



# Acute & Critical Care in Adult Nursing

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# Chapter 1

## Assessing, recognising, and responding to acute and critical illness

*Desiree Tait*

### NMC Future Nurse: Standards of Proficiency for Registered Nurses

This chapter will address the following platforms and proficiencies:

#### **Platform 3: Assessing needs and planning care**

Registered nurses prioritise the needs of people when assessing and reviewing their mental, physical, cognitive, behavioural, social and spiritual needs. They use information obtained during assessments to identify the priorities and requirements for person-centred and evidence-based nursing interventions and support. They work in partnership with people to develop person-centred care plans that take into account their circumstances, characteristics and preferences.

At the point of registration, the registered nurse will be able to:

- 3.2 demonstrate and apply knowledge of body systems and homeostasis, human anatomy and physiology, biology, genomics, pharmacology and social and behavioural sciences when undertaking full and accurate person-centred nursing assessments and developing appropriate care plans.
- 3.9 recognise and assess people at risk of harm and the situations that may put them at risk, ensuring prompt action is taken to safeguard those who are vulnerable.

#### **Platform 6: Improving safety and quality of care**

Registered nurses make a key contribution to the continuous monitoring and quality improvement of care and treatment in order to enhance health outcomes and people's experience of nursing and related care. They assess risks to safety or experience and take appropriate action to manage those, putting the best interests, needs and preferences of people first.

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At the point of registration, the registered nurse will be able to:

- 6.2 understand the relationship between safe staffing levels, appropriate skills mix, safety and quality of care, recognising risks to public protection and quality of care, escalating concerns appropriately.
- 6.5 demonstrate the ability to accurately undertake risk assessments in a range of care settings, using a range of contemporary assessment and improvement tools.

## Chapter aims

By the end of this chapter, you should be able to:

- identify the terms used to define patient acuity and levels of acute and critical care;
- describe how to undertake a rapid assessment and risk assessment of a changing clinical situation;
- describe how to collate accurate data from a variety of sources and analyse the results;
- demonstrate how to communicate the findings to staff at the appropriate level.

# Introduction

Within this chapter you will be introduced to Sally Smith. We will explore her clinical assessment and highlight the core skills required for recognising and interpreting, communicating, and acting on an episode of clinical deterioration. As a student you can observe, learn, and practise clinical decision-making skills under supervision before you embrace them as a registered and accountable practitioner. While this book cannot equip you with all these skills, it does highlight core skills and landmarks to guide you towards competent practice. This chapter gives you an overview of how to recognise deterioration, assess and prioritise care, and communicate your concerns. We will begin by thinking about why a person might deteriorate and how this links to the chapters included in this book.

# Why do patients deteriorate?

A person is at risk of clinical deterioration in any situation where damage to the body's cells, organs, and systems is left unchecked. Causes of cellular injury can be varied but generally relate to damage to cells, tissues, and organs as a result of deficiency, such as

reduced oxygen and/or nutrients; damage through intoxication such as infection or poisoning; or trauma. Cell injury occurs when the cell is no longer able to maintain homeostasis and normal function. If the cause of the injury is identified in a timely manner the cell(s) may recover and the injury can be reversed. However, if the injury is sustained for a prolonged period cell death will occur, leading to permanent damage to tissues and organs (McCance and Huether, 2019). Timing is of the essence, and you will be reminded of this in numerous chapters! The list below links the causes of cell injury to chapters included in this book:

- damage as a result of a deficiency in oxygen and/or nutrients as illustrated in patients with hypoxia (Chapters 2, 3, 4, 9, and 11);
- patients in shock, leading to reduced cellular perfusion of oxygen and nutrients (Chapters 5, 6, 7, 9, and 11);
- patients with ketoacidosis, hyperglycaemia, hypoglycaemia, and/or an electrolyte imbalance (Chapters 8 and 12);
- damage through intoxication including drugs, alcohol, and infection (Chapters 7 and 9);
- damage through trauma or injury (Chapters 9, 10, and 11).

In the scenario below, Sally Smith is introduced through the eyes of a student nurse. Sally's story will continue to be analysed in the context of this chapter and, where appropriate, linked to other chapters in the book.

### Scenario: Sally Smith

I am a second-year student and this is my first day on the acute medical admissions unit. Up until now my only experience has been working in a nursing home and on a surgical day unit. I arrived just as a new patient was being admitted; her name was Sally Smith, and she was 67 years old. She was being admitted with a six-day history of malaise, vomiting, falls, and confusion. Her husband was with her and he seemed very anxious. He suggested we call his wife Sally because she seemed to respond better to that name. We transferred Sally onto the bed, and I was asked to make sure she kept her oxygen mask on while she was assessed. We uploaded her vital signs onto the computer database and her NEWS2 (National Early Warning Score 2) was recorded as seven. This was the first time that I had looked after someone with a score higher than three and I began to feel very anxious about the situation. What does seven mean, what was going to happen, what was I going to do? I looked at the patient as if for the first time. The medical team had been informed that the patient was now in the ward and a nurse from the critical care outreach team had arrived to assess her. The outreach nurse began asking Sally's husband questions about the last week and was able to obtain detailed information about the progression of Sally's illness and how she had come to be admitted. At the same time, an airway, breathing, circulation,

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disability, and exposure (ABCDE) assessment and interventions were being completed and fluid balance monitored. All the time, the outreach nurse remained calm and continued to observe Sally very closely, while quietly reminding me to help Sally to keep the oxygen mask on. I felt completely out of my depth but was reassured by the calm efficiency of my mentor and the outreach nurse. I had a lot to learn!

Within five minutes we had obtained the following data:

**Situation:** Sally Smith, age 67 years, is presenting with hypoxia and confusion; she has two Red Flags for sepsis together with a recent history of a urinary tract infection.

**Background:** Sally has been ill for six days, provisionally with a three-day history of decreasing appetite and vomiting, diagnosed by her GP as viral gastritis. By day five the patient was still unable to tolerate food but was able to take sips of water. She was also complaining of loin pain when trying to pass urine. According to her husband, Sally had fallen twice when attempting to get to the bathroom and had periods when ‘she didn’t seem to make sense’. As a consequence, on day five Sally received a home visit from her GP, who diagnosed a urinary tract infection. He asked Sally’s husband to send a urine sample from his wife to the pathology department in the local hospital and prescribed a broad spectrum antibiotic. Twenty-four hours later the patient was not improving, and she was admitted as an emergency at the GP’s request. She has a past medical history of hypertension diagnosed 10 years ago and controlled by lisinopril 20 mg.

**Next of kin:** Husband, no children. Sally is for active resuscitation.

### **Assessment**

**Airway:** Patent; patient confused; GCS 14/15; no evidence of nausea.

**Breathing:** R 22/minute; oxygen saturation ( $\text{SpO}_2$ ): 92% (receiving oxygen 40% prescribed in the emergency unit to maintain  $\text{SpO}_2$  at >94%).

**Circulation:** P 94/minute; sinus rhythm; BP 120/75 mmHg; T: 37.4 °C; cool hands and feet; has not passed urine for approximately six hours, urethral catheter inserted, 70 ml drained and a sample was sent for culture and sensitivity. Infusion of 0.9% saline commenced in the emergency department at 125 ml/hr.

### **Biochemistry:**

- Arterial blood gases:
  - pH: 7.32 (acidosis)
  - $\text{PaO}_2$ : 8.5 kPa; (low oxygen)
  - $\text{PaCO}_2$ : 5.8 kPa; (elevated carbon dioxide)
  - $\text{HCO}_3$ : 26 mmol/L
  - High risk of respiratory failure
- Lactate: 1.9 mmol/L
- WBC:  $18.2 \times 10^9/\text{L}$

- Hb: 106 g/L
- CRP: 20 mg/dL
- Na: 132 mmol/L
- K: 5.0 mmol/L
- Urea: 12.5 mmol/L
- Creatinine: 160 micromol/L

**Disability:** Confused; GCS: 14/15, glucose: 6.5 mmol/L.

**Exposure:** Skin appears dry to touch; weight 73 kg (11 st 7 lb) prior to her illness; height 1.6 m (5 ft 4 in); she has a red area over her right hip.

NEWS2 = 10

**Recommendation from the outreach nurse:**

- Initiate the Sepsis Six protocol (Chapter 7).
- Continuous oxygen therapy to maintain SpO<sub>2</sub> at >94%.
- Blood cultures taken together with a second arterial blood for analysis, and venous blood for full biochemical analysis.
- Administer IV antibiotics according to Trust Protocol.
- Administer a fluid challenge of 500 ml.
- Continuous assessment and monitoring of the patient's vital signs, fluid, and electrolyte balance.
- Review the effect of administering the Sepsis Six protocol at the end of the first hour.

What Sally's story illustrates is that assessing, risk assessing, and managing care can require complex skills and a multidisciplinary approach that combines knowledge and experience of the following:

- the patient as a person;
- biopsychosocial systems;
- clinical assessment and interpersonal skills;
- relevant clinical experience;
- the ability to interpret complex patterns of illness and behaviour;
- the ability to interpret and manage care in rapidly changing situations.

## Why is the nursing assessment and monitoring of care important?

Assessing and monitoring of the patient's condition has been a central role of the nurse for 150 years, and nurses are in the privileged position of providing 24-hour care to people in a variety of clinical and community-based settings. With the correct skill

mix of registered nurses to patients, nurses can improve the quality of care and reduce patient morbidity and mortality (Aiken et al., 2017; Griffiths et al., 2018). In Aiken et al.'s (2017) study, they were also able to demonstrate that a reduction in nursing skill mix can have the opposite effect, leading to an increase in patient morbidity and mortality. Registered nurses are key to providing safe and effective care, and yet in the last 25 years there has been a growing body of evidence that nurses and other health-care practitioners have been unable to provide safe and consistent standards of care for acutely ill adults. This has resulted in evidence of unnecessary distress and patient deaths on an international scale. A review of these findings is included in the research summary below.

### **Research summary: suboptimal care recognition and action**

Empirical evidence of suboptimal care can be traced back to the 1990s. In the USA, Franklin and Matthew (1994) undertook a retrospective study of patient signs and symptoms before cardiac arrest and demonstrated that in 25% of the 150 cases studied there was evidence that the nurse had documented deterioration but failed to inform the medical team. They also found significant failings in the medical management of the patients. In the UK, case studies of patients admitted to intensive care from the ward by McQuillan et al. (1998) and McGloin et al. (1999) found evidence of suboptimal care in 50% and 30%, respectively, of the cases studied. Both studies identified that nursing and medical staff had failed to recognise and/or report the urgency of the situation, and that there was evidence of lack of continuity of care, poor supervision of junior staff, and other organisational failings. The National Patient Safety Agency (NPSA) Report (2007b) further reinforced the concerns by publishing that out of 425 reported deaths in acute care, 64 (15%) were related to patient deterioration not being recognised or acted upon. All these research findings are based on retrospective analysis of case studies and cannot be considered to be gold standard evidence, but the nature and implications of the findings have triggered a national and international campaign to improve the recognition of and response to clinical deterioration (Institute for Healthcare Improvement (IHI), 2011; NICE CG50, 2020; RCP, 2012). Proposed solutions included: measuring levels of patient acuity and aligning this to the skill mix required (Mark and Harless, 2011); physiological track and trigger tools and weighted response systems (RCP, 2017, 2012); communication tools such as 'SBAR' (Merten et al., 2017); and the development of critical care outreach or medical emergency teams (Tirkkonen et al., 2017). Studies of the sensitivity and clinical effectiveness of these various tools and frameworks have been difficult to evaluate due to several factors. These include: lack of standardisation of the tools used in research studies making comparison and meta-analysis of the findings difficult to achieve (Downey et al., 2017); difficulties associated with measuring the impact of a defined variable on patient outcome when there are extraneous variables influencing patient outcome (Churpek et al., 2017;

Downey et al., 2017; Smith et al., 2013); and recognising that the roles and responsibilities of healthcare practitioners are managed in complex organisational systems which impact on patient outcome. Such system factors include the presence of person-centred care, the presence of continuity of care, the knowledge and experience of the workers, skill mix, education, communication processes, organisational culture, and availability of resources (White and Tait, 2019; Dalton et al., 2018; McGaughey et al., 2017; Massey et al., 2016).

The assessment, recognition, communication, and management of patients with clinical deterioration is a vital part of the nurse's role and supports collaborative practice. According to Coulter Smith et al. (2014), recognising and responding to clinical deterioration requires not only physiological measurement but the combination of rapid, detailed assessment and skilled clinical judgement concerning the history and context of the person's illness. By highlighting the key factors that influence the quality of care provided when patients deteriorate cited by Dalton (2018); Massey et al. (2016); McGaughey et al. (2017), and White and Tait (2019), we can begin to unpick the optimum skills, organisational culture, and resources required to manage the care of deteriorating patients safely and effectively, as well as anticipating and preventing those conditions that lead to deterioration. These key factors are:

- person-centred care and continuity of care;
- knowledge and experience of the nurse and other healthcare workers in the team;
- nursing skill mix;
- communication;
- clinical and self leadership;
- team working and mutual reciprocity;
- organisational culture and management strategies;
- strategic planning and availability of resources.

In the remainder of the chapter, we will begin to explore these factors by focusing on how you can provide a safe but rapid assessment and response to patients with acute and critical illness by using physiological measurement, clinical judgement, and effective communication in a variety of organisational settings.

## Knowing and understanding the acutely ill patient

The World Health Organization's (WHO) global goal for humanising healthcare focuses on the person and their family as being central to the process of care,

*The overall vision for people-centred healthcare is one in which individuals, families and communities are served by and are able to participate in trusted health systems that respond to their needs in humane and holistic ways.*

(WHO, 2007, p7)

This goal does not change just because a person's condition changes, and should be recognised as the minimum standard required for all aspects of healthcare. Person-centred care puts the patient at the centre of care and prioritises the human connection between the patient and the carer (Sharp et al., 2015). There is a growing body of evidence that person-centred care enhances the quality of patient care and has the potential to improve patient outcomes through improvements in a person's self-efficacy, better communication and psychological support for recovery, and an improved ability to meet the patient's needs (Edvardsson et al., 2017; Etkind et al., 2015; Pirhonen et al., 2017; Sharp et al., 2015). The better you know a person, the more able you are to see subtle changes in their behaviour and form an overview of the clinical picture. In this way you can work to prevent further deterioration rather than wait for it to occur (White and Tait, 2019). In the absence of person-centred practice, dehumanisation of care and objectification of the person occurs, leading to suboptimal care and patient harm, as evidenced in the Report on Mid Staffordshire Healthcare Foundation Trust (Francis, 2013).

In 2000, the Department of Health set out guidance for managing patient dependency in relation to skill mix and location. These guidelines have subsequently been updated by the Intensive Care Society (ICS, 2021) and describe ward-level patients up to those requiring advanced level 3 critical care, listed in Table 1.1. These levels of care have been used to assist in the risk assessment of patients as well as in the identification and justification of decisions made about the skill mix requirements for individual wards and units (NICE, 2007; Smith, 2009).

When we return to Sally's story, we can see that she meets the criteria for level 1, with the potential to require level 2 patient care, for the following reasons.

- Sally's NEWS2 score = 10.
- Sally meets two Red Flags for sepsis (see Chapter 7).
- She is receiving continuous oxygen therapy for impaired respiratory function.
- She requires fluid resuscitation.
- She is at risk of acute kidney injury.
- Initially, she required the support of the outreach nurse.

We shall return to Sally's story later in the chapter.

Level of critical care criteria	Patient/ clinical examples	
<b>Ward care</b>	<ul style="list-style-type: none"> <li>• Requires hospitalisation: needs can be met through normal ward care.</li> <li>• Patients recently discharged from higher levels of care.</li> <li>• Person who can be managed clinically on a ward but remains at risk of clinical deterioration.</li> </ul>	<ul style="list-style-type: none"> <li>• Jennifer Harris is admitted for routine surgery. Her planned length of stay is two days, and she will need post-operative monitoring and intravenous therapy for 24 hours during her stay.</li> <li>• Fred Johnson has been discharged to your care from the high dependency unit, where he received respiratory support and interventions for acute respiratory failure.</li> </ul>
<b>Level 1 Enhanced care</b>		<ul style="list-style-type: none"> <li>• A patient requiring close physiological monitoring after major surgery – may have additional monitoring devices in situ, e.g. arterial line.</li> <li>• A patient requiring vasopressor support (peripheral or central) but otherwise stable who requires monitoring of BP.</li> <li>• A patient requiring non-invasive ventilation/continuous positive airways pressure (NIV/ CPAP) for single organ failure. For example, acute heart failure with pulmonary oedema, acute respiratory failure.</li> <li>• Patients requiring ongoing interventions from critical care outreach teams in their active management.</li> </ul>
<b>Level 2 Critical care</b>	<ul style="list-style-type: none"> <li>• Mr Brown needs stabilisation and invasive monitoring of his cardiac and haemodynamic function prior to receiving a general anaesthetic for planned surgery. He has an arterial and central venous line.</li> <li>• Mary Simpson was admitted to critical care for 24 hours following a surgical carotid endarterectomy to remove plaque from the carotid artery. She required a prolonged period in recovery following post-operative haemodynamic instability. The surgery carries a risk of stroke and haemorrhage, and Mary required hourly invasive haemodynamic monitoring and cardiovascular support together with neurological assessment and monitoring.</li> <li>• Patients needing extended post-operative care.</li> <li>• Patients stepping down from level 3 to level 2 care.</li> <li>• Patients needing monitoring and support of two or more organ systems.</li> <li>• Patients requiring enhanced nursing assessment and interventions that cannot be met elsewhere.</li> <li>• Patients receiving advanced cardiovascular/renal/neurological/dermatological support.</li> </ul>	

(Continued)

*Table 1.1* (Continued)

Level of critical care criteria	Patient/ clinical examples
	<ul style="list-style-type: none"><li>• Harry Green has a history of mental health disease and COPD. Following an acute exacerbation of his COPD he required 14 days of invasive ventilation in intensive care. He is now being weaned from full respiratory support to spontaneous breathing with the help of non-invasive ventilation. He is confused at times and tires quickly.</li><li>• Jane Morris has been admitted with sepsis and requires invasive haemodynamic support, fluid resuscitation and oxygen therapy as part of her ongoing care.</li><li>• Paul Stone was admitted following a road traffic incident. He had sustained bruises to his sternum and left lower ribs, bilateral fractured shafts of femur, and a fractured pelvis. He requires oxygen therapy, advanced cardiovascular support, and pain relief following emergency surgery to stabilise the fractures with internal fixation.</li></ul>
<b>Level 3 Critical care</b>	<ul style="list-style-type: none"><li>• Ben Williams was transferred from an acute medical ward after showing signs of clinical deterioration. He is diagnosed with pneumonia, acute respiratory distress syndrome, septic shock, and acute kidney injury. He requires invasive ventilation, invasive haemodynamic support, and renal replacement therapy.</li><li>• Patients receiving advanced respiratory support alone or support for a minimum of two organs.</li><li>• Patients with chronic impairment of one or more organ systems sufficient to restrict daily activities (co-morbidity) and who require support for an acute reversible failure of another organ system.</li><li>• Patients who experience delirium in addition to requiring level 2 care.</li><li>• Complex patients requiring support for multiple organ failures.</li></ul>

*Table 1.1* Defining levels of critical care informed by the Intensive Care Society Consensus Statement on Levels of Adult Critical Care

*Source:* ICS, 2021.

# During handover

Knowing and understanding your patient can begin before you meet them and, in some cases, begins with the patient's handover, followed by meeting and assessing the patient and ensuring continuity of patient-centred care. The levels of patient dependency also allow you to risk assess from a distance and monitor the potential for patient deterioration. If the patient's dependency level is noted during handover, then you have already started to prioritise your patient's needs. Other related factors, identified during handover and/or during the patient assessment, may influence the potential for the patient to deteriorate (Elliot et al., 2014). These include the following:

- *Age*: increasing age in the older adult is associated with increased vulnerability to co-morbidities, infection, and the need for multiple medications.
- *Hydration*: over- or under-hydration can increase the risk of clinical deterioration.
- *Nutrition*: malnutrition can prolong recovery, wound healing, and increase the risk of infection.
- *Pain*: a patient in pain is likely to have impaired mobility and increased risk of venous thrombosis, chest infection, and a longer length of stay in hospital.
- *Mobility*: reduced mobility increases the risk of pressure ulcers, venous thrombosis, sepsis, and lethargy.
- *Mood/psychological*: anxiety, fear, and low mood can negatively impact on the speed and progress of a patient's recovery.
- *Mental health*: knowledge and understanding of patients' mental health problems can enhance your understanding of their ability to cope with other health problems.
- *Learning difficulties*: knowledge of underlying physiological disorders related to their learning difficulties can be crucial and vital for risk assessment of these patients.
- *Co-morbidities and medication*: the presence of combined biopsychosocial problems such as diabetes, heart disease, and the patient's requirement for a hip replacement will increase the risks associated with surgery. Drugs such as prednisolone are steroids that, when prescribed, can lead to a suppressed immune response, hypertension, and raised blood glucose. There is also an increased risk of acute kidney injury and/or chronic kidney disease (see Chapter 9 for further details).
- *Previous admission to ITU*: The patient that has been previously admitted to intensive care during this hospital stay will have increased vulnerability to infection, haemodynamic instability, weakness, and lethargy.

Recognising the significance of these factors in patients will alert you to the potential for deterioration.

# Meeting and assessing the patient

This should always begin with a rapid assessment of your patient's safety (illustrated in Table 1.2). If you are concerned, complete the rapid assessment, and report your

concerns without delay (NICE, 2007 [reviewed without change in 2016]; NPSA, 2007a; RCP, 2017). The difference between a routine assessment and a rapid assessment of a patient's condition is the ability to anticipate, recognise, and respond in a timely manner to any aspect of concern you have for the patient's condition. As a student or junior nurse, the use of clinical guidelines will provide a safe starting point for you to recognise and manage concern and, as you develop your level of expertise and experience, you will begin to develop the core skills required for the nurses' professional gaze. The professional gaze (Tait, 2009, cited by White and Tait, 2019) can be described as including a continuous process of scanning: Having sideways vision while at the same time concentrating on the particulars of practice ... the visual thing (Tait, 2009, p235).

The professional gaze also includes using the senses of sight, hearing, smell, and touch to perceive and selectively attend to changes in the patient's condition, described by Resuscitation Council UK (2015) as look, listen, and feel. The knowledge and skills that a nurse utilises to perform the professional scan include the following:

- clinical, historical, and experiential knowledge of the person, his/her condition, and the clinical situation;
- the ability to balance the subjective, contextual, and objective data collected in order to collate and understand the data;
- the use of previously learned clinical cues and pattern recognition that act as shortcuts to a provisional diagnosis;
- focused observation when data are interpreted in the context of all available clinical information and results of investigations leading to a diagnosis;
- communication with the patient, family, and clinical colleagues;
- initiating clinical actions required to manage the patient's situation in collaboration with others;
- continued scanning and monitoring of the patient's condition for signs of change.

Regardless of your level of skill, the National Institute for Health and Care Excellence (NICE, 2007) recommends that if you are concerned about a patient, you should initiate and perform the admissions, recognition, and response bundles and monitor the patient's condition as illustrated in Table 1.2.

Central to the use of these bundles is the integration of the physiological track and trigger score, and the use of emergency outreach teams for the provision of patient and staff support. The National Early Warning Score (NEWS) was developed to standardise risk assessment across the UK (RCP, 2012). The Royal College of Physicians (RCP) proposes that standardising the numerical score and tracking the changes in the patient's condition provides objective evidence of deterioration, justifies calling the rapid response team for support, and optimises standards for education and training of all healthcare staff. However, a systematic review of the effectiveness of

<b>Bundle of care</b>	<b>Bundle purpose</b>	<b>Interventions</b>
Admission bundle: multidisciplinary	To achieve a baseline of patient data within two hours of admission, collected and communicated to the medical team.	<ol style="list-style-type: none"> <li>1. Minimum data to collect on admission to your practice area: T, P, R, BP, level of consciousness, oxygen saturation (<math>\text{SpO}_2</math>).</li> <li>2. Document a clear monitoring plan including the type and frequency of observations to be undertaken.</li> <li>3. Ensure that all members of the multidisciplinary team know and agree the monitoring plan.</li> </ol>
Recognition bundle	Early identification and risk assessment of the deteriorating patient.	<ol style="list-style-type: none"> <li>1. Monitor physiological signs at least 12 hourly for all patients.</li> <li>2. Record track and trigger score.</li> <li>3. Perform risk assessment according to the assessment and trigger score.</li> <li>4. Consider the possibility of sepsis.</li> <li>5. Communicate the information to the medical team.</li> </ol>
Response bundle	Optimal and timely treatment of the at-risk patient.	<ol style="list-style-type: none"> <li>1. If there is clinical concern. The RCP (2017) recommend:</li> <li>2. If the trigger score is low (1–4), ask a registered nurse to assess the patient and make a clinical decision to either increase the frequency of the observations and/or escalate care requirements.</li> <li>3. If the trigger score is YELLOW (a score of 3 in a single parameter) increase observations to hourly and a registered nurse should contact the patient's medical team for review.</li> <li>4. If the trigger score is AMBER (a total of 5 or more) increase observations to hourly/continuous and the registered nurse will immediately inform the medical team and contact the critical care outreach team urgently.</li> <li>5. If the trigger score is RED (a total of 7 or more) commence continuous monitoring, and the registered nurse will contact the medical team, critical care outreach team, and consider transfer to HDU/ICU.</li> <li>6. In all cases communicate and document communication using the SBAR (situation, background, assessment, recommendation) tool.</li> </ol>

*Table 1.2 Rapid response to acute illness: admission, recognition, and response bundles*

*Source:* NICE, 2007.

physiological track and trigger tools by Gao et al. (2007) concluded that the validity, reliability, and sensitivity of the tools in use were poor when used as a single indicator for evidence of deterioration. However, Smith et al. (2013) found that NEWS has a greater ability to discriminate patients at risk of deterioration than 33 other early warning scoring systems. Further evaluation of NEWS has highlighted its value in several settings including pre-hospital care and emergency departments (Bilben et al., 2016; Keep et al., 2016; Silcock et al., 2015). However, concerns have been raised about the potential overuse of oxygen for patients with hypercapnic respiratory failure increasing the risk of further deterioration for this patient group (Kane et al., 2012). A study by Ludikhuize et al. (2012) highlights another area of concern that relates to evidence of incomplete documentation. They found that in a retrospective study of 204 patients in an acute hospital the collection of vital signs and track and trigger scores was incomplete in most cases they reviewed. This suggests that future studies need to focus on measuring the effectiveness of NEWS implementation and the use of clinical judgement in recognising and responding to clinical deterioration. These findings prompted some amendments to NEWS when it was evaluated in 2015 by the NEWS Review Group. These evidence-based changes were published in December 2017 and launched in 2018 by the RCP and have been incorporated in this textbook in relevant chapters (RCP, 2017).

Clinically effective detection and management of clinical deterioration therefore begins with nurses being alerted to or recognising signs of clinical deterioration and using a systematic, comprehensive, and holistic approach to managing care.

When meeting and assessing the patient, it is important not to make assumptions about your patient's biopsychosocial and spiritual needs until you have verified this with the patient and the healthcare team. Has your patient made a choice about resuscitation? Does your patient have an advance directive? According to joint guidance from the British Medical Association (BMA), Resuscitation Council (UK), and the Royal College of Nursing (RCN) (2016), the provision of patient-centred care should consider patients' individual needs and wishes where possible. You should be encouraging patients to make informed decisions about their care, and this includes advanced care planning for decisions about cardiopulmonary resuscitation when it is appropriate to do so, as illustrated, for example, in the following patient case study.

### Case study: Tom Romano

Tom is 74 years old and has a 20-year history of chronic respiratory disease. For the last ten years he has been admitted to level 2 and/or 3 care for management of acute exacerbations of his chronic respiratory problem during the winter months. Last year

he was in hospital for a period of 12 weeks, four weeks of which were in intensive care. Tom has made it clear to his family and the nursing team that he does not want to go through ‘that torture’ again. He has expressly wished that he does not want to be ‘**intubated** and put on a **ventilator**’. A collaborative team meeting with Tom and his family resulted in clear documented guidelines for active treatment of his chest infection with a ceiling of treatment noted: ‘He will receive active and full support for his condition including non-invasive respiratory support but excluding **invasive respiratory support of any kind and cardiopulmonary resuscitation.**’ The documentation was agreed and signed, with review dates and criteria agreed with the patient and family.

Knowledge of your patient will enable you to make informed decisions about your patient’s progress. Where possible, plan for continuity of care using a collaborative team approach to organising person-centred care with clear lines of responsibility.

## Evidence-based rapid assessment and interpretation of the patient’s condition

The purpose of undertaking a rapid assessment and interpretation of a patient’s condition is to:

- anticipate potential risks;
- prevent deterioration;
- ensure timely interventions to provide optimal outcome.

The Airway – Breathing – Circulation – Disability – Exposure ‘ABCDE’ approach to assessment advocated by the Resuscitation Council (UK) (2015) provides a simple but systematic and priority-driven approach that focuses initially on assessing patient safety and then provides a focus for more in-depth assessment once the patient’s safety has been established. When the ABCDE approach is combined with clinical assessment processes – including look, listen, feel, measure, monitor, collate evidence, and finally respond – you will have the basis of preliminary but detailed assessment data that can be used to communicate and collaborate with the medical team to achieve an effective response (Zinchenko, 2018).

This chapter and subsequent chapters introduce you to the ABCDE algorithm and encourage you to apply this in the context of patient assessment, clinical interpretation, and management of care. In the remainder of this chapter, you will be taken through the rapid assessment process by using the core skills: look, listen, feel, measure, monitor and collate evidence, and respond.

Each element of the process is summarised in table format and provides a working guide that you can apply to scenarios in this book and in clinical practice. In the following tables each assessment activity is prioritised and listed using A-B-C-D-E; there are columns that illustrate normal and abnormal signs, and tips for drawing conclusions and acting.

It is important to note that while, for the purpose of this book, these core skills have been listed in separate tables, in practice you will be using these skills concurrently and consistently to manage patient care.

## **Assessing your patient: Look/Listen/Feel**

When assessing a person, it is often the first look or sound that alerts you to their condition and helps you to start focusing on your priorities. This is often before a formal assessment has been made.

**Look:** As you approach the patient, your initial observation of them begins and your priority is to look and assess for any evidence of patient distress. Nurses often say that ‘they only have to look at a patient to know there is something wrong’: what they are doing is using their skills of visual perception, combined with knowledge and clinical experience, to interpret a picture of the patient before them (Tait, 2009; Thompson and Dowding, 2002).

**Listen:** Once you have approached the patient, the second sense to use is listening. This includes listening for signs of a patient’s physiological distress such as noisy and laboured breathing and/or signs of psychological distress such as crying. Assessment skills related to listening include the active process of gathering verbal data from the patient and/or relatives, receiving handover from clinical staff, and the process of linking relevant data to form clinical judgements.

**Feel:** The use of touch in professional caring can be involved with functional nursing activities related to physical aspects of care, as well as therapeutic nursing activities related to communication and psychological care. When undertaking a rapid assessment of a patient, your priority is to focus on factors affecting circulation. This includes assessing for evidence of cardiac activity and changes to the patient’s circulation that affect the colour and warmth of the skin.

Airway			
Assessment data	Normal signs	Abnormal signs	Drawing conclusions/taking action
Are they breathing?	Quiet regular respiratory pattern: 10–20/min.	Absent breathing: no rise and fall of the chest or abdomen. No response to verbal stimulation.	If the patient does not respond and is not breathing normally after you have opened the airway and checked for airway obstruction then follow the guidelines for basic life support (Resuscitation Council (UK), 2015).
Is there an airway obstruction?	Regular rise and fall of the chest.	Laboured breathing. Choking behaviour.  Irregular pattern of breathing with paradoxical chest movements (see-saw respirations).  Unequal chest expansion (may be a sign of a pneumothorax or haemothorax).	Untreated airway obstruction leads to a lowered level of oxygen in the arterial circulation (hypoxia) and increases the risk of hypoxic damage to the brain, kidneys, and heart. This situation can lead to cardiac arrest and death. Open the patient's airway, suction, and consider the use of an oropharyngeal airway. Anticipate the need for tracheal intubation in a medical emergency. Commence high-flow oxygen using a mask with an oxygen reservoir.  Aim for oxygen saturations of 94–98% if the patient does not have pre-existing COPD and 88–92% if the patient is at risk of hypercapnic respiratory failure (RCP, 2017).
Is there potential for airway obstruction?	Alert Glasgow coma score (GCS) = 15	Evidence of a deteriorating level of consciousness.  Reduced level of consciousness and vomiting.  Evidence of blood loss that may obstruct the airway.  GCS of 8 or less.	Open the patient's airway, suction, and consider the use of an oropharyngeal airway. Anticipate the need for tracheal intubation in a medical emergency.  If GCS is 8 or less the airway is compromised: intubate. Commence high-flow oxygen using a mask with an oxygen reservoir. Aim for oxygen saturations of 94–98% if the patient does not have pre-existing COPD and 88–92% if the patient is at risk of hypercapnic respiratory failure (RCP, 2017).

Table 1.3 Quick guide to rapid assessment and response to clinical deterioration: Look/Listen/Feel: Airway

Breathing			
Assessment data	Normal signs	Abnormal signs	Drawing conclusions/taking action
Is the breathing noisy?	Quiet relaxed respirations.	Respiratory stridor indicates narrowing or partial obstruction to the upper airways. Respiratory wheeze is consistent with narrowing of the bronchi due to bronchospasm. Rattle indicates sputum or liquid in the apices of the lung.	For airway obstruction see Table 1.3. Assess the patient history for a diagnosis of asthma or chronic obstructive pulmonary disease (COPD). Aim for oxygen saturations of 94–98% if the patient does not have pre-existing COPD and 88–92% if the patient is at risk of hypercapnic respiratory failure (RCP, 2017).
Does the patient have a cough?	No cough.	Cough present. Dry cough. Chesty cough. Productive cough with sputum.	If the cough is dry and wheezy this may indicate an acute asthma attack. If the patient is producing yellow/green sputum this may indicate an infection. Obtain a sputum sample for microbial culture.
		Sputum green/yellow/black/pink/thick, tenacious, copious amounts (fills a tissue in one cough). Rapid shallow breathing	If the sputum is black and there is a recent history of exposure to fire this may indicate inhalation of smoke/inhalation burns. Frothy pink sputum may indicate pulmonary oedema. Rapid shallow breathing may be related to diabetic ketoacidosis, sepsis, and/or exhaustion.
Is there evidence of abdominal breathing or use of accessory muscles to breathe?	Quiet relaxed respirations.	Use of accessory muscles indicates there is increased work of breathing. The use of abdominal breathing without chest expansion may indicate an injury to the cervical spine.	Does the patient have a history of chronic respiratory disease? Have you checked for signs of airway obstruction? Does the patient have a pneumothorax or fluid obstructing the lung space in the thorax? Risk assess for and assume spinal injury in the presence of abdominal breathing until this cause has been ruled out or confirmed. Aim for oxygen saturations of 94–98% if the patient does not have pre-existing COPD and 88–92% if the patient is at risk of hypercapnic respiratory failure (RCP, 2017).

Table 1.4 Quick guide to rapid assessment and response to clinical deterioration:  
Look/Listen/Feel: Breathing

Assessment data	Normal signs	Abnormal signs	Circulation Drawing conclusions/taking action
What can you interpret from looking at and feeling the skin?	<p>Skin is pink or brown with pink mucosa.</p> <p>Skin is warm to touch and well perfused.</p> <p>Capillary refill time (CRT) of 2 seconds.</p>	<p>Skin is pale.</p> <p>Lips and mucosa pale blue or purple. Skin shows signs of central cyanosis.</p> <p>Cold hands and feet with a blue tinge to the skin on fingers and toes. Skin shows signs of peripheral cyanosis.</p> <p>Skin is warm, flushed, and red.</p> <p>One or more limbs pale and cold with absent pulses.</p> <p>Prolonged capillary refill.</p>	<p>Pale skin may indicate early signs of shock.</p> <p>Central cyanosis is an indication of severe hypoxia.</p> <p>Peripheral cyanosis may indicate poor peripheral perfusion/ peripheral shutdown and, in the presence of other clinical factors such as a fall in BP, may indicate shock (Chapter 6).</p> <p>A flushed skin indicates peripheral vasodilation, present in anaphylaxis.</p> <p>A patient with sepsis may present with warm flushed skin because of distributive shock (Chapter 7).</p> <p>Localised peripheral changes may indicate localised trauma and loss of circulation, such as in compartment syndrome (Chapter 10).</p> <p>Prolonged peripheral capillary refill time (CRT) of more than 2 seconds is suggestive of peripheral vasoconstriction in the presence of other indicators for shock (Chapter 6) and/or hypothermia.</p> <p>CRT of less than 1 second is indicative of a hyperdynamic state such as systemic inflammation, sepsis, distributive shock and/or hyperthermia.</p>
Pulse?	Pulse is present and regular.	<p>Pulses present in the peripheral pulse points.</p>	<p>Carotid pulse is absent.</p> <p>Pulse is weak and thready.</p> <p>Pulse is full and bounding.</p> <p>Pulse is irregular.</p> <p>Pulse is absent or altered in one or more of the following: pedal, radial, and femoral.</p> <p>If the patient has no carotid pulse and cardiac output is absent follow the Resuscitation Council (UK) (2015) algorithm on basic life support or in-hospital life support.</p> <p>A weak thready pulse indicates reduced cardiac output.</p> <p>A full and bounding pulse may indicate sepsis.</p> <p>A rapid irregular pulse indicates an increased risk of embolus development and/or a failing cardiac output.</p> <p>Localised peripheral changes may indicate localised trauma and loss of circulation.</p>

Table 1.5 Quick guide to rapid assessment and response to clinical deterioration: Look/Listen/Feel: Circulation

Disability			
Assessment data	Normal signs	Abnormal signs	Drawing conclusions/taking action
Is the patient alert and responding?	The patient is alert and responding to questions in a logical manner when assessed using the ACVPU algorithm (Alert/ new Confusion/ responds to Voice/responds to Pain/ Unresponsive) (RCP, 2017).	<p>The patient responds to voice, pain or is unconscious.</p> <p>Evidence of new confusion.</p> <p>Evidence of:</p> <ul style="list-style-type: none"> <li>• response to voice</li> <li>• response to pain.</li> </ul> <p>Unresponsive GCS &lt;15.</p>	<p>Consider possible causes including:</p> <ul style="list-style-type: none"> <li>• hypoxia</li> <li>• ketoacidosis (smell the breath for the presence of ketones – pear drops)</li> <li>• head injury</li> <li>• drugs</li> <li>• stroke.</li> </ul> <p>Place patient in the recovery position unless a spinal injury is suspected.</p> <p>If you suspect the person may have a cervical spine injury, open the airway using a jaw thrust rather than a head tilt (Resuscitation Council (UK), 2015).</p> <p>Open the patient's airway, suction, and consider the use of an oropharyngeal airway. Anticipate the need for tracheal intubation in a medical emergency.</p> <p>If GCS is 8 or less: intubate.</p> <p>Commence high-flow oxygen using a mask with an oxygen reservoir. Aim for oxygen saturations of 94–98% if the patient does not have pre-existing COPD and 88–92% if the patient is at risk of hypercapnic respiratory failure (RCP, 2017).</p>

Table 1.6 Quick guide to rapid assessment and response to clinical deterioration: Look/Listen/Feel: Disability

Exposure/examination			
Assessment data	Normal signs	Abnormal signs	Drawing conclusions/taking action
Is there evidence of trauma/injury?	No signs of physical damage to the person, comfortable in any position. Calm facial expression.	<p>Unresponsive patient with facial grimacing, frowning.</p> <p>Signs of bruising, physical trauma, foreign object in the person, abnormal movement of the chest, immobility.</p>	<p>Attempt to open the airway where safe and possible for the patient.</p> <p>If you suspect the person may have a cervical spine injury, open the airway using a jaw thrust rather than a head tilt (Resuscitation Council (UK), 2015).</p>

Exposure/examination			
Assessment data	Normal signs	Abnormal signs	Drawing conclusions/taking action
			Protect the patient's airway to maintain ventilation.
Is there evidence of factors that may be related to the patient's condition?	A safe environment.	Causes of injury or trauma include: empty medication packets, empty bottle of alcohol, sharp objects, etc.	Look for causes of injury or trauma. Ensure patient and personal safety.
Is there evidence of fluid loss, blood loss?	No signs of loss of body fluids.	Evidence of vomiting and/or diarrhoea. Blood loss. Loss of fluid through burns.	Risk assess for hypovolaemic shock (see Chapters 6 and 10).

*Table 1.7 Quick guide to rapid assessment and response to clinical deterioration: Look/Listen/Feel: Exposure*

The process of collating additional information begins with your rapid assessment of the patient and becomes a vital part of the data-collection process that informs your decision making and that of the healthcare team. This includes collating a record of the patient's recent history, past medical and social history as well as spiritual needs and agreed existing treatment plans. Table 1.8 gives you some pointers for what you should be asking and analysing.

Assessment data	Normal signs	Abnormal signs	Drawing conclusions/taking action
Have you listened to the patient's or relative's story of events?	Patient is able to give you a clear account of their problem and history.	Patient is unable to respond, unconscious, confused, and unable to give appropriate answers.  A relative or others are able to give an account of the events.	Always listen and be alert to information regardless of the source: it may be important!
Do you know the patient?	The patient has a named nurse.	Patient has been admitted in the last 24 hours and has no prescribed limiting directives.	If the patient is not for resuscitation this does not mean that active treatment has been withheld.
	The patient is registered 'do not resuscitate'	Patient is not known by the staff.	Therefore, always check to obtain a collaborative agreement of the patient's care plan.

(Continued)

*Table 1.8 (Continued)*

<b>Assessment data</b>	<b>Normal signs</b>	<b>Abnormal signs</b>	<b>Drawing conclusions/taking action</b>
	and this has been dated and signed with an agreed time frame.		If the patient is a recent admission and no information is available, then assume that all active treatment continues. If the patient does not have a recent history of continuous care by the nursing staff then ensure that a baseline of assessment details is recorded for comparison.

*Table 1.8 Quick guide to additional information gathering when undertaking a rapid assessment and response to clinical deterioration*

The use of ‘Look: Listen: Feel’ is often the initial assessment that focuses on safety and preservation of life and this process runs concurrently with ‘measure, monitor, and collate evidence’. Table 1.9 identifies objective measures that can be interpreted in the context of data already collected to create a more detailed and comprehensive presentation of the patient’s condition.

## Measure and collate evidence of clinical change

The core assessment skills of ‘Look: Listen: Feel’ can be completed within a few minutes of meeting the patient. The process of measuring and collating evidence for clinical change involves bringing together the objective data that can be collected on a patient through the assessment of vital signs, blood glucose, fluid and electrolyte balance, and other relevant investigations. This process also begins when you meet the patient and runs concurrently with the ‘Look: Listen: Feel’ assessment. According to Adam et al. (2010), there is strong evidence to suggest that changes in respiratory rate are associated with clinical deterioration, along with a decline in patient oxygen saturation levels, changes in pulse and blood pressure, and level of consciousness. It is at this stage that evidence of your concerns becomes apparent and, if necessary, triggers the next step. See Table 1.10.

Assessment data	Normal signs	Abnormal signs	Drawing conclusions/taking action
Airway	Patient alert. GCS >8.	New confusion. Responding to: <ul style="list-style-type: none"> <li>• voice</li> <li>• pain.</li> </ul> Unconscious. GCS <8.	If the person is confused this may be associated with reduced oxygen levels (dysxia) and increases the risk to the patient's airway. Assess in conjunction with the 'Look: Listen: Feel' assessment.  If GCS is 8 or less the person is unconscious and their airway is at risk: a skilled practitioner should intubate. Commence high-flow oxygen using a mask with an oxygen reservoir. Aim for oxygen saturations of 94–98% if the patient does not have pre-existing COPD and 88–92% if the patient is at risk of hypercapnic respiratory failure (RCP, 2017).  Link assessment to risk of head injury (Chapter 11), endocrine causes of altered consciousness (Chapter 12), respiratory disease (Chapters 2 and 3), shock (Chapters 6 and 7).
Respiration (R)	R: 12–20/min	R: <12, >20	Assess the patient in context: are you concerned about your patient?  Is there evidence to support this from your 'Look: Listen: Feel' assessment?  If so, what information is there, and can you see a pattern or trend in deterioration?  Has the NEWS2 score changed?  Is there evidence of respiratory failure? (see Chapters 2 and 3)  Is there evidence of sepsis? (see Chapter 7)  Is there a recent history of head trauma? (Chapter 11)  Is there evidence of a cardiac problem? (Chapter 4)

(Continued)

Table 1.9 (Continued)

Assessment data	Normal signs	Abnormal signs	Drawing conclusions/taking action
Oxygen saturation ( $\text{SpO}_2$ )	$\text{SpO}_2: 94\text{--}100\%$ in a person <b>without</b> hypercapnoea and/or COPD. $\text{SpO}_2: 88\text{--}92\%$ in a person <b>with</b> hypercapnoea and/or COPD.	$\text{SpO}_2: <94\%$ $\text{SpO}_2: <88\%$ Requires supplemental oxygen therapy to support $\text{SpO}_2$ .	
Arterial blood gas analysis (ABG)	ABG: <ul style="list-style-type: none"><li>• pH: 7.35–7.45;</li><li>• <math>\text{PaO}_2: 11.5\text{--}13.5 \text{ kPa}</math>;</li><li>• <math>\text{PaCO}_2: 4.5\text{--}6.0 \text{ kPa}</math>;</li><li>• <math>\text{HCO}_3^{:} 24\text{--}27 \text{ mmol/L}</math>.</li></ul>	ABG: <ul style="list-style-type: none"><li>• Respiratory acidosis:<ul style="list-style-type: none"><li>◦ pH: &lt;7.35;</li><li>◦ <math>\text{PaCO}_2: &gt;6.0 \text{ kPa}</math>.</li></ul></li><li>• Respiratory alkalosis:<ul style="list-style-type: none"><li>◦ pH: &gt;7.45;</li><li>◦ <math>\text{PaCO}_2: &lt;4.5 \text{ kPa}</math>.</li></ul></li><li>• Metabolic acidosis:<ul style="list-style-type: none"><li>◦ pH: &lt;7.35;</li><li>◦ <math>\text{HCO}_3^{:} &lt;22 \text{ mmol/L}</math>.</li></ul></li><li>• Metabolic alkalosis:<ul style="list-style-type: none"><li>◦ pH: &gt;7.45;</li><li>◦ <math>\text{HCO}_3^{:} &gt;26 \text{ mmol/L}</math>.</li></ul></li></ul>	
Pulse (P) rate	P: 51–90/min	P: <50, >90/min	
Blood pressure (BP)	BP: 110/70–140/90 mmHg	BP: <110/70 mmHg, >140/90 mmHg	

<b>Assessment data</b>	<b>Normal signs</b>	<b>Abnormal signs</b>	<b>Drawing conclusions/taking action</b>
Electrocardiogram (ECG)	Sinus rhythm.	Evidence of any abnormal-looking complexes and irregularities in rate. For example: ectopic beats, atrial fibrillation, and elevation of the ST segment in some ECG leads.	
Urine output	>0.5 ml/kg body weight/hr >1000 ml/24hrs.	Urine output: <ul style="list-style-type: none"> <li>• oliguria (acute kidney injury): &lt;0.5 ml/kg body weight/hr;</li> <li>• polyuria (diabetes, diabetes insipidus).</li> <li>• Negative urine balance despite rigorous fluid replacement.</li> </ul>	If the person has oliguria, investigate serum creatinine levels – does the patient have acute kidney injury? If polyuria, assess blood glucose levels for signs of diabetes (Chapter 12). Has there been a recent head injury that may have damaged the hypothalamus? (Chapter 11).
Fluid balance	Fluid balance should be equal (=) based on a minimum input of 2 L/24hrs.	Fluid balance < or > = based on a minimum input of 2 L/24hrs.	Is there evidence of shock? Is there evidence of fluid overload, oedema?
Central venous pressure (CVP)	Mid axilla: 2–6 mmHg (5–10 cm water).	Mid axilla: <ul style="list-style-type: none"> <li>• hypovolaemia. CVP: &lt;2–6 mmHg;</li> <li>• hypervolaemia/ cardiac failure. CVP: &gt;2–6 mmHg.</li> </ul>	CVP is an indicator of circulating volume and right sided cardiac function. Consider shock if low or, if high, consider fluid overload or heart failure.
Capillary refill time (CRT)	<2 seconds	>2 seconds	Is the person dehydrated? Are they hypovolaemic with evidence of peripheral shutdown?
Level of consciousness (LOC)	ACPVU score: A Alert/new Confusion/ responds to Voice/ responds to Pain/ Unresponsive) (RCP, 2017). GCS score: 15	ACPVU score indicating CPVU. GCS: <15	If confusion is apparent, consider respiratory failure, head injury. Other causes of altered consciousness (Chapters 2, 11). GCS of <8 means that the airway is compromised.

(Continued)

Table 1.9 (Continued)

<b>Assessment data</b>	<b>Normal signs</b>	<b>Abnormal signs</b>	<b>Drawing conclusions/taking action</b>
Pain assessment	Pain managed effectively.	Elevated pain score.	Utilise a comprehensive pain assessment tool, PQRST (Chapter 5).
Blood results	Glucose: 4–8 mmol/L Urea: 3.5–6.5 mmol/L Creatinine: 60–120 micromol/L	Glucose: <4 or >7.7 mmol/L Urea: < or >3.5–6.5 mmol/L Creatinine: >60–20 micromol/L	Any changes in serum results should be assessed in context of the person's other clinical signs and communicated to the medical team.
Glucose			
Urea and creatinine			
Electrolytes			
Haematology			
Microbiology			
C-reactive protein (CRP) (inflammatory marker)			
Erythrocyte sedimentation rate (ESR)			

Table 1.9 Quick guide to rapid assessment and response to clinical deterioration using objective clinical measurement

Date and time of initial call: <i>05/11/18 at 18.00 hrs</i>	Patient's name: <i>Sally Smith aged 67 years</i> Nurse's name: <i>Susan Brown</i> Name of person called: <i>Specialist registrar (Brian James)</i>
Date and time of response: <i>05/11/18 at 18.05 hrs</i>	
Situation: reason for the call	<i>I am concerned about Sally Smith; she was admitted today at 16.00 hrs after being diagnosed with dehydration, possible urinary tract infection and sepsis. Her condition has deteriorated after initiation of the Sepsis Six criteria 1 hour ago.</i>
Background	<i>Past medical history: hypertension controlled by lisinopril 20 mg but she has been unable to take her medication for six days.</i>
Assessment	<p><i>Previous assessment data: 17.00 hrs</i></p> <p><b>Airway:</b> patent  <b>Breathing:</b> R: 22/min;  <i>SpO<sub>2</sub>: 92% on 40% O<sub>2</sub></i>  <b>Circulation:</b> P: 94/min;  <i>sinus rhythm;</i>  <i>BP 120/70 mmHg;</i>  <i>T: 37.4 °C; cool hands and feet.</i>  <i>Has not passed urine for approximately six hours.</i>  <i>Urinary catheter passed 70 ml</i>  <i>Infusion of 0.9% saline commenced in the emergency unit running at 125 ml/hour and a fluid challenge of 500 ml infused.</i>  <i>CRP: 20 mg/L</i>  <i>White cell count 18.2 10<sup>9</sup>/L</i>  <b>Disability:</b> Confusion  <i>Glucose: 6.5 mmol/l</i>  <i>NEWS = 10</i></p> <p><i>New assessment data: 18.00 hrs</i></p> <p><b>Airway:</b> patent  <b>Breathing:</b> R 26/min;  <i>SpO<sub>2</sub>: 89% on 40% O<sub>2</sub></i>  <b>Circulation:</b> P: 100/min;  <i>sinus tachycardia</i>  <i>BP 90/50 mmHg;</i>  <i>T: 37.7 °C; cool hands and feet.</i>  <i>Urine output 50 ml</i>  <i>(Urine positive to blood and protein).</i>  <i>CRP: 30 mg/L</i>  <i>White cell count 19.2 10<sup>9</sup>/L</i>  <b>Disability:</b> responding to Voice.  <i>Glucose: 7.9 mmol/l</i>  <i>NEWS = 14</i></p>
Recommendations and response	<p>What are you requesting?</p> <p><i>Sally Smith requires an urgent review of her sepsis management.</i></p> <p><i>I have contacted the outreach nurse who reviewed her 1 hour ago and he will meet you on the ward. I am preparing her for possible transfer to ICU.</i></p> <p><i>Sally's husband is aware of the change in her condition and is with her.</i></p> <p><i>Is there anything else you would like me to get ready for you?</i></p> <p>Action taken and registrar's response:</p> <p><i>Thank you. Can you increase the oxygen therapy immediately according to the sepsis guidelines (see Chapter 7) and I will come and reassess the patient? Please ensure a second set of blood cultures are taken and initiate a second fluid challenge according to the protocol. I will be on the ward in 2–3 minutes.</i></p> <p>Signatures: Signed by both the staff nurse and the registrar following Sally's assessment and management.</p>

Table 1.10 Communicating concern using the SBAR approach

The outreach nurse in Sally's story was able to demonstrate expertise and clinical reasoning in the context of the clinical situation. This resulted in him being able to quickly obtain a clinical grasp of the situation, and to anticipate and prevent potential problems. This is what Benner et al. (2011, p2) describe as *habits of thought and action* (problem identification, clinical problem solving, anticipating, and preventing potential problems) that rely on a dynamic process of knowledge acquisition, experience, pattern recognition, and critical reflection. The development of these skills occurs over time and is always dependent on the history, knowledge, and experience of the nurse (White and Tait, 2019). In Activity 1.1 you have a chance to practise rapid assessment and management of a patient.

## Activity 1.1 Risk assessment and decision making

Isabel Campbell is 85 years old and lives a full and active life. She lives alone but has two adult children living nearby. Isabel routinely takes an **angiotensin converting enzyme** (ACE) inhibitor to control hypertension, and aspirin as a preventer for stroke and heart disease. This evening Isabel has been experiencing some abdominal discomfort and nausea, but she put it down to eating rich food and went to bed. Two hours later she awoke and vomited a large amount of brown liquid over the bed. She felt faint, dizzy, and frightened, so phoned her daughter Holly for help. Holly was too far away to get to her mother quickly and phoned the out of hours service for advice. After some deliberation, a paramedic was dispatched and, following assessment, Isabel was admitted to the local medical assessment unit at 01.00 hours.

1. What knowledge and skills identified in this chapter would you use to assess Isabel on admission and who would you seek guidance from?

On assessment the following data were collected regarding her condition.

- R 28/min.
- SpO<sub>2</sub> 94%.
- Skin pale and cool.
- P 98/min.
- BP 105/93 mmHg.
- Has not passed urine since teatime at home.
- Alert.
- T 37.3 °C.

2. What concerns would you have and what would you do about your concerns?

*There are sample answers to this question at the end of the chapter.*

# Communicating and collaborating with patients, relatives, and staff to achieve appropriate and timely interventions

Risk assessment is a continuous process. If, however, you are concerned about your patient and you wish to seek advice or help, the next stage of the process is to communicate your concerns to the relevant person or team using the recognition and response bundles (NICE, 2007) referred to in Table 1.2 and supported by the guidance in NEWS2 (RCP, 2017):

- If you have a clinical concern about the patient and the data indicate the patient to be at low risk, then increase the frequency of the observations (minimum 4–6 hourly) and monitor the patient.
- If you have a clinical concern about the patient and the data indicate the patient to be at medium risk, then contact the patient's medical team urgently and monitor the patient at least hourly or more frequently. If necessary, contact the critical care outreach team to get an urgent assessment by a clinician with core competencies to assess the acutely ill patient.
- If you have a clinical concern about the patient and the data indicate the patient to be at high risk, then contact the critical care outreach team urgently and consider transfer to critical care. Provide continuous assessment and monitoring and do not leave the patient unattended.

When communicating with the medical team or critical care outreach team it is vital that the date, time, and nature of your concern are identified and documented. It is this process of documentation that provides a timeline and audit trail for the review of practice.

SBAR is an abbreviation for ‘Situation: Background: Assessment: Recommendation’ and is a structured communication tool that has been recommended by the Institute for Healthcare Improvement (IHI, 2011) and NICE (2007) for use to improve inter-professional communication and patient safety. A systematic review of the effect of SBAR on patient safety by Müller et al. (2018) highlighted that there was a lack of high-quality research to support its use but did find there was moderate evidence to support its use as a tool to communicate information over the phone. One of the challenges the reviewers met was that the SBAR tool has been modified or adapted to include other elements (for example, ISBAR – where I is identification of the patient and communicator). SBAR has also been adopted as a tool for verbal and written handovers in a variety of clinical settings. According to Dayton and Henriksen (2007), SBAR works because it provides a shared and logical structure for communicating core details of a patient’s situation, either verbally or through written communication. This argument is supported by Field et al. (2011), who were able to demonstrate a statistically significant improvement in the management of people requiring regular coagulation monitoring in care homes by using SBAR reporting.

The explanation below focuses on the core elements of SBAR, but the author recognises that adaptations to the tool may be used in practice.

- Situation: identify yourself, your location, and the patient. Describe the problem, your concern, and your reason for calling.
- Background: provide the patient's reason for admission, diagnosis, and relevant medical history and medications.
- Assessment: provide both your subjective concerns and objective data. Offer a provisional diagnosis of the problem or clarify your concern.
- Recommendations: explain what you need, when, and where. Clearly identify your priorities for the patient's care.

In the example in Table 1.10, we have returned to our student nurse Susan and her patient Sally, whom we met at the beginning of the chapter. There has been a change in Sally's condition and, using the SBAR approach, we will recap and see what has changed.

In Sally's case there were several reasons why her condition may have deteriorated. These include:

- dehydration and the resultant hypovolaemia (see Chapter 6);
- her progression to respiratory failure, septic shock, and a high risk of AKI (see Chapters 7 and 9);
- a risk of acute heart failure (Chapter 4).

At this stage of her care the priorities include supporting Sally physiologically and psychologically by:

- supporting her airway, breathing, and circulation in order to reduce the risk of further deterioration;
- continuous monitoring of her condition;
- providing information and reassurance to her and her husband;
- arranging her transfer to ICU.

## Providing standardised and optimal care during all stages of the patient's journey

A registered nurse has a professional responsibility to ensure safe and clinically effective care to support an agreed patient outcome and to accurately document any changes in the patient's condition or variance from the care pathway. The adoption of a care pathway and a care bundle approach by NICE (2011) has given all healthcare providers an opportunity to standardise practice while continuing to provide patient-focused care. The emphasis is now on you as a nurse to recognise and adopt the most clinically appropriate pathway of care, but at the same time to recognise, record, and respond to any variances in the care package. In this context, those variances must be

justified and evidence-based. The seven points below are a useful guide to what should be provided to ensure the quality of nursing documentation (Jeffries et al., 2010).

Good nursing documentation:

- is patient-centred and includes extracts from the patient's description of their illness experience;
- reflects the objective clinical judgement of the nurse so that every statement has an objective descriptor, for example:
  - incorrect – subjective comment: the patient seemed a bit tipsy;
  - correct – objective comment: the patient was walking with an unsteady gait, his speech was slurred and his breath smelled of alcohol;
- contains the actual work of nurses including biopsychosocial interventions;
- is presented in a logical sequence;
- is written as events occur so that it remains up to date;
- records all variances in care, in a clear and concise way without repetition;
- fulfils legal and professional requirements according to *The Code* (NMC, 2018c).

In a busy and acute clinical setting, nurses and healthcare professionals can be easily distracted. However, the safety of patients should be paramount, and the prevention of patient deterioration is a multidisciplinary goal that can only be achieved through assessment, communication, and collaboration between the patient and all professional groups.

## Managing and organising care using the appropriate skill mix

The ability to know and understand your patients is dependent on you and your team having a balanced skill mix, evidence of continuity of care, effective communication channels, and effective teamwork so that you can assess and respond to the patient's immediate needs in an emergency (Duffield et al., 2010; Scott, 2003). In relation to skill mix, clinical care is provided in increasingly complex systems and the roles and responsibilities of registered practitioners and unregistered carers such as healthcare assistants (HCA) have become blurred. HCAs are now involved in the assessment, data collection, and monitoring of patients as well as the providers of direct patient care (NPSA, 2007a). This trend is set to continue as HCAs take on more of the caring roles once managed by nurses and has occurred in part because of nursing shortages (RCN, 2017; WHO, 2016). According to Quirke et al. (2011) and James et al. (2010), while HCAs play a significant role in the recognition and monitoring of acutely ill patients, they lack the ability to interpret and manage an effective response to patient deterioration, often relying on the registered nurse or doctor to intervene. Correspondingly, student nurses and registered nurses rely heavily on the contributions made by HCAs, and it is the nurse's responsibility to work collaboratively

with and to accept responsibility for the contribution that HCAs make (NMC, 2018c). Furthermore, staffing levels often vary because of staff sickness, unexpected patient turnover, and the use of bank or agency nurses.

According to Aiken et al. (2017), the importance of working collaboratively and balancing skill mix has been identified as being a significant factor in reducing patient morbidity and mortality following admission to hospital. In a study of nursing skill mix in 243 acute hospitals across Europe, Aiken et al. (2017) reported that each 10% reduction in the percentage of professional nurses among the caring personnel was associated with an 11% increase in the odds of patient mortality. Correspondingly, a 10% increase in the percentage of professional nurses was associated with a relative reduction in patient mortality. Skill mix and availability of resources are key to the provision of safe and effective nursing care, and when the levels of registered nurses fall there is a corresponding increase in omissions in fundamental aspects of care, as highlighted by Griffiths et al. (2018).

Within this climate of change in models of healthcare provision, there is evidence to support the use of a collaborative team approach to both health and social care (Zwarenstein et al., 2009). A team may consist of all the providers of care for a group of patients, including nurses, healthcare assistants, medical staff, and other health and social care professionals. Nonetheless, the focus should remain on patient-centred care where continuity of care is provided by the team, with each team member ensuring effective communication. Task-based team nursing, where management of care is based on a series of tasks rather than focusing on patient need, should be avoided as this has been found to reduce the quality of care (Fairbrother et al., 2010).

## Activity 1.2 Reflection

Think back to your experiences in the clinical setting.

- Can you identify a situation where you have been unable to understand how the nurse was able to know or anticipate clinical changes in a deteriorating patient?
- If you can, write down the story and look back on the incident after reading this chapter.
- Using the chapter as a guide, try to write down an action plan of how you might manage a similar situation in the future.

Hint: These reflective questions will help you to practise the skills of rapid assessment and management of a patient.

*As this answer is based on your own reflection, there is no outline answer at the end of the chapter.*

## Chapter summary

Within this chapter we have introduced you to the skills and processes involved in the rapid assessment of, and response to, deteriorating patients. The core skills focus on risk assessment, recognition and prevention of deterioration, and timely intervention of care. The tables included have been designed to provide you with an aide-mémoire that you can apply to the patient examples in the remainder of the book. Key to the process of providing safe and effective care is person-centred care, communication, and collaboration.

## Activities: brief outline answers

### Activity 1.1: Risk assessment and decision making (pages 32)

1. The knowledge and skills you would use relate to clinical assessment and, in particular, rapid assessment skills. These include using 'ABCDE' as a guide: look at the patient; listen to the patient, family, handover from other staff, listen for physiological signs of distress; feel the patient's skin and note any abnormal signs; measure the patient's physiological signs. Interpret the clinical signs and assess the findings against the normal range. You would need the help of a registered nurse and the medical team to assist with interpretation, particularly if you have had no experience of this type of patient. Always recognise your limitations and communicate your concerns.
2. Increased respiratory rate with a lower than normal SpO<sub>2</sub> suggests early signs of respiratory failure and requires immediate action: call for help from a senior member of staff and administer oxygen guided by the local protocol (Chapter 2). Isabel also has signs of haemodynamic insufficiency indicated by rapid respirations, rapid pulse, and low BP. She is considered to be at high risk of deterioration and requires at least hourly observations of vital signs and fluid resuscitation (NEWS2 = 6). She is also at risk of further fluid loss and requires urgent management of a possible peptic ulcer (see Chapter 6).

## Further reading

**RCN (Royal College of Nursing) (2004) *Nursing Assessment of Older People: RCN Tool Kit*.** London: RCN.

This resource provides general guidance and tools for assessing older people and offers useful background detail on collaborative assessment processes. Accessed at: [www.rcn.org.uk/professional-development/publications/pub-002310](http://www.rcn.org.uk/professional-development/publications/pub-002310)

**Rushforth, H (2009) *Assessment Made Incredibly Easy*.** London: Wolters Kluwer/Lippincott Williams and Wilkins.

This book provides information on detailed systematic assessment of all clinical situations and is a useful revision guide to assessment skills.

## Useful websites

[www.rcn.org.uk/employment-and-pay/integrated-care-in-england](http://www.rcn.org.uk/employment-and-pay/integrated-care-in-england)

This Resuscitation Council website gives access to the many innovations and developments in the integration of care in the UK.

**[www.resus.org.uk/dnacpr/](http://www.resus.org.uk/dnacpr/)**

This resource provides information and guidance by the Resuscitation Council on ethical decisions related to cardiopulmonary resuscitation.

**[www.resus.org.uk/resuscitation-guidelines/abcde-approach/](http://www.resus.org.uk/resuscitation-guidelines/abcde-approach/)**

This resource provides a summary by the Resuscitation Council of the ABCDE assessment using a multidisciplinary approach.

**[www.rcplondon.ac.uk/projects/outputs/national-early-warning-score-news-2](http://www.rcplondon.ac.uk/projects/outputs/national-early-warning-score-news-2)**

This website provides the resources used to support NEWS2.