Are Early Warning Scoring Systems effective in Identifying Deterioration Early

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Background

- Confidential inquiry into the quality of care pre- ICU admission
- Studied 100 consecutive admissions finding:
- 20 managed well
- 54 received suboptimal care
- Disagreement over remaining 26

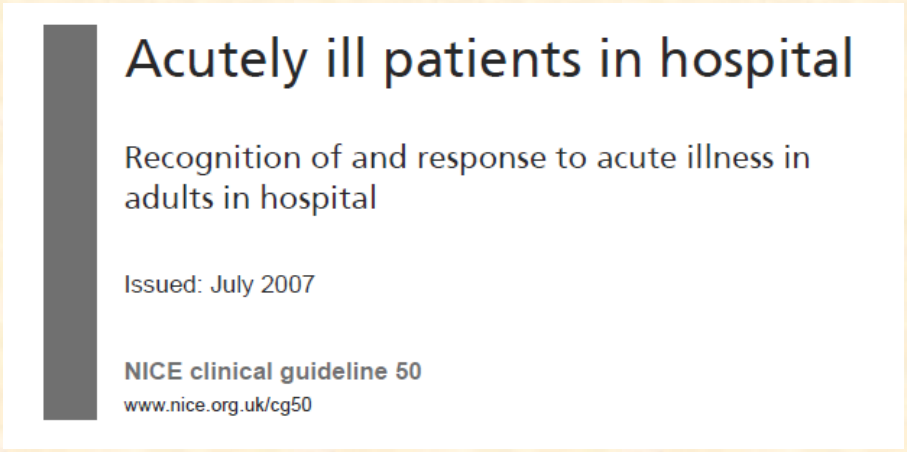
(McQuillan et al 1998)

- 60% of primary events studied (deaths, cardiac arrests and unplanned admissions to ICU) were preceded by abnormal physiology.

(Kause et al 2004)

- Detailed analyses of serious patient safety incidents identified that 11% of deaths were related to ‘deterioration not recognised or not acted upon’

(National Patient Safety Agency 2007)



Hogan H, Healey F, Neale G, Thomson R, Vincent C, Black N (2012).

'Preventable deaths due to problems in care in English acute hospitals: a retrospective case record review study'.

BMJ Quality and Safety Online First 10.1136/bmjqs-2012-001159
http://qualitysafety.bmj.com

Preventable Deaths 2012

- Retrospective case review of 1000 adult deaths in 10 hospitals.
- 5.2% had ≥ 50% chance of being preventable.
- These deaths were attributed to poor clinical monitoring, diagnostic errors, and inadequate drug or fluid management.

Time to Intervene?

- Looked at 585 cases of cardiac arrest in hospitals:
  - In 17.8% of cases the admitting doctor did not recognise the severity of the patient's condition.
  - 1 in 10 doctors did recognise severity but failed to escalate.
  - 1 in 6 cases were not escalated in a timely manner.
  - Only 23% had a monitoring plan documented.
    - » National Confidential Enquiry into Patient Outcome and Death (NCEPOD) 2012.

Time to Intervene?

- Resuscitation status:
  - Out of 526 patients 36.8% had inappropriate resuscitation decisions made.
  - 1% of patients who received CPR were on an end of life care pathway!
  - 62% of patients showed instability for more than 6 hours preceding cardiac arrest.
  - Cardiac arrest was considered predictable in 63.7% of cases and avoidable in 37.8%.
  - 78% of patients had no explicit resuscitation decision made.

Early Warning Scoring

- 1st known EWS system developed in James Paget Hospital in 1997 using a simple weighted score based on 5 parameters

- Use of EWS recommended in Comprehensive Critical Care Report (DOH 2000)

- 72 modified EWS identified questioning their validity (Smith et al 2008)

- Royal College of Physicians (2012) published a report recommending the use of a national early warning score (NEWS) to standardise practice

- NEWS with it’s rigorous evidence base and performance evaluation became the gold standard EWS

- According to Odell (2015) nurses use EWSs to support clinical intuition, and use the recognition of deterioration patterns and family concerns to guide the timing of vital signs checks

- Hope & Ball (2018) identified that relationships with other professionals, equipment problems and the clinical environment affect when observations are done

Electronic Scoring systems

- Computer programmes can chart variables, calculate scores and immediately alert staff to deteriorating patients

- However they are reliant on timely and complete observations being carried out

Nwulu et al (2012)

Accuracy of Monitoring

- Availability of functioning equipment
- Understanding of vital signs & significance
- Recording data timely and effectively
- What about accurate fluid balance monitoring

Accuracy of monitoring

- Evidence suggests respiratory rate is an under – reported sign and is often estimated by nurses (Flenady et al 2016)
- Grant S (2018) highlights that systolic blood pressure does not score until it reaches 220mmHg and diastolic is not considered
- SpO2 can be affected by several factors including heart rate & rhythm, peripheral perfusion and nail polish

Frequency of Monitoring

- Hope and Ball (2018) identified that patient vital signs monitoring can be missed or delayed at night
- According to Robinson et al (2016) survival following cardiac arrest is worse when the arrest occurs at night which could be related to reduced observations
- Freathy et al (2019) found considerable variation in instructions given to staff regarding frequency of monitoring and response times for staff

Co-Morbidities

- Patients with Co – Morbidities often trigger concern due to high NEWS scores and are escalated inappropriately

- In COPD patient higher respiratory rate, lower SpO2 and use of supplemental oxygen can be normal

NEWS 2

- Modiified to account for concerns about NEWS and T2RF
- Includes a new SpO2 scoring scale for patients with T2RF at risk of retaining CO2
- Aims to maintain SpO2 88 – 92% the range recommended for these patients
- Also includes the oxygen delivery system and flow rate to improve accuracy of monitoring

NEWS 2 and T2RF

- The NEWS 2 report advocates a blood gas analysis be performed before instituting the adjusted score

- However Hodgeson et al (2018) argue that there is a risk of the adjusted scale being applied to patients with T2RF without a blood gas analysis putting them at risk of delayed recognition of deterioration

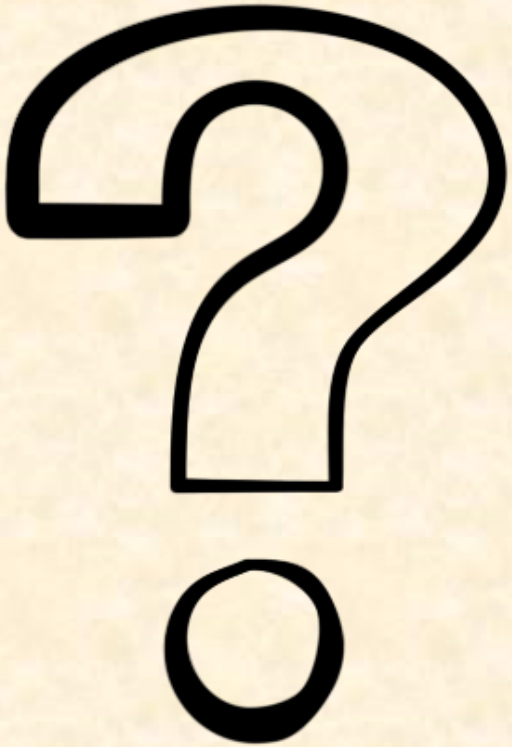
- According to Pimentel et al (2018) the changes proposed in NEWS 2 do not improve the outcomes for patients with T2RF including in-hospital death, unanticipated ICU admission and cardiac arrest.
- They suggest modifying the clinical care escalation protocol and response to triggering as a more appropriate alternative to changing the weighting system for NEWS

NEWS 2 and ACVPU

- Includes new confusion including disorientation and delirium
- Should always be considered as new until otherwise known
- New onset or worsening confusion should always prompt concern about potentially serious underlying causes
- Warrants urgent clinical evaluation

- Does NEWS 2 scoring lead to complacency amongst staff ?
- What about clinical judgement ?
- Back to basics – look, listen and feel
- Gut feeling ??

ANY QUESTIONS?



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