CHAPTER 1

Introduction

Learning outcomes

After reading this chapter, you will be able to:

- Describe why unwell patients are transferred between hospitals
- Identify the issues that may adversely affect delivery of care

1.1 Background

In children's critical care alone there are in excess of 5000 paediatric intensive care unit (PICU) transfers between hospitals and 16 000 transfers of neonatal patients in the UK every year. In addition to this there are numerous high dependency unit (HDU) and non-urgent transfers between centres and countless thousands of intra-hospital transfers undertaken by healthcare professionals every year. Each one of these transfers represents an episode of care which is associated with a period of increased risk for both the child and the clinical staff. These risks can at best be eliminated and at the least be minimised through appropriate training.

The NAPSTaR manual together with its associated course is aimed at a multi-disciplinary audience and has been developed to provide a comprehensive introduction and overview of the process of transferring unwell patients. Its conception followed from the success of the PaNSTaR and STaR manuals and courses. The underpinning concepts described herein, and in particular the ACCEPT principles, are essentially the same.

Throughout the text the use of the words 'child' or 'children' should be taken to refer to the entire age range (neonate up to 16 years of age). Where appropriate, more specific references to particular age groups will be made where practices vary according to age. Neonates will be used to refer to all preterm babies and also term babies of less than 28 days of age. Infants shall refer to all those under 1 year and adults for those over 18 years. Parent refers to any person with parental responsibility.

With regard to the transfer of children there has been a cultural change which has occurred in many centres where non-paediatricians have distanced themselves from paediatric practice, triggered by the centralisation of paediatric services. Many district general hospital (DGH) practitioners, faced with a critically ill child, may now find themselves practicing at the edge of their comfort zone. This is perhaps particularly true if they have to undertake a transfer.

Most neonatal intensive care units (NICUs) and PICUs will have an associated retrieval team. However, the majority, if not all, of these teams are not sufficiently resourced to be able to provide a robust service 100% of the time.

In adult practice most centres do not have a dedicated transport team and transfer teams are drawn from in-patient staff (often from critical care). There will be occasions, such as patients with surgically treatable lesions following a traumatic head injury, where current practice would dictate that the referring hospital should undertake the transfer in order to minimise the time to neurosurgery. These factors mean that referring centres may expect to carry out the transfer for up to 25% of the children that they refer for urgent tertiary care.

Neonatal, Adult and Paediatric Safe Transfer and Retrieval: A Practical Approach to Transfers, First Edition.
Edited by Bernard Foëx, Peter-Marc Fortune and Cassie Lawn.

Reading this manual and attending a NAPSTaR course will provide you with the basic strategies and background that you need to join a transfer team. It is important to note that proficiency in this area only comes with the additional training and experience that may be gained from working with practitioners already experienced in this area.

1.2 The approach to transfer

Any transfer process may be broken down into three components:

- Organisational and management strategy
- Practical issues
- Training required to appropriately use the equipment needed during the transfer

The course focus is on the transportation of patients between hospitals. However, the same approach can, and should, be applied to the transportation of unwell patients within hospitals.

The usual purpose of an inter-hospital transfer or retrieval is either to allow the patient to be treated more effectively or to obtain additional diagnostic information, in a geographically separate site. Transfer per se does not constitute therapy and represents a time of increased risk. It is therefore essential to always consider the risks versus the benefits before undertaking a potentially hazardous journey.

In the neonatal population, babies may be transferred acutely because they require intensive care unit (ICU) therapy that is not available at the referring hospital. There are also a significant number of neonates that may be moved for specialist examinations or opinions. Infants and older children are primarily transferred when they are acutely unwell to a central PICU or HDU. Some transfers will also occur for secondary or tertiary opinions, but the majority of these patients will not present a clinical risk and will be transported by their parents. In acute cases, children may sometimes have to be transferred significant distances, especially at busy times such as midwinter, as beds may not be available in their nearest tertiary centre.

The source of patients also varies widely:

- Delivery suite
- Emergency department
- NICU
- Adult ICU
- Paediatric wards
- Theatres
- HDU
- Coronary care unit

Emergency departments are probably the most frequent starting places for the movement of PICU patients. Sometimes children are moved to local critical care facilities prior to transfer. Either way, the adequacy of resuscitation and the degree of packaging that will have been undertaken before the arrival of the transfer team is highly variable. When dispatching a team to undertake a transfer it is always best to assume they will need to do everything and therefore must have the knowledge and skills to do this.

Transfers are not infrequently associated with adverse events, which may be recorded on transfer forms. Those seen most commonly are:

- Supply failure (electrical power, gases, fluids or drugs)
- Equipment failure
- Significant hypotension
- Significant hypoxia
- Inadequate resuscitation
- Significant tachycardia
- Mechanical ventilator not available
- No capnography available (when clinically indicated)
- Delay in getting ambulance
- Ambulance getting lost en route
- Cardiac arrest in ambulance

The number of inter-hospital transfers continues to rise. This is perhaps driven by increasing expectations on the part of both the public and healthcare professionals.

This manual will provide those who may be involved with the transfer of unwell patients with a systematic approach to guide their work. It does not seek to teach or develop the clinical skills required to undertake such care but it does provide a structure that should help eliminate the majority of the non-clinical pitfalls. There is no substitute for the practical training that may be gained by working with those experienced in this field.