validated in a maternity setting or for different critical illnesses[1-3]. The use of an obstetric EWS may, for example, have limitations in cases of suspected chorioamnionitis[8]. The IMEWS, however, is only part of the jigsaw that is clinical evaluation in obstetrics. For instance, the vital signs of the fetus may be just as informative to clinicians as those of the woman if fetal tachycardia is detected in cases of suspected intrauterine infection. Further work is also required to determine whether the triggers for escalation are appropriately sensitive and/or specific for the wide variety of medical conditions which can lead to clinical deterioration in the pregnant or postnatal woman. The monitoring of a woman in the labour ward has always been a priority in high-resource settings. The vital signs are recorded frequently, there is usually one-to-one midwifery care, medical rounds are frequent and there is a high degree of vigilance for the possibility of acute clinical deterioration. The IMEWS may be beneficial in the general maternity ward setting, particularly postnatally, where observations are less frequent, midwifery staffing levels may be low, medical rounds may be infrequent and clinical vigilance may be relaxed, particularly if the woman has had no obstetric complications and is considered low-risk.

Two recent audits in the UK found that there was still no national standardisation of obstetric EWS or the escalation responses[9,10]. Staff training and support for obstetric EWS were inadequate and there was a lack of clinical audit and validation. The implementation of the IMEWS over a short time frame means that the Irish health services are now more advanced than other countries in the surveillance of the pregnant woman using EWS for evidence of clinical deterioration. There is, however, no room for complacency and work is ongoing to audit compliance with the IMEWS, to undertake clinical validation, to ascertain the role of laboratory investigation, and to develop staff training. A lot has been done, but there is more to do.

PJ Maguire, A O'Higgins, K Power, MJ Turner

UCD Centre for Human Reproduction, Coombe Women and Infants University Hospital, Cork St, Dublin 8

References

1. Department of Health, National Clinical Effectiveness Committee. National Early Warning Score. National Clinical Guideline No. 1. Dublin: DOH, 2013.

2. Maternal Death Enquiry Ireland. Confidential Maternal Death Enquiry in Ireland: Report of the triennium 2009-2011. Cork: MDE, 2012.

3. Lewis G (Ed.). Saving Mothersâ Lives: Reviewing maternal deaths to make motherhood safer (2003-2005). Confidential Enquiry into Maternal and Child Health (CEMACH). Bristol: Interface, 2007.

4. Health Services Executive. Report into the circumstances pertaining to the death of Mrs. Tania McCabe and her infant son Zach at Our Lady of Lourdes Hospital, Drogheda on Friday 9 March 2007. Dublin: HSE, 2008.

5. Health Information and Quality Authority. Investigation into the safety, quality and standards of services provided by the health Service Executive to patients, including pregnant women, at risk of clinical deterioration, including those provided in University Hospital, Galway, as reflected in the care and treatment provided to Savita Halappanavar. Dublin: HIQA, 2013.

6. Health Services Executive and Institute of Obstetricians and Gynaecologists. Clinical Practice Guideline: The Irish Maternity Early Warning System (IMEWS).Dublin: HSE, 2013.

7. Maguire PJ, Oâ Higgins AC, Power KA, Daly N, McKeating A, Turner MJ. Is the IMEWS an effective early warning system? Irish Perinatal Society (June 2014).

8. Lappen JR, Keene M, Lore M, Grobman WA, Gossett DR. Existing models fail to predict sepsis in an obstetric population with intrauterine infection. Am J Obstet Gynecol 2010; 203: 573.e1-5.

9. Isaacs RA, Wee MYK, Bick DE et al. A national survey of obstetric early warning systems in the United Kingdom: five years on. Anaesthesia 2014; 69: 687-92.

10. Bick BE, Sandall J, Wee MYK, Isaacs R, Smith GB, Beak S. A national cross sectional survey of heads of midwifery services of uptake, benefits and barriers to use of obstetric early warning systems (EWS) by midwives. Midwifery 2014; 30: 1140-1146.