PART I
Introduction

CHAPTER 1
Introduction

This book and its associated course are aimed at a multi-disciplinary audience and have been developed in an attempt to overcome the difficulties faced by all healthcare professionals when organising and carrying out the transfer of patients who may be critically ill or injured. There are essentially two components:

1. Organisational and management strategy
2. Practical problems that may be encountered during preparation, packaging and transportation of patients

Although the Safe Transfer and Retrieval (STaR) course focuses on transportation of patients between hospitals, the same approach should be applied to the transportation of any ill patients within hospitals.

In recent years, following concerns about the standard of head injury transfers, there has been a great deal of interest in improving the standards for the care of the critically ill who are transferred between hospitals.

In 1996, a multi-professional group from across the UK first met to devise a training system aimed at promoting a structured approach to the transfer of the critically ill. The vision was, and still is, that, in the same way that everybody now accepts the systematic ABCDE approach to resuscitation, healthcare professionals would adopt ACCEPT as the basis for a structured approach to transfer medicine.

In 1997 the Intensive Care Society (ICS) published its *Guidelines for the Transport of the Critically Ill Adult*; these were revised in 2002.

Safe Transfer and Retrieval: The Practical Approach was first published in 2002 as the core text for the STaR course.

Box 1.1: Primary diagnosis in transferred patients

Trauma (including head injuries)
Respiratory failure/pneumonia
Post-operative/surgical
Intracranial bleeds/subarachnoids
Post-cardiac/respiratory arrest
Overdose
Renal failure
Multi-organ failure/sepsis
Liver failure
Pancreatitis
Burns
Aortic aneurysm
Cardiac failure

Continued

Box 1.1: Primary diagnosis in transferred patients (continued)

Others:
- Asthma
- Neurological condition
- Status epilepticus
- Meningitis
- Diabetes
- Cancer
- Eclampsia

Source: Intensive Care Bed Information Service (ICBIS)

The number of inter-hospital transfers continues to rise. This increasing demand for intensive care beds is fuelled by patients' and relatives' expectations and improved resuscitation and surgical techniques.

In most cases, an Intensive Care transfer results from the lack of a functioning ICU bed in the primary hospital. This could be due to lack of either an available bed or the nursing staff to look after the patient. The second most common cause is the requirement for specialist management in a tertiary centre. Box 1.1 demonstrates the wide spectrum of clinical pathologies which may be encountered.

The source of these patients also varies widely (Box 1.2). Emergency Departments and ICUs are the most frequent starting places for the movement of intensive care patients.

Box 1.2: Transferring departments

Emergency Department
ICU
Theatre
Ward
HDU
CCU
Source: Intensive Care Bed Information Service (ICBIS)

Though it is to be expected that patients moving from ICU will be fully stabilised and packaged, the same assumption cannot be made when patients are moved from other departments. These patients, and those coming from wards and theatres, may require considerable time before they are adequately prepared and packaged for transfer.

Inter-hospital transfers are not infrequently associated with adverse events which may be recorded on transfer forms or spotted by independent auditors. Those reported most commonly are shown in Box 1.3.

Although the ICS guidelines and the STaR course were initially aimed at improving the care delivered to critically ill patients, it seems that there are an increasingly large number of 'high dependency' patients whose transfers are less than ideal. It therefore seems logical to extend the concepts of Safe Transfer and Retrieval to encompass a wider spectrum of patients.

Furthermore, recent published work has highlighted that transfers within hospitals (intra-hospital transfer) are a cause for concern. Although this Australian study looked at reported incidents around the intra-hospital transfer of critically

Box 1.3: Most commonly reported adverse events

- No capnography available (when clinically indicated, with potential for raised ICP)
- Cardiovascular instability during transfer
  - Tachyarrythmias/bradycardias
  - Hypotension
  - Hypertension
- Hospital equipment problems
  - Monitor failure
  - Pump failure
  - Equipment not available
  - Mechanical ventilator not available
- Significant hypoxia
- Ambulance breakdown/lost en route
- Cardiac arrest in ambulance
- Death in transfer

Source: Intensive Care Bed Information Service (ICBIS)

ill patients, there are lessons to be learned by all who transfer less seriously ill patients within hospitals. Of the reported incidents, 39% identified equipment problems, relating predominantly to battery/power supply, transport ventilator or monitor function. Also in this group, access to lifts was a significant problem. More than half (61%) of the reported incidents related to staff issues in which communication and liaison problems were highlighted.

The 2006 edition of *Safe Transfer and Retrieval: The Practical Approach*, the core text for the STaR course, has been redesigned in order to make the concept of a structured approach to transfers more widely available to healthcare professionals of all disciplines throughout hospitals.

The move towards competency-based medical education and the development of clinical levels of care for adults has enabled the authors to attempt to match the degree of illness with the competencies which will be required in order to successfully undertake transportation (Appendix A).

The "levels of critical care for adults'" allocates levels of care according to a patients' clinical needs alone and ranges from level 0, which is general ward care in an acute hospital, through to level 3, which encompasses what was traditionally known as Intensive Care. Although not specifically designed for the purpose of informing the clinical needs of transfer medicine, these guidelines may be broadly appropriate for such work.

Furthermore, these levels of care can broadly be mapped across to the STaR Transfer Category Table (Chapter 5) which *describes* a structure for allocating vehicle and staffing resources based on clinical need, or levels of care, for ambulance transportation.

Level of care	Triage category
Level 3	Time Critical
Level 3	Intensive
Level 2	Ill-unstable
Level 1	Ill-stable/Unwell
Level 0	Well

Competency-based training and education is increasingly accepted as the measure of the clinical competence of an individual. In the 1997 ICS guidelines the advice about the required skills recommended that the doctor should be '*experienced in transfer medicine and have at least two years experience in anaesthetics and intensive care*'. The recommendations for the accompanying nurse, or technician, specified '*experience in transfers, at least 2 years in intensive care and hold the ENB 100 qualification*'. By 2002, the new ICS guidelines now prescribed **competencies** for the accompanying medical attendant, which included resuscitation, airway care, ventilation and other organ support. This medical practitioner should have '*demonstrated competencies in transport medicine, and be familiar with the transport equipment*'. The assistant '*should be suitably experienced nurse, paramedic or technician, familiar with intensive care procedures and with the transport equipment*'.

Therefore, it seems logical that **all** staff who are involved in the transfer of patients should be able to demonstrate that their general clinical skills are appropriate to the level of care required by their patients. They should also be able to **demonstrate** that they have the specific clinical competencies required to deliver appropriate care to the patient during transportation. The necessary competencies should be assessed, either as part of continuing professional development, or specific training, and this achievement recorded.

The achievement of general clinical competence in a particular field or level of care is gained by experience and in-house training. Training in the use of appropriate medical equipment is best undertaken in-house, but is often not formally assessed and is rarely recorded. The addition of a Safe Transfer and Retrieval course, designed to encourage a structured approach to areas specific to transfer medicine, can build on these existing competencies, resulting in a team whose documented competencies are matched to the individual patients' needs.

The book is designed to accompany transfer courses appropriate to differing levels of care and seeks to form the basis of pre-course work, before undertaking specific training appropriate to the level of expertise required.

During a 2-day transfer course it is not possible to undertake a detailed assessment of the clinical knowledge of the participants; the course is about teaching a structure and not medicine. The Safe Transfer and Retrieval course has to assume that the participants have some clinical knowledge, and experience, appropriate to their position. However, the section on clinical care (Part IV) has been rewritten and expanded in order to include some of the physiology behind the primary survey, and the common conditions which may be encountered. It is hoped that this section will be a useful learning tool for those who are less experienced in these conditions. This section may also provide a useful reference source when dealing with specific transfers.

The book is divided into six sections.

Part I – Introduction: introduces the subject by discussing the principles of the STaR approach and also introduces the concept of the use of the ACCEPT acronym to describe a structured approach to the organisation and execution of any transfer.

Part II – Managing the transfer: follows the development of the detail of the component parts of ACCEPT in Chapters 3 to 7; the whole process is demonstrated in a worked example in Chapter 8.

Part III – Practical aspects of transfer medicine: describes some of the equipment which may be required during a transfer, and some practical procedures.

Part IV – Assessment and clinical aspects of transfer medicine: describes some of the physiology behind the components of the primary and secondary surveys. Selected medical and surgical conditions are covered in Chapter 12.

Part V – Special considerations: considers an introduction to paediatric and air transfers and the infectious patient. It also includes some of the legal and insurance issues of transfers and health and safety issues in keeping staff safe.
Part VI – Appendices: contains the appendices.

Safe Transfer and Retrieval: The Practical Approach (second edition 2006) has been developed as the core text for the STaR course, but it will be useful to medical and allied personnel, whether they attend the course or not. The aim is to encourage a systematic approach to the transfer or retrieval of any patient.