Introduction of a modified obstetric early warning system to improve post-operative care at an Ethiopian referral hospital

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Introduction

Early warning systems (EWS) are points based or colour-coded systems used to detect changes in physiological parameters and ‘trigger’ recognition of deteriorating patients.

The report of the Confidential Enquiry into Maternal and Child Health (CEMACH) recommends the use of modified versions to suit the obstetric population and these have now been adopted into widespread clinical practice despite the absence of a validated system. There is limited research into use of these systems in low-resource settings.

This study describes the impact of introducing a modified obstetric EWS (MOEWS) to the obstetric recovery room at Felege Hiwot Referral Hospital (FHRH), a tertiary referral hospital in Bahir Dar, Ethiopia with a catchment area of over 6 million people.

Methods

- A locally-adapted MOEWS using colour coded ‘triggers’ (yellow to prompt increased monitoring and red to prompt medical review) was introduced alongside training of healthcare workers.
- Prior to introducing the system (0 months), the quality of patient monitoring & response to abnormal vital signs was assessed through retrospective case note review (n=20).
- Further analysis was conducted at 8 (n=20) and 11 months (n=40) post introduction of MOEWS
- Staff surveys (n=58) and semi-structured interviews (n=7) were conducted to assess acceptability and usability of the MOEWS.

Results

- Utilisation of the MOEWS was 100% at both monitoring periods.
- Recording of postoperative signs (RR, HR, BP, SpO₂, temperature) improved, particularly temperature (25, 85, 97% cases at O,8,11m) and SpO₂ (35% at 0m to 95% cases at 8 & 11m).
- Improvements were maintained at both monitoring periods.
- Additional parameters were added (conscious level, pain, hourly urine output) and measurement prompted.
- The number of patients with red triggers reduced and response to triggers improved.

Results

- By 11m 85% HCW surveyed felt confident using the MOEWS, 91% felt it reduced workload and 97% found it useful.

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“we have limited manpower and the number of patients that flow - it simplifies our workflow, we can understand problems early and put our solution for problem” [Intern]
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“easy to detect any danger sign because simply detect by colour” [Midwife]
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“operator can easy understand and compare trends” [Intern]
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“It standards care... it could be used in other departments if possible. It is very important. We need it.” [Intern]
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Conclusion

There is a need for low-cost, simple methods to help reduce maternal mortality in low-resource settings.

The introduction of a MOEWS in a tertiary referral hospital in Ethiopia improved the monitoring of post-operative patients.

With modifications to suit the setting, senior clinician and management involvement, coupled with regular training, the early warning score is an effective and acceptable tool to cope with the unique demands faced in this low resource setting.