

Indicators of acute deterioration in adult patients nursed in acute wards: A factorial survey

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Background

- More dependent patients are being cared for within medical and surgical wards (McKeown, 2004) .
- Indicators of deterioration in acutely unwell adults are being missed (Goldhill, 1999, McQuillan et al. 1998 McKeown, 2004)
- Failure to rescue (Schmid, 2007)
- Implementation of early warning or track and trigger scorings systems
 - All parameters not always recorded
 - Scores not always calculated
 - Appropriate actions not always taken
- It is not clear why nurses do not use fully early warning scoring systems
- Do nurses use other information to make decisions about patient acuity or referral?

Research Questions

What professional, situational, and patient characteristics predict nurses' judgements of patient acuity?

What professional, situational, and patient characteristics predict nurses' referrals of acutely ill patients?

Methods

Factorial Survey design:

- Paper based survey WITH 3 PARTS
- Randomly generated vignettes that represent independent variables:
 - patient characteristics e.g. age, gender and physiological parameters
 - situational e.g. shift and staffing
 - An early warning scoring system was included in some vignettes
- Professional characteristics e.g. age, length of time since qualifying and experience of referral
- Dependent variables
 - assessment of patient acuity and decision to refer.
- Recent case scenario

Vignette example: Independent Variables

It is **busy** shift and the ward is **2** staff members short. The patient is a **95** year old **male** who has a primary diagnosis of **pancreatitis** and a secondary diagnosis of **congestive heart failure**. Your assessment reveals the following physiological data: **Temperature** is **38.5** degrees centigrade, **heart rate** is **55** beats per minute, **respiratory rate** is **33** breaths per minute, **oxygen saturation** is greater than **93%** receiving **air**, **systolic blood pressure** is **205** mmHg. The patient is **unresponsive**, has passed less than **80mls** of **urine** in the past 3 hours. The patient has a **pain score** of **1** and a **blood glucose** level of **5.0** mmols.

Vignette Example: Dependent Variables

On a scale of 1-10 (1 being the least and 10 being the most) how likely are you to refer this patient? **Please circle**

Not very likely Very Likely
0 1 2 3 4 5 6 7 8 9 10

On a scale of 1-10 (1 being the least and 10 being the most) how ill do you think this patient is? **Please circle**

Not very ill Very Ill
0 1 2 3 4 5 6 7 8 9 10

Methods/Results

- Ethical Approval (LREC)
- Participants: All registered nurses working in medical, surgical and HDU
 - 87 participants required
- Met with SCN in each area
 - Hand delivered questionnaires
- Anonymously coded
- 702 sent out with 99 returned
- 14% response rate

Results

Regression analysis was used to identify predictors:

Predictors of referral emerged as:

- Heart rate, respiratory rate, blood pressure, urine output, neurological status, blood glucose, oxygen saturation, temperature
- Respiratory rate, blood pressure, urine output, neurological status, blood glucose, oxygen saturation, temperature
- EWS

Variables that did not emerge as predictors.

- patient characteristics (gender and age and diagnosis)
- physiological variables (oxygen received and pain)
- situational (shift time, and shift activity).

Recent case scenario

- Content analysis
- Content validity
- Reported physiological parameters
 - Heart rate, blood pressure and respiratory function
- Reported some variables that were not predictors (from vignettes)
 - Patient age and diagnosis

44% referred to patient's age
35% SEWS scores.

Physiological parameters

- 51% reporting heart rate
- 49% blood pressure
- 44% respiratory function
- 36% oxygen delivery
- 33% temperature
- 32% oxygen saturation
- 27% neurological status
- 23% urine output
- 17% pain
- 12% blood glucose

Discussion

- Paper based vignettes may not effectively capture the context
- Low response rate
 - Sample bias
 - too many vignettes or questionnaire fatigue
- Nurses appear to process complex information appropriately.
- Variables that predicted of referral and assessment of patient acuity represented deviations from normal physiological values.
- When EWS scores were not present nurses used the same physiological variables used in the EWS
- Combination of variables rather than individual variables predicted.

Future Research

- Repeated factorial survey
- Respondent characteristics
- Other groups of nurses
- 2-part vignette
- Patient information over time

- Clinical simulations
- Written and visual presentation