

# Transporting sick infants: A specialist practice course

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The pressure on neonatal intensive care cots and the concentration of expertise and sophisticated technology in specialist neonatal intensive care centres around the UK has led to an increase in transport of sick neonates. Care of these vulnerable infants during transport is now becoming recognised as a separate specialism within neonatal nursing. This article describes the development of a programme designed to equip neonatal nurses with the skills and knowledge to transport sick infants safely.

**Keywords:** *neonatal transport; course development; role development*

## Introduction

Neonatal nursing encompasses critical care, high dependency care, special care and community neonatal outreach nursing. Central to this nursing practice are infants and their families. They require skilled intervention to facilitate the process of transition from the birth of the infant to admission to the neonatal unit and eventual transfer to home. More sick infants are transferred for specialist care than any other group of intensive care patients (Major, 1996). The provision of expert nursing and medical care that ensures the safe passage of the infant from one care context to another may make a significant contribution to infant and family outcomes (DoH, 1997; Field, 1997; NANN, 1992). The knowledge and expertise surrounding the transfer of sick infants have developed rapidly over the last few years and transfer is increasingly recognised as a specialism within neonatal nursing (Giardino et al, 1998; Aylott, 1997; Leslie, 1997).

Furthermore, the changing ethos of nursing practice, where professional boundaries are more fluid, offers increased opportunities for neonatal nurses to establish more specialised roles (UKCC, 1992a; Redshaw, 1999; Ashworth et al, 1998). For example, nurse-led back transfers are widespread. As advanced neonatal nurse practitioner roles become more established, and with further specialisation, the prospect of nurse-led transfers of critically ill neonates is on the horizon (Leslie and Bose, 1999).

All neonatal units engage in neonatal transfer activities be it from delivery suite to the neonatal unit or from hospital to hospital. There is an increasing body of knowledge in relation to the requirements for safe transfer and the transportation of sick infants. Team members need to be appropriately trained and assessed to be deemed competent in the transport process (Budd and Donlen, 1984; NANN, 1992; Medical Devices Agency, 1995). Some neonatal units have developed local training programmes in an attempt to provide a safe and effective service yet these initiatives can differ greatly between units. In the authors' local area there was an apparent need to develop a formal and coherent programme that would

facilitate the acquisition of a minimum level of skill and knowledge for safe practice for all neonatal nurses. Conducting a national poll of neonatal units assessed demand for such a module. This resulted in an overwhelming response in favour of practice-based education and training and confirmed the intention to proceed with the development of the programme.

## Module development

A module development team was formed to develop a very specific education and training programme that would enable neonatal nurses to achieve the required skills to ensure safe practice during transfer. The team consisted of various personnel who each offered a unique perspective consisting of:

- a consultant paediatrician with recognised expertise in neonatal transport
- the transport co-ordinator from a regional neonatal unit
- the regional benchmarking representative
- the quality and risk assessment officer from the ambulance services
- a neonatal practice development coordinator

### Key points

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1. The transfer and transportation of sick infants is a complex activity which requires specific preparation.
2. The ENB U05 articulates the minimum standards required for safe and effective transfer thus contributing to quality health care.
3. Communication is a critical component of the transfer process both verbally and through appropriate documentation.
4. The principles of safe transfer and transportation apply to all situations where infants may be moved from one location to another.

- user representation, provided by BLISS (National Charity for the Newborn)
- a university lecturer to facilitate overall module development

In addition, the ENB provided guidance in relation to the requirements of the professional body.

Competency in this aspect of neonatal nursing is now supported by a specific, formal, accredited programme of preparation. The module was developed by the School of Nursing at the University of Salford, in partnership with the local Regional Neonatal Intensive Care Unit at Hope Hospital, Salford. This activity resulted in the development of a new practice focused module the "Transportation and Transfer of the Sick Neonate (ENB U05)" module. This is offered at Level III. It makes a significant contribution to the setting of minimum competency standards for practice, aiming to reduce the risks associated with transferring sick neonates.

## Module content

The overall aim of the module is to develop the expertise, skills and knowledge of neonatal nurses and midwives to facilitate the safe transfer of sick newborn infants within and across different care contexts.

Modular content covers a variety of topics, directed at enabling students to coordinate and manage both intra- and inter-hospital transfers as well as being able to assess and implement specialised nursing care. It recognises that care will be delivered in a variety of different environments which may require the transport team to work in unfamiliar surroundings and with professionals they may not have met before. Students are reminded that they must always act safely within the bounds of care protocols, the Code of Professional Conduct (UKCC, 1992a), and the Scope of Professional Practice (UKCC, 1992b).

Early discussions regarding the problems experienced by practitioners in relation to neonatal transport revealed major areas of concern or risk, which were further confirmed by the available literature. Module content was also informed by the results of the local regional benchmark in relation to the transportation of sick infants. Furthermore, published evidence suggested that transport stabilisation, delivered by a competent team using appropriate equipment could contribute to a positive outcome for patients (Hudd et al, 1983; Selevan et al, 1999).

Accordingly, the programme focuses on three main practice areas: communication, equipment operation and transport stabilisation.

## Communication

In order to optimise fully the care of infants requiring transport and also that of their families, successful management of communication in uncertain situations is essential and is a medicolegal necessity (Melville and Print, 1996). It requires the ability to communicate effectively with different healthcare professionals. There must be early recognition of serious problems and the need for help. The timing of a referral for neonatal transfer is critical, since it may take several hours from initiation to completion. Interim consultation and advice between the referral and referring unit

has been shown to improve the condition of infants prior to transfer (Murdoch Eaton et al, 1994). Students are reminded that appropriate communication and decision making must be used during all phases of a transfer. At the time of referral those involved need to have the best information available about the infant and understand the normal course of the infant's condition. Those organising transfers need detailed knowledge of the process and should be able to anticipate both duration of a particular transfer and how transfer may affect the infant and the family.

Families are under considerable stress and require information and support both from the referring and the retrieval team (Wright, 2000). Transport teams have only a short time to convey a great deal of complex and difficult information. Time is not the only constraint, as, especially after a caesarean section, the mother is usually quite drowsy and is unable to assimilate much information (Cross and Townsend, 1995).

Topics covered in the programme include:

- parental and family support and communication
- communication between teams of professionals
- record keeping and associated documentation and issues surrounding quality assurance
- audit and risk assessment including legal, professional and ethical concerns.

## Equipment operation

This part of the programme focuses on ensuring the student is able to use and troubleshoot equipment promptly and effectively. Students are made aware of the categories of avoidable problem areas of equipment management. They learn how to detect subtle changes in vital signs and develop skills to differentiate between artifact obtained in neonatal transport conditions and that which is clinically significant. Students discover how adverse environmental conditions encountered on transport may affect equipment performance and ultimately the care of infants being transferred by land or air. It is important for nurses to understand how the mode of transport can have adverse physiological consequences for infants so that potential problems can be anticipated and a safer transfer be implemented (Lawler, 2000a; Lawler, 2000b). The effects of vibration, extremes of temperature, and barometric pressure changes with altitude or decompression are dealt with in the programme of study. The urgency of the situation and the mode of transport used in inter-hospital transfers can create further hazards for staff who may potentially be at risk of serious injury during transportation (Cohen, 2000). The configuration of the transport team is crucial to a successful outcome (Lesley, 1994). Students are made aware of the requirements in relation to emergency equipment, service provision and resource management of neonatal transport services for both ground and air transport.

## Transport stabilisation

Effective problem solving in uncertain situations is an essential skill in the transportation of sick infants. Stabilisation prior to transportation is crucial for a successful outcome and is the most critical aspect of inter-hospital care. It minimises the subsequent deterioration of the infant in an environment that

may not permit detection or treatment of the problem. A well stabilised infant requires minimal intervention during transportation.

Neonatal nurses must be effective in both pre- and post-transport stabilisation. They must be able to recognise, assess and intervene so that the infant receives timely and appropriate clinical care (Leslie, 1997; Wright, 2000). Topics covered in the programme include transport stabilisation and care, including the specific requirements of extremely low birthweight infants who require transportation. This is supported by a detailed review of developmental neonatal physiology in order to understand the impact of ground and air transport measures on the sick infant. The specific management of infants according to underlying pathology is also addressed.

## Assessment

This is a level III module that has been validated by both the academic institution and the professional body. As a consequence, outcomes are assessed both in theory and in practice. Students must pass all components in order to achieve both the professional and academic award. Theoretical assessment is by way of a written assignment. The practice assessment focuses on communication, equipment operation and transport stabilisation. It uses a framework consisting of a competency standard, related performance criteria, and record of achievement, which includes a clinical experience log and reflective accounts of learning.

## Review

The first programme began in February 2000 and is currently being offered each September. The module is aimed at all neonatal nurses, not merely for those who aspire to become transport coordinators. Students who attend the module come from a variety of neonatal units that differ in transport activity, expertise and skill mix. Student feedback has consistently confirmed the high value accorded to applied theoretical content that is integrated into a neonatal clinical context. The teaching team includes a lecturer-practitioner who is also an established transport coordinator for a regional neonatal unit. This clinical expertise has been invaluable. Students have particularly enjoyed networking with their peers and sharing knowledge and skills. They have been candid in their analysis and evaluation of their own, and their units' practices.

Completion of a bench marking activity structured the students' clinical evaluations and consequently many were able to identify measures to improve the quality of both individual practice and service provision. It is worth noting that although many students attend the programme with the express desire to improve clinical knowledge and expertise, many of their concerns, as revealed in their writing, demonstrated the importance of effective and sensitive communication (both in the written and verbal form), the breakdown of which often appeared to have serious clinical consequences for the infant, notwithstanding professional and personal consequences for the neonatal nurse.

In evaluating the ENB U05 it has been clearly evident that practice developments have been stimulated by this programme of study. Those who undertook the course felt that

they were better informed and better placed both to review their units' practices and to question the transfer process. The experiences of some students have given them the stimulus to develop teaching packages at their own unit with a view to improving practice. As a result they have perceived that their professional roles have been strengthened. Those involved in the course (including the lecturers) have found subsequent networking and sharing of experiences with those from other units to have been invaluable.

Formal evaluation of the programme and its impact on clinical care is desirable, notwithstanding the anticipated challenges of systematic evaluation (Redshaw and Harris, 1996). These require careful consideration if such research is to yield meaningful results with potential to guide future investment of resources. Current discussions are at an early state in this process.

## Conclusion

The partnership approach which was used to guide the process of module development for this educational programme ensured that the delivered content was of relevance to practitioners. It is hoped that such education and training will equip neonatal nurses to engage in more thoughtful decision making that considers the whole transfer process and not solely the act of transporting the sick infant as quickly as possible.

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