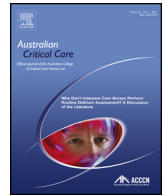




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Review Paper

The factors that influence junior doctors' capacity to recognise, respond and manage patient deterioration in an acute ward setting: An integrative review

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ABSTRACT

Objectives: Junior doctors are frequently the first doctor to be called by a nurse to review patients whose clinical status has declined in hospital wards, yet little is known about how well prepared they are to deal with this situation. This paper aims to identify the factors that influence junior doctors' early recognition and management of patient deterioration in an acute ward settings.

Method: Integrative review methodology was used to allow for the inclusion of broad research designs, summarising current knowledge from existing research and identify gaps in the literature. Quantitative, qualitative and mixed method studies were included. An electronic database search including PubMed, Medline and Scopus was performed. Research articles, exploring junior doctors' skills specific to critically ill, or deteriorating patients, technical and non-technical skills and failure to rescue were included.

Findings: Thirty-three articles were included, of which eighteen were quantitative, six qualitative and nine mixed methods. The majority of the studies, eighteen out of thirty-three, were from the United Kingdom. The evidence showed that the capacity for junior doctors to effectively deal with patient deterioration was influenced by: educational models that incorporated non-technical skills; the integration of high quality clinical simulation into education; and the level and type of supervision in the clinical environment.

Conclusion: The factors that influence junior doctors' capacity to recognise, respond and manage patient deterioration in an acute ward settings are complex. This review indicates that there is substantial room for improvement in junior doctors' capacity to deal with patient deterioration. Evidence suggests preparation of junior doctors in the recognition and management of the deteriorating patient is influenced by effective simulation education and clinical experiential exposure over time. More accessible supervision for junior doctors in acute wards is recommended to avert error and delays in the appropriate escalation of care in the deteriorating patient.

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1. Introduction

Physiological deterioration is relatively common in the acute hospital ward setting and, if deterioration progresses, may lead to unplanned admission to intensive care (ICU) or cardiac arrest.^{1–6} Nurses are frequently the first health professionals to detect signs of deterioration and respond by using their clinical judgement or by following hospital protocols to either prompt a clinical review

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of the patient or to call the rapid response team (RRT). Commonly, the nurse seeks the support of the on-call junior doctor to provide a clinical review in the very early phase of deterioration. At this point the response and skills of the junior doctor is influential to prevent worsening deterioration.^{4,5,7–11}

RRT were introduced to support more effective team-based management of deterioration,^{12–14} and provide improvement in mortality rates and survival from cardiac arrest.^{12,15,16} The capacity to manage deterioration by the RRT depends on prompt identification and escalation of care for acutely ill patients by ward staff.^{5,17}

In terms of how the response is implemented, many hospitals utilise a tiered rapid response system (RRS). A RRS consists of an afferent and efferent limb (Fig. 1). The afferent limb has four categories which rely on nurses to identify specified physiological changes in their patients.¹⁹ The observation chart specifies the parameters of physiological changes that require specific responses. The first trigger level requires increased surveillance by the nurse and to report changes to their senior nurse. The second trigger level specifies the patient should receive a medical review by either a senior nurse or junior doctor within thirty minutes. The third response requires the nurse or junior doctor to call a senior doctor (registrar level). The fourth and final trigger is the activation of the RRT due to a breach in physiological parameters or if the ward staff are concerned and believe the patient requires expedient and expert medical assistance. The efferent limb is the arrival of the RRT (ICU and/or medical consultant or registrar and an ICU nurse) who provide expert medical management and appropriate resources for the deteriorating patient (Fig. 1).^{17–19}

Ward nurses play a critical role in recognising and initiating response to deteriorating patients within the RRS. They are also the most frequent health professional to activate the RRS at each category. Many studies have explored the barriers to hospital nurses recognising and responding to patient deterioration.^{20–23} Few have reviewed the factors that influence a junior doctor's ability to recognise and respond to patient deterioration in the acute hospital setting, once they are called by the nurse. Working alongside the nurse, the junior doctor's clinical capacity to manage early patient deterioration can be crucial to prevent further physiological decline.^{4,24–26} Studies indicate that junior doctors are sometimes unable to promptly attend the patient for review, fail to call for help or are not sufficiently trained to deal with patient deterioration.^{5,27,28,29,30} The focus of this paper is to review the evidence of the factors influencing their capacity to recognise, respond and manage the deteriorating patient in the acute hospital ward context.

2. Aim

The aim of this paper is to identify *what factors* influence junior doctors' capacity to recognise, respond and manage patient deterioration in an acute ward settings.

2.1. Purpose

Following a patient review request from the ward nurse junior doctors play a role in the management of patient deterioration in acute ward settings.^{5,7} Therefore this review will explore the factors (barriers and facilitators) that influence their capacity to recognise, respond and escalate care to deteriorating and critically ill patients in the afferent limb.

2.2. Design

This integrative review was informed by the framework developed by Whittemore and Knaf.³¹ The methodological approach allows concurrent synthesis of experimental, non-experimental,

qualitative and quantitative studies.³¹ Similar data from all methods are extracted, synthesised and grouped for analysis into a thematic matrix. The template of synthesised literature is then used to identify patterns, commonalities, inconsistencies and emerging themes.³¹ Conclusions are extrapolated from each theme and integrated into a brief account of the main points.³¹ This broad perspective is intended to enhance the understanding of the aim of this review.^{31,32}

2.3. Search strategy

The search strategy targeted primary literature. Electronic databases searched were PubMed, OVID MEDLINE and Scopus. The following MeSH terms were included: critical illness; emergencies; medical error; physicians, physician, and junior; clinical competence; clinical skill; education, medical, graduate. These search terms were used in Boolean combinations using "AND" and "OR". Four search combinations were employed: (1) critical illness, physicians, junior; (2) clinical competence, critically ill, physician, junior (3) clinical skills, education, medical, graduate/methods, clinical competence, physicians, junior; (4) error, junior physician, clinical skills. Reference lists from retained research publications were manually searched by title relevance and additional studies were identified.

2.4. Screening

2.4.1. Inclusion criteria:

All research methods, primary research articles and reports were included. No date limit was applied. For the purpose of this review, studies were included where medical staff were classified as: graduate entry doctors; interns; first year internal medicine; medical graduates; internship programme doctor; Post Graduate Year one (PGY1); Pre-Registration House Officer (PRHO); and first year junior doctors.

Purposive sampling included studies of junior doctors that focused on the following features:

1. Level of competence or confidence to perform clinical skills in acute surgical or medical hospital ward settings; AND
2. The barriers and facilitators in the recognition and management of patient deterioration, critical illness and acute medical emergencies in acute care ward environments.

2.4.2. Exclusion criteria

Papers or reports that were not research articles (e.g. editorial or opinion pieces) were excluded. Studies that were limited to post graduate doctors in their second year of practice (PGY2) were not included. The following hospital settings were excluded to ensure consistency of focus on acute ward settings:

1. Psychiatric
2. Paediatric
3. Aged care or rehabilitation
4. Obstetrics
5. Intensive care
6. Emergency department
7. Palliative
8. Day procedure; post anaesthetic care unit.

Studies focused on cardiac resuscitation were also excluded:

1. Cardio pulmonary resuscitation skills—basic life support, and/or;
2. Advanced cardiac life support

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