

Peter J. Shirley  
Julian F. Bion

## Intra-hospital transport of critically ill patients: minimising risk

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P. J. Shirley  
Intensive Care Unit, Royal London Hospital,  
Whitechapel, London, E1 1BB, UK

J. F. Bion (✉)  
University Department of Anaesthesia and Intensive Care,  
Queen Elizabeth Hospital, Birmingham, B15 2TH, UK  
e-mail: J.F.Bion@bham.ac.uk

Sir,  
“Is your journey really necessary?” asked a railway poster during the privations of the Second World War. A similar question should be asked of clinicians committing sick patients to a transfer between, or within, hospitals, with the additional question, “Is this transfer really safe?” There are many potential risks associated with transporting the critically ill patient, including their greater susceptibility to the physiological changes associated with the change in environment, changes in equipment such as ventilators and pumps, downgrading the intensity of care, the absence of backup supplies and staff and failure to identify or predict continued deterioration in the patient’s condition. For all these reasons, transport medicine deserves greater recognition as an activity which requires a particular focus and training.

In some countries—France, Germany and many parts of the U.S., for example—transport systems are well-funded and expertly managed. In many other countries, transport medicine is a “Cinderella activity”, with no regional or national coordination. Indeed, in the UK it would appear to be easier to obtain funding for retrieving single organs for transplantation than it is for retrieval of an entire patient. This absence of coordination and lack of focus on the needs of the patient undergoing transport has

a number of adverse effects. For inter-hospital transfers it deprives the referring hospital of staff, and puts the patient at risk by consigning the patient during the transfer to the care of junior and often inexperienced practitioners. Transfers may be arranged hastily, with the responsible senior staff more focused on relieving a service under pressure, than investing time in ensuring patient safety. It also implies that transport is an innocuous activity requiring little training. These attitudes towards inter-hospital transport are mirrored in our approach to intra-hospital transfers (which, it is noted, may for political reasons now include transfers occurring within a networked group of hospitals).

Research studies and published guidelines have tended to focus on inter-hospital transfers: distance, duration, logistics, administrative inconvenience, and transport modality all contribute to this bias. Numerically, however, transfers that take place within hospitals are the more numerous, and since they reflect in microcosm the same challenges of inter-hospital land transfer, they deserve more attention. In this volume of “Intensive Care Medicine”, Beckmann and colleagues [1] report on their analysis of incidents and adverse events affecting patients during intra-hospital transfer, culled from the database of the Australian Incident Monitoring Study in Intensive Care. From a total of 7525 incident reports collected over the course of approximately 6 years, they identified 176 reports of 191 incidents relating to intra-hospital transportation from 37 ICUs. Clinical management errors accounted for 61% of the problems, and equipment failure for the remainder. Communication failures and human factors were important elements in causation. Adverse events occurred in 31%; 4 patients died. From this data the authors develop recommendations for intra-hospital transport, and a checklist for documenting the processes of care before, during and after the transfer period.

So what can we learn from yet more evidence that transporting critically ill patients is potentially hazardous? As the authors acknowledge, the absence of denominator

data makes it impossible to estimate the frequency of adverse events associated with transport, but clinical experience and personal enquiry suggests that this is not a minor problem. The organisational and technical difficulties have been less widely reported, although this appears to be a consistent theme in the previously published data relating to intra-hospital transfer [2, 3]. Some years ago one of us conducted two studies [4, 5] of inter-hospital transfers demonstrating the very considerable risks associated with non-expert transfer of critically ill patients. Common themes were the importance of stabilising patients before transfer, adequate equipment and, above all, proper training of all those involved. Since then many standards documents have been produced [6, 7, 8, 9]; however, although standards documents and “pre-flight checklists” are important elements in developing safe practice, they are of limited value unless the practitioner at the bedside translates them into effective action. Translation requires education reinforced by experience supported by adequate resources.

The decision to transport a critically ill patient should be made by a senior, experienced and appropriately skilled clinician who remains responsible for the conduct of the transfer. The transport team should be freed from other duties well in advance of the planned departure to allow time for adequate preparation. We are all familiar with the concept of patient “optimisation” before any high-risk procedure and the approach to this group of patients should be viewed in the same light. Of particular importance is respiratory management. Patients undergoing mechanical ventilation must be stabilised on the transport ventilator. Consideration must be given to securing the airway in those patients who are breathing spontaneously without airway adjuncts. All equipment should be checked beforehand. The route used within the hospital should be identified and lifts and corridors secured, if necessary, before the transfer begins. Changes during transport should be identified and managed in the same way as in the intensive care unit. Failure to respond may be an indication to abandon the procedure and return the patient to the ICU.

Education and training are key issues. Recently introduced formal postgraduate educational courses in the UK have embraced this concept and placed emphasis on the leadership role of the clinician in ensuring the process runs smoothly and safely [10]. One entire section of the UK’s competency-based core curriculum in intensive care medicine [11] is devoted to transport medicine, and trainees are specifically assessed for their competency in this field. This type of training is essential for creating a

suitably skilled workforce, since it also inculcates the attitudes that are needed to develop safe practice. Checklists are useful, but they run the risk either of being all-inclusive and therefore too laborious to complete, or rather general and therefore missing essential detail. For example, Beckmann et al.’s [1] proposed checklist is admirable, but it tends to focus on the patient who is intubated and ventilated, and does not address a key anxiety for critical care transfers of whether a patient’s airway should be secured before transfer. It is precisely this aspect—of professional judgement—which is best addressed by education and experience through national intensive care training programmes.

The way that the data has been collected is as important as the results presented in the current “Intensive Care Medicine”. It is a credit to the Australian Patient Safety foundation that they have put a system in place to allow the anonymous reporting of adverse events. In fact, there are parallel incident monitoring studies, both in “Anaesthesia” and “Retrieval Medicine” [12], also in use. These are national systems, but in the absence of such systems, local or regional services should be evaluated regularly, so that any recurrent problems can be identified and appropriate changes made. Although reference to current published guidelines can be of help, they need to be adapted to reflect local facilities and staffing. Documentation of the transport process and critical incidents should be made in the clinical record and it should be emphasised that this forms part of the transport process. It is recognised that system failures and checking errors can stem from a culture of non-compliance, perceptions of invulnerability, or inherently poor procedures. Medicine has much to learn from aviation in this respect [13].

The term “transit-care medicine” has been suggested recently [14] to encompass all the aspects of critically-ill patient transfer and transport. Whether re-branding the process will improve safety remains to be seen. The most important element is surely commitment to quality by clinicians. As the remnants of Napoleon’s tattered army retreating from Moscow crowded over the single bridge crossing the Berezina river in January 1813, the recumbent form of an officer could be seen being passed carefully to safety over the heads of the weary men. This was Dominique Larrey, Napoleon’s surgeon and the inventor of the “ambulance volante”. Such was the commitment to the retrieval and care of the ordinary soldier that they now put his safety before their own. Can we command similar respect from our patients in our care of them during transport?

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