A deterioration recognition group reviews monitoring tools, compliance and training needs

Can adapted EWS improve response to deterioration?

In this article...

- Why early warning systems are used
- How deterioration recognition groups improve patient safety
- Ideas for adapting an early warning system
- Using a training programme to implement change

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Abstract

All nurses must ensure deteriorating patients are identified early, and a timely and effective response is implemented.

This article discusses a new early warning system and training programme, which are intended to prevent avoidable cardiac arrests.

Cardiopulmonary arrest in hospital
In the UK, only 17% of patients who have a cardiopulmonary arrest survive and are discharged from hospital (Nolan et al, 2005). Most of these have had a monitored and witnessed ventricular fibrillation (VF) arrest, caused by primary myocardial ischaemia (Resuscitation Council UK, 2006).

Survival to discharge rates for patients who receive prompt and effective defibrillation after a VF arrest can be as high as 42% (Gwinnutt et al, 2000).

However, most in-hospital cardiopulmonary arrests are caused by asystole or pulseless electrical activity, both of which are non-shockable rhythms associated with poor outcomes (Nolan et al, 2005). These arrests are usually neither sudden nor unpredictable, but the final stage of progressive deterioration of the presenting illness, involving hypoxia and hypotension (RCUK, 2006). These patients rarely survive to discharge and the aim should be to prevent cardiac arrest (Gwinnutt, 2000).

Recognising and treating patients at risk of cardiopulmonary arrest effectively could therefore prevent some cardiac arrests, deaths and unanticipated intensive care admissions (Nolan et al, 2005).

Early warning systems
Physiological deterioration precedes critical illness (Goldhill et al, 2005; Kause et al, 2004), and effective early warning systems (EWS) need to be in place to recognise the deteriorating patient (NICE, 2007). The Department of Health recommends EWS and critical care outreach services are implemented throughout the UK (DH, 2000).

However, the effectiveness of EWS has been questioned. If they do not have the appropriate sensitivity and specificity to reduce errors linked to documentation and scoring, they will fail to identify patients who need additional care and could increase workload unnecessarily (Cuthbertson and Smith, 2007). Hillman et al (2005) found that most deteriorating patients were not detected until within 15 minutes of cardiopulmonary arrest, death or ICU admission. Staff calculations of EWS scores can be inaccurate (Prytherch et al, 2006; Smith and Oakley, 2006).

The NPSA analysed 576 deaths reported to its National Reporting and Learning System over one year. More than 11% of these deaths related to patient deterioration that had not been recognised or acted upon (NPSA, 2007a). Use of EWS needs to be reassessed, ensuring a structured, scientific approach to their development and evaluation (Cuthbertson and Smith, 2007).

Deterioration recognition group
The NPSA recommended all acute trusts set up deterioration recognition groups (DRGs) to lead efforts to improve the safety of patients vulnerable to deterioration (NPSA, 2007b). The initial responsibilities of Walsall Manor Hospital’s DRG were to:

- Review the current patient monitoring tools used at the trust;
- Undertake a baseline assessment of compliance with the EWS at the trust;
- Review NPSA-recommended tools;
- Undertake a training needs analysis.

An audit of the EWS charts used at the hospital revealed that:

- Vital signs were not always recorded;
- Documents were poorly labelled;
- The frequency of vital signs monitoring was not planned;
- Abnormal measurements were not always acted upon;
- Patient norms were poorly documented;
- Escalation guidance was missing;
- The system was not appropriate for all...
patients, such as those for whom a high EWS was normal, such as those with chronic respiratory illness.

Introducing a new EWS

The EWS at the time used a numerical scoring system to trigger a response. The audit revealed the chart was complicated, and the scoring system was difficult to apply accurately, so alternative systems were explored.

Luton and Dunstable Hospital has developed a chart that uses a red, amber, green (RAG) system. Using the RAG model, along with the audit findings and NICE guidance, we produced a chart which included:

- A RAG system;
- Escalation protocol;
- Prescription for frequency of monitoring (minimum twice daily);
- Exception notation for patients who trigger criteria due to chronic illness;
- Signature for recording escalation.

After testing the chart, we used a rapid improvement cycle to implement it. These cycles accelerate the delivery of projects by applying principles of change within a set structure. This is usually a PDSA (plan, do, study, act) framework which involves making a small change within a controlled environment. This allows changes to be tested quickly. Cycles are assessed after 90 days to establish if the project delivers its objectives, or if there are any notable deviations from the proposed changes.

Staff training

The resuscitation officers developed competency-based in-house training on recognising and responding to the deteriorating patient. This is aimed at all nurses and healthcare assistants, and complies with DH (2009) and NICE (2007) guidance. Its objectives are to reinforce the RCUK’s approach to assessing and treating acutely ill patients and the effective, timely and seamless “chain of response” (NICE, 2007), and enable staff to:

- Recognise and interpret abnormal values;
- Assess and institute clinical intervention in a timely manner;
- Recognise when a higher level of assistance is required;
- Convey the urgency of the situation.

Training started in January 2009. It lasts 2.5 hours, and is given by trust resuscitation officers to groups of six. In addition, the critical outreach team gives one-to-one training in clinical areas and on annual updates, and an e-learning course is being developed.

The new EWS charts were introduced on the course and in mandatory updates, and participants were also taught how to use SBAR (Box 1).

The NPSA’s Foresight Training Resource Pack was used to help nurses identify situations when patient safety incidents are likely, and how to reduce or prevent these (NPSA, 2008).

Conclusion

The new EWS chart is now used across the hospital. The colour coding helps staff identify when and who to contact in different situations and the simplified, concise escalation process and SBAR has been well received. Staff can document escalation clearly and review interventions.

We will be using the Patient Safety Firstextranet to track changes against audit results, such as those on cardiac arrests, rapid response, and critical care outreach calls. We anticipate the EWS will lead to earlier responses to deteriorating patients, and a reduction in cardiac arrest calls.

References


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