

# Recognizing the critically ill patient

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## Abstract

Critical illness is a life-threatening multisystem process that can result in significant morbidity or mortality. In most patients, critical illness is preceded by a period of physiological deterioration; but evidence suggests that the early signs of this are frequently missed. All clinical staff have an important role to play in implementing an effective 'Chain of Response' that includes accurate recording and documentation of vital signs, recognition and interpretation of abnormal values, patient assessment and appropriate intervention. Early warning systems are an important part of this and can help identify patients at risk of deterioration and serious adverse events. Assessment of the critically ill patient should be undertaken by an appropriately trained clinician and follow a structured ABCDE (airway, breathing, circulation, disability and exposure) format. This facilitates correction of life-threatening problems by priority and provides a standardized approach amongst professionals. Good outcomes rely on rapid identification, diagnosis and definitive treatment and all doctors should possess the skills to recognize the critically ill patient and instigate appropriate initial management.

**Keywords** Assessment; CCOS; critical care outreach services; critical illness; early warning systems; medical emergency teams; MET; outcomes; prediction; signs

**Royal College of Anaesthetists CPD Matrix:** This article correlates with the following competencies from the RCOA 2010 curriculum:

### Basic level training

RC\_BS\_01  
 Basic ICM – 1.1, 2.1, 2.2, 2.7  
 MK\_BK\_01-06

### Intermediate level training

Intermediate ICM – 1.4, 12.9

Critical illness is a life-threatening process that, in the absence of medical intervention, is expected to result in mortality or significant morbidity. It may be the product of one or more underlying pathophysiological processes leading to multisystem organ

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## Learning objectives

After reading this article, you should be able to:

- recall the abnormal clinical signs associated with a critically ill patient and common patterns of presentation
- describe a logical and systematic approach to the assessment of an acutely unwell patient
- discuss the clinical importance of the 'Chain of Response' and early warning systems in the recognition of the critically ill

failure. Simple and preventative critical care is the most effective approach, considering that up to 40% of intensive care unit (ICU) admissions may be avoidable.<sup>1</sup> Ineffective management or failure to intervene in a timely fashion can lead to multi-organ failure and mortality rises as the number of organ systems involved increases.<sup>2</sup> Ideal management involves prediction of at risk patients, proactive observation and timely intervention to prevent deterioration. Occasionally, the onset of life-threatening illness is acute and catastrophic. More commonly, however, the onset is insidious. Studies have shown that early indicators of critical illness are often missed by healthcare professionals.<sup>3</sup> Signs and symptoms can be subtle and patients may compensate for a long time for abnormal changes in their physiology (Figure 1). Hence the gradually deteriorating patient on a hospital ward may go unnoticed until severe organ failure is established.

The Department of Health has recently published guidance on recognizing critically ill patients and recommends that all healthcare professionals are aware of the 'Chain of Response' and their role within it.<sup>4</sup> The 'Chain of Response' requires accurate recording and documentation of vital signs, recognition and interpretation of abnormal values and appropriate patient assessment and intervention. It should be conducted in an effective, timely and seamless manner, aiming to ensure the right patient receives the right treatment at the right time in response to these abnormal values.

Use of early warning scoring systems can highlight subtle physiological derangement (Table 1). The early warning scores recorded are derived from routine physiological observations and are linked to a pre-determined response for increasing the frequency of future monitoring and an escalation of care.<sup>5</sup> An abnormal score should prompt assessment by an appropriately qualified professional or team, often called a medical emergency team (MET) or critical care outreach service (CCOS). These scoring systems are not intended to predict outcome but to formulate a score which triggers a response.

Regardless of who assesses the patient, a systematic ABCDE approach should be used. This facilitates assessment and correction of life-threatening problems by priority, provides a standardized approach amongst professionals, aids communication and reduces the risk of missing important details. In the initial stages primary assessment, resuscitation and life-saving interventions should be performed concurrently.

## A – Assessment of airway

Complete airway obstruction is rare but recognized by silent but exaggerated respiratory effort ('see-saw' breathing) until the point

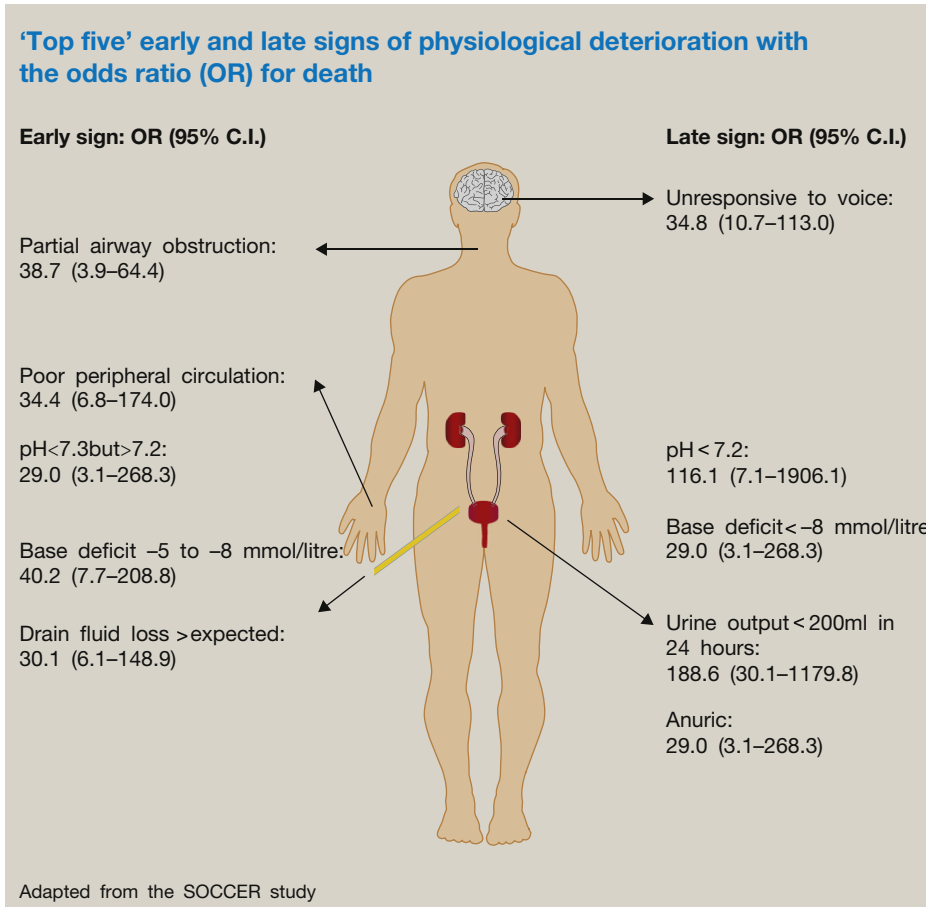


Figure 1

of cardiorespiratory collapse. Partial airway obstruction is more common and often occurs as a result of reduced conscious level. It results in noisy breathing (gurgling, snoring, etc.) and evidence of increased work of breathing. Stridor suggests large airway obstruction and hoarseness implies involvement of the vocal cords. Both are worrying signs and warrant immediate action by an experienced anaesthetist and/or ear, nose and throat surgeon.

A fast, simple way of assessing the airway is to ask the patient a question, such as 'how are you?' A clear, coherent answer implies a patent airway, sufficient respiratory capacity to permit speech and adequate cerebral perfusion for cognitive processing. A more thorough airway assessment should use the 'look, listen, feel' approach which is described in standard textbooks. If there is a risk of cervical spine injury, manual in-line stabilization

**Example of an early warning scoring system**

The modified early warning score (MEWS) system is employed in many UK hospitals to assist in the early detection of patients with physiological impairment. It is a five-component scoring system based on four bedside physiological parameters and an assessment of neurological state using the AVPU (alert, voice, pain, unresponsive) score. A score of 5 or more is associated with increased likelihood of death or admission to the intensive care unit. Abnormal scores should prompt an escalating response, varying from increasing the frequency of observations to urgent review by an appropriately qualified professional.

Score	3	2	1	0	1	2	3
Systolic blood pressure	<45% ↓	30% ↓	15% ↓	Normal for patient	15% ↑	30% ↑	>45% ↑
Heart rate (BPM)	—	<40	41–50	51–100	101–110	111–129	>130
Respiratory rate (RPM)	—	<9	—	9–14	15–20	21–29	>30
Temperature (°C)	—	<35	—	35.0–38.4	—	>38.5	—
AVPU	—	—	—	Alert	Voice	Pain	Unresponsive

Subbe CP, Kruger M, Gemmel L. Validation of a modified Early Warning Score in medical admissions. *Quarterly Journal of Medicine* 2001; 94: 521–6.

Table 1

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