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## Critical care clinician perceptions of factors leading to Medical Emergency Team review

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### ABSTRACT

**Background:** The introduction of rapid response systems has reduced the incidence of in-hospital cardiac arrest; however, many instances of clinical deterioration are unrecognised. Afferent limb failure is common and may be associated with unplanned intensive care admissions, heightened mortality and prolonged length of stay. Patients reviewed by a Medical Emergency Team are inherently vulnerable with a high in-hospital mortality.

**Objective:** To explore perceptions of intensive care unit (ICU) staff who attend deteriorating acute care ward patients regarding current problems, barriers and potential solutions to recognising and responding to clinical deterioration that culminates in a Medical Emergency Team review.

**Methods:** A descriptive exploratory design was used. Registered intensive care nurses and medical staff (N = 207) were recruited during a professional conference using purposive sampling for experience in attending deteriorating patients. Written response surveys were used to address the study aim. Data were analysed using content analysis.

**Results:** Four major themes were identified: Governance, Teamwork, Clinical Care Delivery and End of Life Care. Participants perceived there was a lack of sufficient and senior staff with the required theoretical knowledge; and inadequate assessment and critical thinking skills for anticipating, recognising and responding to clinical deterioration. Senior doctors were perceived to inappropriately manage End of Life Care issues and displayed Teamwork behaviours rendering ward clinicians feeling fearful and intimidated. A lack of System and Clinical Governance hindered identification of clinical deterioration.

**Conclusions:** To improve patient safety related to recognising and responding to clinical deterioration, suboptimal care due to professionals' knowledge, skills and behaviours need addressing, along with End of Life Care and Governance.

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### 1. Introduction

A rapid response system (RRS) is an organisation wide system, designed to provide a rapid expert consultation to seriously ill patients and those whose condition is deteriorating.<sup>1</sup> The most common form of rapid response team in Australia is the physician-led Medical Emergency Team (MET); the introduction of which has reduced the incidence of in-hospital cardiac arrest.<sup>2–5</sup>

An RRS comprises four components: The afferent arm, efferent arm (MET), administrative limb and governance limb to oversee quality improvement initiatives.<sup>6</sup> These components reflect the Australian Commission for Quality and Safety in Healthcare's (ACSQHC) national standard for recognising and responding to clinical deterioration in acute health care.<sup>7</sup> The standard includes the measurement and documentation of vital signs and policies and protocols for escalation of care; response systems; communication, clinical governance, education, evaluation and the use of technology. Sub-optimal operation of any part of the system will reduce the effectiveness of the entire RRS.<sup>8</sup>

Despite the importance of early detection and intervention, delays in activation of the MET are widely reported, and patients who are reviewed may have a mortality rate of 20–25%.<sup>9</sup> Afferent

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limb failure is a particular challenge for the effective implementation of RRSs. Afferent limb failure is associated with increased unplanned ICU admissions,<sup>10</sup> mortality<sup>11</sup> and length of stay.<sup>10,12</sup> Rates of afferent limb failure are reported to be between 14% and 48% in the hours prior to escalation.<sup>10–13</sup> Thus, there is a need to understand the factors contributing to clinical deterioration to the point requiring MET review, enabling earlier and more targeted intervention.

The aim of this study was to explore the opinions and perceptions of critical care staff who attend deteriorating acute ward patients regarding current problems, barriers and potential solutions to recognising and responding to clinical deterioration that culminates in a MET review.

## 2. Materials and methods

### 2.1. Design

A descriptive exploratory design was used. Ethics approval was granted from the University's Human Research Ethics Committees (HEAG-H 99.2014). Consent was implied by participation and return of survey documents reflecting consensus perceptions and opinions reached during group discussions.

### 2.2. Setting

This study took place during the inaugural Australia and New Zealand Intensive Care Society Rapid Response Team (ANZICS-RRT) conference in Melbourne in 2014.

### 2.3. Sample

Purposive sampling for intensive care staff experienced in attending MET reviews for deteriorating patients in ward areas was used to recruit participants.<sup>14</sup> There were 294 conference registrants comprising nurses (197, 67%), medical consultants (61, 21%), allied health (11, 4%), medical registrars (10, 3%), industry representatives (10, 3%), consumers (2, 1%) and health administrators (3, 1%).<sup>15</sup> Thus, all critical care clinical staff who attend METs were eligible to inform the study and invited to participate.

### 2.4. Data collection

Group-based open-ended written surveys were used to elicit what participants perceived to be problems, barriers and potential solutions to recognising and responding to clinical deterioration in acute care hospitals. Participants were asked to provide written responses to three topics on: (1) detection and recognition of deterioration by ward staff; (2) the initial response to deterioration by ward staff; and (3) escalation of care for the deteriorating patient. For each of these topics, the following questions were posed: (1) what are the current problems with how this is done?; (2) what barriers exist to it currently being done well?; and (3) How can it be done better?

Attendees who did not attend METs and therefore who were not eligible to inform the study, but were willing to participate listened to and documented each group's consensus responses. Responses were documented on survey documents prepared with relevant headings to address the study aims.

### 2.5. Data analysis

Hard copy written form data were manually entered into an electronic database by the research assistant. Content analysis was used to analyse data to include both frequency counts and thematic analyses by all researchers following first pass analysis by the

research assistant. The first author used thematic analysis to identify the major themes and sub-themes in participant responses.<sup>16</sup> Themes emerge from the data following familiarisation with data, generating initial codes, searching for and reviewing themes, then defining and naming themes.<sup>16</sup> Peer debriefing was performed to maximise the trustworthiness of the analysis. The frequency with which groups documented the same problems, barriers and solutions were counted and totalled for each theme identified using content analysis.<sup>17</sup>

## 3. Results

### 3.1. Participants

Of the 294 registrants, 218 attended METs and were eligible to participate. Of these, 207 (94.5%) consented to participate in the study. Participants were ICU nurses (49.2%), ICU educators or liaison nurses (27.8%), ICU medical registrars (2.1%), ICU medical consultants (11.9%), nurse managers (7.7%) and not identified (1.3%). Some participants identified themselves as both an ICU nurse and an ICU nurse educator or liaison nurse; these were categorised as nurse educator or liaison nurse only. Thirty-one group surveys were returned with groups comprising five to seven participants.

### 3.2. Findings

Analysis revealed four themes relating to the perceived problems and barriers (Table 1) that exist within the current system(s) and the suggested solutions (Table 2). The four major themes were Governance, Teamwork, Clinical Care Delivery and End of Life Care. Under Governance, two subthemes of System Factors and Clinical Factors emerged. The major themes and subthemes are presented below with the problems and barriers first, followed by the solutions offered by participants. Across all themes, participants identified more problems and barriers (N = 292) than solutions (N = 171). Clinicians refer to doctors and nurses working in acute care wards; specific disciplines are included where they were identified by the respondents.

**Table 1**

Perceived problems and barriers for recognising and responding to clinical deterioration of patients in acute care hospitals (N = 292).

Theme	n	%
Clinical Care Delivery	133	45
End of Life Care	61	21
Teamwork	48	17
Governance	50	17
Clinical Factors	20	9.1
System Factors	7	7.9

**Table 2**

Suggested solutions for recognising and responding to clinical deterioration of patients in acute care hospitals (N = 171).

Theme	n	%
Clinical Care Delivery	66	38.6
End of Life Care	46	26.9
Teamwork	32	18.7
Governance	27	15.8
System factors	16	9.4
Clinical factors	11	6.4

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