

Introduction

Early Warning Score systems are used in secondary and tertiary health care environments around the world, and are presently used by every one of New Zealand’s twenty District Health Boards. The efficacy of early warning score systems in predicting and actually improving patient outcomes must be substantiated to justify such widespread use.

The research question: ‘For patients who clinically deteriorate in a tertiary or secondary healthcare environment, does the use of Early Warning Score systems predict deterioration and improve outcomes compared to deteriorating patients who were not being monitored with an early warning score system?’ was developed to assess evidence for, or against, the continuing use of early warning score systems.

Findings

YES, THEY DO HELP!

Early Warning Scores Can Predict Patient Outcomes:

A higher early warning score on admission is associated with a higher chance of the patient being transferred to intensive care or cardiac care wards, dying, or having a longer stay than a patient who had a lower EWS on admission (Groarke, et al., 2008). Patients with very low early warning scores are highly unlikely to die or be transferred to acute wards because of clinical deterioration (Cei, Bartolomei, & Mumoli, 2008).

Early Warning Scores Can Improve Patient Outcomes:

There is evidence that the use of EWS systems reduces patient mortality, and improves both patient safety and outcomes (Mathukia, Fan, Vadyak, Biege, & Krishnamurthy, 2015). Rates of in-hospital cardiac arrests drop significantly when EWS systems are combined with access to cardiac or rapid response teams (Drower, McKeaney, Jogia, & Jull, 2013). Paediatric EWS systems have shown significantly improved outcomes for patients, and have empowered and supported nursing staff to communicate and seek rapid medical review (Ennis, 2014).

Challenges

The largest challenges to the implementation and use of Early Warning Score systems is that they can cause an increase in Nursing and Medical staff workloads, and they must be assessed accurately and timely in order to function as intended (Jonsson, Jonsdottir, Moller, & Baldursdottir, 2016), otherwise clinical intervention is less likely to be provided when needed (Kolic, Crane, McCartney, Perkins, & Taylor, 2015).

SCORE		MET CALL	3	2	1	0	1	2	3	MET CALL
ZONE		PINK	ORANGE	GOLD	YELLOW	WHITE	YELLOW	GOLD	ORANGE	PINK
P A R A M E T E R	Respiratory Rate	<5	5-8			9-20		21-30	31-35	>35
	Systolic Blood Pressure	<70	70-79	80-89	90-99	100-180		>180		
	Heart Rate	<40	40-49			50-100	101-110	111-130	131-140	>140
	4 Hour Urine Output		<80	80-120		>120				
	Level of Consciousness	Unresponsive	Pain	Agitation/Confusion	Voice	Alert				

Recommendations

1. Continue using Early Warning Score Systems:
- As they have been shown to both predict and improve patient outcomes, we should keep using them! Regularly and accurately assessing patients EWS is essential for the systems to function as intended.
2. Standardise Early Warning Score Systems across all New Zealand Health Boards:
- This helps when nurses move to different DHBs, as they don’t have to learn a new EWS system. This also means studies into EWS’s are generalisable throughout New Zealand.
3. Continue to study and research Early warning score systems and their efficacy:
- Though EWS systems have been shown to be effective, there are still very few studies that back this up. As EWS systems are studied further, they can be improved and thus patients’ health and wellbeing’s can be improved with them.

References:

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Mathukia, C., Fan, W., Vadyak, K., Biege, C., & Krishnamurthy, M. (2015). Modified Early Warning System improves patient safety and clinical outcomes in an academic community hospital. *Journal of community hospital internal medicine perspectives*, 5, 2.

Category	Information relating to question	Expl...
Population	Patients in a tertiary or secondary health-care setting (hospital ward) that are at risk of clinically deteriorating, or have clinically deteriorated.	EWS systems focus on changes to patients' vital signs, and are primarily concerned with deteriorating patients.
Exposure(Intervention)	Patients that were at risk of clinically deteriorating, or clinically deteriorated and were being monitored using an Early Warning Score system.	This essay will be discussing articles and journals that viewed the outcomes for clinically deteriorating patients monitored by EWS systems.
Comparison/Control	Patients that were at risk, or clinically deteriorated and were not being monitored using an Early Warning Score system.	These outcome measurements will be compared to outcomes for clinically deteriorating patients that were not being monitored with an EWS system.
Outcome	Cardiac arrest, ICU or HDU admission, Death, Discharge and length of hospital stay.	These are outcomes that can potentially be avoided by timely intervention activated by an EWS system. Length of stay can indicate acuity of illness.
Time	Until an above outcome is reached.	All patients reach one of those outcomes, and all but discharge are what EWS systems aim to prevent or minimise.

Inclusion Criteria:

- Patients who were in a Secondary or Tertiary health-care setting such as a hospital ward, and were at risk of clinical deterioration or clinically deteriorated whilst there – either being observed under an EWS system or not.

Exclusion Criteria:

- Patients who clinically deteriorated in a primary health-care setting, or outside of a health-care setting.
- Patients who clinically deteriorated, but for whom interventions were not appropriate (e.g. those with advanced care plans or do not resuscitate orders).
- Patients who did not deteriorate, or were not at risk for deterioration at any stage.

Rationale for choosing a poster over a submission:

I have chosen to present my evidence-based literature search in the form of a poster instead of a submission for a variety of reasons. One of the initial reasons I decided to do a poster was that doing a submission simply did not make sense, given-that on investigation I have found that all of my recommendations are being carried out in one form or another. Currently all DHB's in New Zealand use and will continue to use EWS systems, and there is significant progress on unifying the EWS system used across all DHB's (with some inspiration from the UK's NHS doing the same successfully). As all of these recommendations are actively being carried out, I have decided the best use of the knowledge collected during my literature search would be to remind and confirm to the average Nurse that what they are doing on a daily basis actually make a difference, and hope to encourage them to use EWS systems correctly and in a timely manner.

My ideas of where this poster could be displayed would be in places that nursing staff would be exposed to it, preferably when they have enough time to actually stop and read it. Such places as a staff/break-room or a nursing office would be perfect. Also novel places such as on the walls of staff toilets have been shown to have an effect on clinical practice (Corkill, 2012). There is evidence that suggests that health education posters in doctor's waiting rooms ARE being read and remembered by around 82% of patients (Hawthorne, Ward, 1994) and even though nursing break rooms aren't exactly the same sort of environment, there could be an expectation that health or clinical practice education posters would be just as effective in such an area. Along with putting this poster up in nursing areas such as break-rooms or offices, we are personally presenting our posters to nursing lecturers and other guests. There is evidence that suggests posters are a great way to facilitate oral presentations of knowledge transfer, and to draw the viewers' attention. The respondents to this studies' survey also believed that such academic posters are best presented by their author to fully get the message across (Ilic, Rowe, 2009), which is exactly what I will be doing as part of turning my literature review into th poster.

References:

Corkill, D. (2012). Testing the effects of educational toilet posters: A novel way of reducing haemolysis of blood samples within ED. *Australasia Emergency Nursing Journal*. 15, 31-36.

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