Essential Guide to

Acute Care

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Second Edition

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Foreword

The story behind this unique book started when one of the authors took up a post in intensive care medicine in order to learn how to deal with sick patients. It soon became apparent that almost everything learned in that post was immediately applicable to the general wards, both medical and surgical, and the Emergency Department. Sick patients are everywhere and it is a sad fact that even though doctors in the acute specialities deal with sick patients all the time, they often do not do it as well as they should. Awareness of acute care is thankfully increasing and one of the reasons for this change is because many people (the authors included) campaigned for acute care to be a core component of training for all doctors.

This book has been written out of a passion to explain in simple terms 'everything you really need to know but no one told you' about the recognition and management of a sick adult. Unlike most medical books, this one does not give you a list of things to do, nor does it bore you with small print. This book helps you understand what you need to do and why. The second edition has been extensively re-written and updated, with algorithms and references in a clear, simple format. The authors are medical educators as well as busy clinicians who envisage that this book will be used by teachers as well as learners. I recommend it highly.

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Introduction

'… in the beginning of the malady it is easy to cure but difficult to detect, but in the course of time, not having been either detected or treated … it becomes easy to detect but difficult to cure.' Niccolo Machiavelli, The Prince

This book is aimed at Foundation Programme trainees and for trainees in medicine, surgery, anaesthesia and emergency medicine – people who deal with acutely ill adults. Foundation Programme trainers, final year medical students and nursing staff working in critical care areas will also find this book extremely useful.

There are many books on the management of patients who are acutely ill, but all have a traditional 'recipe' format. One looks up a diagnosis, and the management is summarised. Few of us are trained how to deal with the generic altered physiology that accompanies acute illness. The result is that many doctors are unable to deal logically with patients in physiological decline and this often leads to suboptimal care.

In surveys of junior doctors of all specialities, few can explain how different oxygen masks work, the different reasons why $PaCO_2$ rises, what a fluid challenge is and how to treat organ failure effectively.

This book contains information you really need to know that is not found in standard textbooks. Throughout the text there are 'mini-tutorials' that explain the latest thinking or controversies. Case histories, key references and further reading are included at the end of each chapter. The second edition has been extensively re-written and updated. It is our aim that this book should provide a foundation in learning how to care effectively for acutely ill adults.

Nicola Cooper, Kirsty Forrest and Paul Cramp

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Units used in this book

Standard international (SI) units are used throughout this book, with metric units in brackets wherever these differ. Below are some reference ranges for common blood results. Reference ranges vary from laboratory to laboratory.

Metric units × conversion factor = SI units.

Test	Metric units	Conversion factor	SI units
Sodium	135–145 meq/l	1	135–145 mmol/l
Potassium	3.5–5.0 meq/l	1	3.5–5.0 mmol/l
Urea (blood urea nitrogen)	8–20 mg/dl	0.36	2.9–7.1 mmol/l
Creatinine	0.6–1.2 mg/dl	83.3	50–100 μmol/l
Glucose	60–115 mg/dl	0.06	3.3–6.3 mmol/l
Partial pressure O_2	83–108 mmHg	0.13	11–14.36 kPa
Partial pressure CO_2	32–48 mmHg	0.13	4.26–6.38 kPa
Bicarbonate	22–28 meq/l	1	22–28 mmol/l
Calcium	8.5–10.5 mg/dl	0.25	2.1–2.6 mmol/l
Chloride	98–107 meq/l	1	98–107 mmol/l
Lactate	0.5–2.0 meq/l	1	0.5–2.0 mmol/l

CHAPTER 1
Patients at risk

By the end of this chapter you will be able to:

- Define resuscitation
- Understand the importance of the generic altered physiology that accompanies acute illness
- Know about national and international developments in this area
- Know how to assess and manage an acutely ill patient using the ABCDE system
- Understand the benefits and limitations of intensive care
- Know how to communicate effectively with colleagues about acutely ill patients
- Have a context for the chapters that follow

What is resuscitation?

When we talk about 'resuscitation' we often think of cardiopulmonary resuscitation (CPR), which is a significant part of healthcare training. International organisations govern resuscitation protocols. Yet survival to discharge after in-hospital CPR is poor, around 6% if the rhythm is non-shockable (the majority of cases). Public perception of CPR is informed by television which has far better outcomes than in reality [1].

A great deal of attention is focused on saving life after cardiac arrest. But the vast majority of in-hospital cardiac arrests are predictable. Until recently, hardly any attention was focused on detecting commonplace reversible physiological deterioration and in preventing cardiac arrest in the first place. However, there have been an increasing number of articles published on this subject. As a Lancet series on acute care observed, 'the greatest opportunity to improve outcomes for patients over the next quarter century will probably not come from discovering new treatments but from learning how to deliver existing effective therapies' [2].

In one study, 84% of patients had documented observations of clinical deterioration or new complaints within 8 h of cardiopulmonary arrest [3]; 70% had either deterioration in respiratory or mental function observed during this time. While there did not appear to be any single reproducible warning sign, the average respiratory rate of the patients prior to arrest was 30/min. The investigators observed that the predominantly respiratory and metabolic derangements which preceded cardiac arrest (hypoxaemia, hypotension and acidosis) were not rapidly fatal and that efforts to predict and prevent arrest

would therefore be beneficial. Only 8% of patients survived to discharge after CPR. A subsequent similar study observed that documented physiological deterioration occurred within 6 h in 66% of patients with cardiac arrest, but effective action was often not taken [4].

Researchers have commented that there appears to be a failure of *systems* to recognise and effectively intervene when patients in hospital deteriorate. A frequently quoted study is that by McQuillan *et al.*, which looked at 100 consecutive emergency intensive care unit (ICU) admissions [5]. Two external assessors found that only 20 cases were well managed beforehand. The majority (54) received suboptimal care prior to admission to ICU and there was disagreement over the remaining 26 cases. The patients were of a similar case-mix and APACHE 2 scores (Acute Physiological and Chronic Health Evaluation). In the suboptimal group, ICU admission was considered late in 69% cases and avoidable in up to 41%. The main causes of suboptimal care were considered to be failure of organisation, lack of knowledge, failure to appreciate the clinical urgency, lack of supervision and failure to seek advice. Suboptimal care (failure to adequately manage the airway, oxygen therapy, breathing and circulation) was equally likely on a surgical or medical ward, and contributed to the subsequent mortality of one-third of patients. Hospital mortality was significantly increased in the patients who had received suboptimal care (56% vs 35%). The authors wrote: 'this … suggests a fundamental problem of failure to appreciate that airway, breathing and circulation are the prerequisites of life and that their dysfunction are the common denominators of death'. Similar findings have been reported in other studies [6].

Following this, a number of other publications have showed that simple physiological observations identify high-risk hospital in-patients [7,8] and that implementing a system, whereby experienced staff are called when there are seriously abnormal vital signs, improves outcome and utilisation of intensive care resources [9–14].

Resuscitation is therefore not about CPR, but about recognising and effectively treating patients in physiological decline. This is an area of medicine that has been neglected in terms of training, organisation and resources. Some have begun to question the logic of a cardiac arrest team (when it is usually too late) and have begun to look at ways of better managing acutely ill patients in hospital.

Medical emergency teams

Medical emergency teams (METs) were developed in Australia and consist of doctors and nurses trained in advanced resuscitation skills. The idea is that seriously abnormal vital signs trigger an emergency call, rather than waiting for cardiopulmonary arrest. Box 1.1 shows the original MET calling criteria. In the UK, early warning scores have been developed to trigger emergency calls (see Fig. 1.1), usually to the patient's own team or the ICU outreach team, which is often nurse led. Up to 30% patients admitted to ICUs in the

Box 1.1 MET calling criteria

Airway
If threatened

Breathing
All respiratory arrests
Respiratory rate <5/min or >36/min

Circulation
All cardiac arrests
Pulse rate <40/min or >140/min
Systolic blood pressure <90 mmHg

Neurology
Sudden fall in level of consciousness
Repeated or extended seizures

Other
Any patient you are seriously worried about that does not fit the above criteria

Reproduced with permission by Prof. Ken Hillman, University of New South Wales, Division of Critical Care, Liverpool Hospital, Sydney, Australia.

Score	3	2	1	0	1	2	3
Heart rate		<40	41–50	51–100	101–110	111–130	>130
Systolic BP	<70	71–80	81–100	101–179	180–199	200–220	>220
Respiratory rate		<8	8–11	12–20	21–25	26–30	>30
Conscious level			New confusion	A	V	P	U
Urine (ml/4 h)	<80	80–120	120–200		>800		
O_2 saturations	<85%	86–89%	90–94%	>95%			
O_2 therapy	NIV or CPAP	>10 l RB or >60%	Any O_2 therapy				

Figure 1.1 An example of a modified early warning score (MEWS). Each observation has a score: If the total score is 4 or more (the cut-off varies between institutions), a doctor is called to assess the patient. If the score is 6 or more, or the patient fails to improve after previous review, a senior doctor is called to assess the patient. BP: blood pressure; NIV: non-invasive ventilation; CPAP: non-invasive continuous positive airway pressure; RB: reservoir bag; A: alert; V: responds to verbal commands; P: responds to painful stimuli and U: unresponsive.

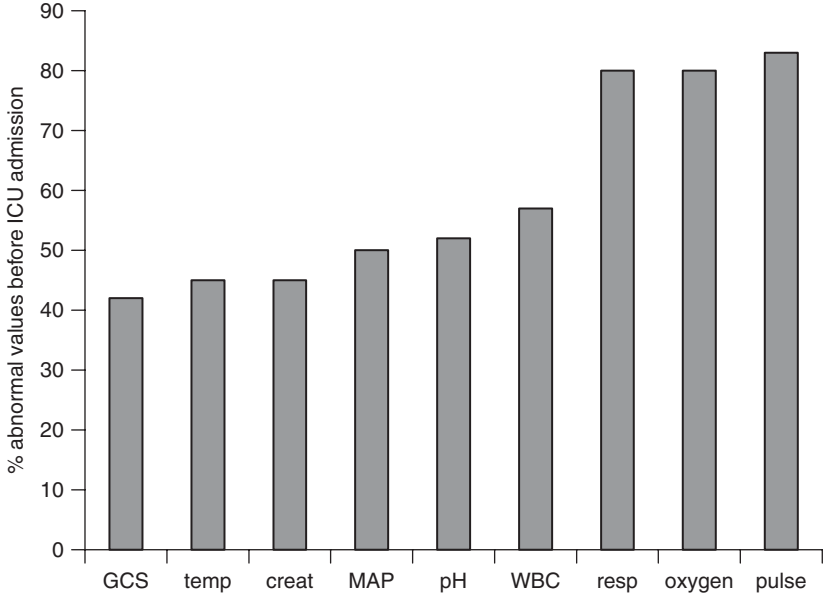

Figure 1.2 Percentage of patients with abnormal physiology in the 24 h preceding ICU admission. GCS: Glasgow Coma Score; temp: temperature; creat: creatinine; MAP: mean arterial blood pressure; WBC: white blood cells; resp: respiratory rate; oxygen: oxygen saturations and pulse: pulse rate. Reproduced with permission from Theta Press LTD. Goldhill D. Medical Emergency Teams. *Care of the Critically Ill* 2000; **16(6)**: 209–212.

UK have had a cardiac or respiratory arrest in the preceding 24 h. Most of these are already hospital in-patients. Half die immediately and mortality for the rest on ICU is at least 70%. The purpose of an MET instead of a cardiac arrest team is simple – early action saves lives. As one of the pioneers of resuscitation commented, 'the most sophisticated intensive care often becomes unnecessarily expensive terminal care when the pre-ICU system fails' [15].

Early experience in the UK suggests that an MET instead of a cardiac arrest team reduces ICU mortality and the number of cardiac arrests, partly through an increase in 'do not attempt CPR' orders [9]. Most patients admitted to ICU have obvious physiological derangements that have been observed by ward staff (see Fig. 1.2), but they may not know who to call, or the doctors they call may be inexperienced in dealing with critical illness.

In 1999, the publication in the UK of the Audit Commission's *Critical to Success – The Place of Efficient and Effective Critical Care Services Within the Acute Hospital* [16] re-emphasised the concept of the patient at risk – patients at risk of their condition deteriorating into a need for critical care. The report advocated better training of medical and nursing staff, early warning scoring systems and 'outreach' critical care. The Commission commented that intensive

Level 0	Patients whose needs can be met through normal ward care in an acute hospital
Level 1	Patients at risk of their condition deteriorating, or those recently relocated from higher levels of care, whose needs can be met on an acute ward with additional advice and support from the critical care team
Level 2	Patients requiring more detailed observation or intervention including support for a single failing organ system or post-operative care and those 'stepping down' from higher levels of care
Level 3	Patients requiring advanced respiratory support alone or basic respiratory support together with support of at least two organ systems. This level includes all complex patients requiring support for multi-organ failure

Figure 1.3 UK severity of illness classification. Level 2 is equivalent to HDU care and level 3 is equivalent to ICU care. Comprehensive Critical Care, Department of Health, UK, May 2000. Reproduced with permission from the Department of Health.

care is something that tends to happen within four walls, but that patients should not be defined by what bed they occupy, but by their severity of illness (see Fig. 1.3).

Following this, *Comprehensive Critical Care – A Review of Adult Critical Care Services* [17] was published by the Department of Health. This report re-iterated the idea that patients should be classified according to their severity of illness and the necessary resources mobilised. With this report came funding for critical care outreach teams and an expansion in critical care beds. In the USA and parts of Europe, there is considerable provision of high-dependency units (HDUs). In most UK hospitals, it is recognised that there are not enough HDU-type facilities. A needs assessment survey in Wales, using objective criteria for HDU and ICU admission, found that 56% of these patients were being cared for on general wards rather than in critical care areas [18]. A 1-month needs assessment in Newcastle, UK found that 26% of the unselected emergency patients admitted to a medical admissions unit required a higher level of care; 17% needed level 1 care, 9% needed level 2 care and 0.5% needed level 3 care [19]. This would indicate the need for far more level 1–2 facilities in the UK than at present.

Although there are many different variations of early warning scores in use, it is probably the recognition of abnormal physiology, however measured, and a protocol that requires inexperienced staff to call for help that makes a difference, rather than the score itself. Patients at particular risk are recent emergency admissions, after major surgery and following discharge from intensive care.

The MERIT study

Although small studies in the UK, usually using historical controls, have shown improvements in outcome following the introduction of early warning scores and protocols, only one large-scale randomised controlled trial has been completed to date [20]. The Medical Early Response Intervention and Therapy (MERIT) study randomised 23 hospitals in Australia to either continue

functioning as usual or to introduce a MET system, which included staff education, the introduction of MET calling criteria, raising awareness of the dangers of abnormal vital signs and the immediate availability of a MET. Introducing a MET system increased the number of emergency calls but did not appear to affect outcome. However, there may be a number of reasons why this negative result was reported:

- Cardiac arrest teams operated as a MET to some extent in the control hospitals, with half the calls to cardiac arrest teams in the control hospitals made without a cardiac arrest (compared with 80% in the MET system hospitals). This is in contrast to most UK hospitals where cardiac arrest teams are only called for suspected cardiac arrests.
- The rate of MET calls preceding unplanned ICU admission and unexpected deaths was low even when MET calling criteria were present, suggesting that the system was not fully implemented.
- Direct calls to ICU for assistance were not recorded.
- A reduction in cardiac arrests and unexpected deaths was seen in both the groups, possibly because the MET system was publicised in the Australian media during the study.

The investigators point out that similar complex interventions such as the introduction of trauma teams have taken up to 10 years before any effect on mortality has been detected, and we cannot ignore all the previous studies which have shown that a MET-type system reduces the incidence of unplanned ICU admissions, cardiopulmonary arrests and hospital mortality, albeit using historical controls. Given that there is overwhelming evidence that seriously ill patients receive inadequate care worldwide, and given that simple measures can reverse physiological decline if administered early, it would be difficult to ignore what is intuitively a 'good idea'.

NCEPOD report: an acute problem?

In 2005, the National Confidential Enquiry into Patient Outcome and Death (NCEPOD) published a report looking at the care of severely ill medical patients across UK hospitals [21]. The foreword to this report commented on the changes to working hours and postgraduate medical education that have taken place, leading to less experienced and overstretched junior doctors managing an increasingly complex in-patient load. This enquiry looked at medical patients referred to general ICUs across 226 hospitals (1677 patients). The median age of these patients was 60 years, but the mode was 70–80 years; 43% of patients were referred directly from accident and emergency departments and 34% from general wards. The most common indication was a respiratory problem, followed by cardiovascular, then neurological. The patients had a wide range of early warning scores, from 0 to 12 (mode 5). In 10% of cases the pre-ICU history and examination was deemed by external assessors to be unacceptable or incomplete. Only 58% of patients received both prompt and appropriate care. Inappropriately low oxygen concentrations and delayed fluid administration were common examples of suboptimal care. Record-keeping

was poor, there was a lack of clear instructions given to nursing staff and vital signs were often inadequately recorded; 66% of patients had 'gross' physiological instability for at least 12 h before referral to ICU. Consultant physicians had no knowledge or input into 57% of referrals. CPR status was documented in only 10% of critically ill patients. The report re-iterates the themes of failure to seek advice, lack of supervision, failure to document vital signs and failure to appreciate the clinical urgency of seriously abnormal physiology.

ABCDE: an overview

History, examination, differential diagnosis and treatment will not immediately help someone who is critically ill. Diagnosis is irrelevant when the things that kill first are literally A (airway compromise), B (breathing problems) and C (circulation problems) – in that order. What the patient needs is resuscitation not deliberation. Patients can be alert and 'look' well from the end of the bed, but the clue is often in objective vital signs. Box 1.2 summarises the physiological and biochemical markers of severe illness. A common theme in studies is the inability of hospital staff to recognise when a patient is at risk of deterioration, even when these abnormalities are documented.

The most common abnormalities before cardiac arrest are hypoxaemia with an increased respiratory rate and hypotension leading to hypoperfusion with an accompanying metabolic acidosis and tissue hypoxia. If this is left untreated, a downward physiological spiral ensues. With time, these abnormalities may become resistant to treatment with fluids and drugs. Therefore early action is vital. The following chapters teach the theory behind ABCD in detail. Practical courses also exist which use scenario-based teaching on how to manage patients at risk (see Further resources). These are recommended because the ABC approach described below requires practical skills (e.g. assessment and management of the airway) which cannot be learned adequately from a book.

Box 1.2 Markers of severe illness

Physiological
Signs of massive sympathetic activation (e.g. tachycardia, hypertension, pale, shutdown)
Signs of systemic inflammation (see Chapter 6)
Signs of organ hypoperfusion (see Chapter 5)

Biochemical
Metabolic (lactic) acidosis
High or low white cell count
Low platelets
High creatinine
High C-reactive protein (CRP)

ABCDE is the initial approach to any patient who is acutely ill:

- A: assess *airway* and treat if needed.
- B: assess *breathing* and treat if needed.
- C: assess *circulation* and treat if needed.
- D: assess *disability* and treat if needed.
- E: *expose and examine* patient fully once A, B, C and D are stable. Further information gathering and tests can be done at this stage.
- *Do not move on* without treating an abnormality. For example, there is no point in doing arterial blood gases on a patient with an airway obstruction.

A more detailed version of the ABCDE system is shown in Box 1.3.

Patients with serious abnormal vital signs are an emergency. The management of such patients requires pro-activity, a sense of urgency and the continuous presence of the attending doctor. For example, if a patient is hypotensive and hypoxaemic from pneumonia, it is not acceptable for oxygen, fluids and antibiotics simply to be prescribed. The oxygen concentration may need to be changed several times before the PaO_2 is acceptable. More than one fluid challenge may be required to get an acceptable blood pressure – and even then, vasopressors may be needed if the patient remains hypotensive due to severe sepsis. Intravenous antibiotics need to be given immediately. ICU and CPR decisions need to be made at this time – not later. The emphasis is on both rapid and effective intervention.

Integral to the management of the acutely ill patient is the administration of effective analgesia. This is extremely important to the patient but also has a range of physiological benefits and is discussed further in Chapter 10.

Special considerations in the elderly

The proportion of older people is growing, especially the very old (over 85 years); 80% of people over 80 years function well and relatively independently. Only 1 in 20 elderly people live in institutions [22]. Since many acutely ill patients in hospital are elderly, it is important that healthcare staff understand that there are important differences in the physiology of elderly people. This in turn means that the interpretation of vital signs and the management of acute illness may be different.

The following are important physiological differences in the elderly:

- Reduced homeostatic reserve. Ageing is associated with a decline in organ function with a reduced ability to compensate. The following are reduced: normal PaO_2, cerebral blood flow, maximum heart rate and cardiac reserve, maximum oxygen consumption, renal blood flow, maximum urinary concentration, sodium and water homeostasis.
- Impaired immunity. Elderly patients commonly do not have a fever or raised white cell count in sepsis. Hypothermia may occur instead. A rigid abdomen is uncommon in the elderly with an 'acute abdomen' – they are likely to have a soft, but generally tender abdomen despite perforation, ischaemia or peritonitis.
- Different pharmacokinetics and pharmacodynamics. Iatrogenic disease is more common in the elderly.

Box 1.3 The ABCDE system

Airway
Examine for signs of upper airway obstruction
If necessary, do a head tilt-chin lift manoeuvre
Suction (only what you can see)
Simple airway adjuncts may be needed
Give high-concentration oxygen (see Chapter 2 for more details)

Breathing
Look at the chest
Assess rate, depth and symmetry of movement
Measure SpO_2
Quickly listen with a stethoscope (for air entry, wheeze and crackles)
You may need to use a bag and mask if the patient has inadequate ventilation
Treat wheeze, pneumothorax, fluid, collapse, infection, etc. (Is a physiotherapist needed?)

Circulation
Assess limb temperature, capillary refill time, blood pressure, pulse and urine output
Insert a large bore cannula and send blood for tests
Give a fluid challenge if needed (see Chapter 5 for more details)

Disability
Make a note of the AVPU scale (*a*lert, responds to *v*oice, responds to *p*ain, *u*nresponsive)
Check pupil size and reactivity
Measure capillary glucose

Examination and planning
Are ABCD stable? If not, go back to the top and call for help
Complete any relevant examination (e.g. heart sounds, abdomen, full neurological exam)
Treat pain
Gather information from notes, charts and eyewitnesses
Do tests (e.g. arterial blood gases, X-rays, ECG, etc.)
Do not move an unstable patient without the right monitoring equipment and staff
Make ICU and CPR decisions
You should have called a senior colleague by now, if you have not done so already

- Common acute illnesses present atypically (e.g. with confusion or falls).
- Quiescent diseases are exacerbated by acute illness (e.g. heart failure may occur in pneumonia, old neurological signs may become pronounced in sepsis).
- Some clinical findings are not necessarily pathological in the elderly, (e.g. neck stiffness, a positive urine dipstick (in women), a few bilateral basal crackles in the lungs and reduced skin turgor).

Despite physiological differences, dysfunction in the elderly is always associated with disease, not ageing. But their impaired homeostatic reserve means that intervention is required earlier if it is to be successful. This is an important difference compared with young adults. Clinical decision-making should be made on an individual basis and never on the grounds of age alone. However, one has to balance the right to high-quality care without age discrimination with the wisdom to avoid aggressive but ultimately futile interventions. Involving a geriatrician in difficult decision-making is often helpful.

The benefits and limitations of intensive care

Physiological derangement and the need for admission to ICU are not the same. It would not be in the best interests of all patients to be admitted to an ICU. Instead optimising ward care or even palliative care may be required. This decision is based on evidence about prognosis, clinical experience (e.g. recognising when someone is dying) and takes in to account any expressed wishes of the patient. Intensive (level 3) care supports failing organ systems when there is potentially reversible disease. It is appropriate for patients requiring advanced respiratory support alone or support of at least two failing organ systems. High-dependency (level 2) care is appropriate for patients requiring detailed observation or intervention for a single failing organ system.

For the majority of healthcare workers who have never worked in an ICU, the benefits and limitations of what is available may be poorly understood. Patients with acute reversible disease benefit most from intensive care if they are admitted sooner rather than later. Waiting for someone to become even more seriously ill before contacting the ICU team does not make physiological sense and is not evidence-based. On the other hand, admission to ICU does not guarantee a successful outcome. Some patients may be so ill that they are unlikely to recover at all, even with intensive organ support. The overall mortality of patients admitted to ICU is around 25%. All potential admissions should therefore be assessed by an experienced doctor. Patients who are not admitted to intensive care should have a clear plan and their ward care optimised.

Communication and the critically ill

Healthcare is a high-risk industry. It has been estimated that the risk of dying due to an adverse event is nearly 1 in 100 for hospital in-patients [23]. In recent years 'patient safety' has become high profile, as medicine has started to learn from other industries such as nuclear power and aviation. Since

healthcare is complex, there are many facets to patient safety. One important facet is known as 'human factors' – how people interact with each other and technology. Attitudes, good communication, teamwork and situation awareness are as important in managing an acutely ill patient as a good medical management plan, and unfortunately this is something that most of us have not been trained in. This is discussed in more detail in our companion book *Essential Guide to Generic Skills* [24].

A new doctor once asked his senior how to treat a patient who had had too much beta blocker. The senior was half listening, writing in some notes. Another senior was nearby and asked, 'What do you mean? – What is the pulse and blood pressure?' The new doctor replied, 'Pulse 30, blood pressure unrecordable'. Both seniors dashed to the patient's bedside. Good communication is important. Below is a simple system to follow when communicating about a seriously ill patient with colleagues, particularly over the phone.

Use the following structure:

1 State where you are and your request (e.g. 'Can you come to …').
2 Give a brief history (e.g. 'New admission with asthma').
3 Describe the vital signs (conscious level, pulse, blood pressure, respiratory rate, oxygen therapy and saturations, and urine output if relevant).

Further details can follow if needed. Summarising the vital signs is the only way to give the listener a sense of how urgent the situation is. Your colleague may have heard all he needs to know and be on his way. Or he may want to go through some more details and test results first. Either way, it is important to communicate clearly what help is required, particularly if you want your colleague to come and see the patient. The senior resident doctor (usually the Specialist Registrar in the UK) should always be informed about any seriously ill patient, *whether or not* his expertise is required.

The following chapters describe the theory behind the assessment and management of acutely ill adults. They are intended as a foundation on which experience and practical training can be built. Understanding and practising

Key points: patients at risk

- Resuscitation is about recognising and effectively intervening when patients have seriously abnormal vital signs.
- There is a wealth of research to show that our current systems fail when hospital in-patients deteriorate.
- Early effective intervention can improve outcome and utilisation of intensive care resources.
- Physiological derangement and the need for admission to ICU is not the same thing. All patients should be assessed by an experienced senior doctor.
- In order to communicate clearly to colleagues about acutely ill patients, use a simple system: what you want, brief history and a summary of the vital signs.
- Always inform the senior resident doctor about a seriously ill patient.