

the community has in recent years been seen as the only economically viable way to caring for the rising numbers of elderly, and, more importantly, it is in line with the wishes of the elderly themselves. The reality has been a subsidised but unregulated expansion of private institutional care and a massive, if indirect, diversion of funds from community support that might keep the elderly in their own homes.¹³

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Provision of facilities for secondary transport of seriously ill patients in the United Kingdom

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Abstract

A survey by questionnaire of 280 hospitals with general intensive care units was carried out to find out what facilities were provided for secondary transport of seriously ill patients in the United Kingdom. Replies were received from 181 units. Extrapolating from the survey data showed that about 10 000 patients were transported each year, although many units transferred only a few patients. An appreciable minority of units reported that facilities for secondary transport were inadequate and many were obliged to send inexperienced medical staff with patients. Almost half of the respondents thought that arrangements for transfer were unsatisfactory, but only a tenth said that they delayed or refused transfer for this reason. This undoubtedly reflects a policy of "making do" despite inadequate resources.

We believe that these results support the concept of regional transport services, where each major unit would be adequately equipped and staffed and unnecessary duplication of resources avoided.

Introduction

The development of regional specialist services for neurosurgery, plastic surgery, nephrology, and intensive care, for example, has led to the need for transport between hospitals (secondary transport) of an appreciable number of seriously ill patients. The results of several studies have confirmed the relative safety of transferring patients provided certain criteria are fulfilled: careful assessment and resuscitation before transfer, continuous monitoring and life support in transit, and the presence of experienced medical personnel.¹⁻³ Thus there is no good reason for a patient being denied specialist care on the grounds of distance from a referral centre.

The provision of secondary transport facilities in the United Kingdom is undoubtedly increasing to meet demand, but no

information is available on the nature, adequacy, and distribution of existing facilities. We therefore carried out a postal survey to provide preliminary data on which national guidelines or recommendations might be based.

Methods and results

In the spring of 1987 a questionnaire (table I) was sent to the consultant in charge of 280 intensive care units in Britain with a covering letter explaining the purpose of the survey and a stamped addressed envelope for reply. The

TABLE I—Clinical shock study group. Survey of secondary transport of critically ill patients

- (1) How many patients does your unit admit per year
 - (2) What percentage of your patients are children
 - (3) What percentage of your patients come from other hospitals
 - (4) What percentage of patients are transferred to other hospitals
 - (5) If you accept a patient from another hospital do you:
 - (i) Expect the referring hospital to arrange transfer
 - (ii) Send staff from your own hospital
 - (6) How are they transferred:
 - (i) Dedicated ambulance
 - (ii) Dedicated trolley or bed
 - (iii) Staff: Anaesthetic
 - Medical
 - Surgical
 - Nurse
 - Other
 - If other specify
 - (iv) Grade: House officer/senior house officer
 - Registrar
 - Senior registrar or consultant
 - Nurse
 - (v) Equipment available:
 - Portable ventilator
 - Defibrillator
 - Electrocardiograph
 - Direct arterial pressure monitoring
 - Box of transfer drugs
 - (7) Do you feel your present arrangements are satisfactory
 - (8) Does lack of transport facilities ever prevent patient transfer
- Please enter any comments overleaf

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units were chosen from *The Directory of Emergency and Special Care Units* (1985) (CMA Medical Data), and only general units (adult and paediatric) were selected. Because the response to the first questionnaire was satisfactory a reminder letter was not sent.

Replies were received from 181 of the 280 units, and these were

satisfactorily completed. The pattern of response reflected the geographical distribution of population concentration, and no part of the United Kingdom was not represented. Analysis showed that the objective of surveying only general intensive care units was achieved. Most replies referred to 1986 as a representative year and 89 (49%) units supplied additional information and comments.

Although the admission rate to units varied substantially, most admitted between 150 and 550 patients a year (table II). About 4% of the total number of admissions were children and most of these were admitted to a few centres; in 10 units more than 10% of the total admissions were children.

The number of patients who were transferred from other hospitals made up 7% of the total number of admissions to all units and transfers to other hospitals made up 5%. Most units transferred few patients (136 (75%) accepted less than 10% of admissions from elsewhere; 157 (87%) sent less than 10% of their admissions to other hospitals), but a few units accepted a large number of patients (table III). The larger units did not accept a disproportionate number of patients from other hospitals (table IV).

Sixty four (35.4%) respondents claimed to have a dedicated ambulance and 38 (21%) a dedicated trolley. Portable monitoring and life support equipment was more widely available: 129 (71%) units had a portable ventilator; 146 (81%) a defibrillator; 165 (91%) an electrocardiograph; 40 (22%) an intra-arterial pressure monitor; and 164 (91%) transfer drugs. We did not inquire about pulse oximetry; only a few respondents mentioned it (usually as an item for future acquisition).

Only a few units (10%) that received patients sent staff to transfer the patients from other hospitals, whereas 152 (84%) of the units that transferred

patients out sent accompanying staff. Anaesthetists accompanied patients in 92% of transfers, physicians in 33%, surgeons in 15.5%, and nurses in 92%. In 14% of transfers the medical team was accompanied by other personnel such as operating department assistants or paramedic ambulance crews. Many junior staff were responsible for patient transfer: 67% were house officers or senior house officers (comments implied that only the more experienced staff at these grades were sent), 73% were registrars, and 39% were senior registrars or consultants. Only trained nurses were sent. (The total figure for specialty and grade of staff exceeds 100% since the entries in the questionnaire were not mutually exclusive.) The additional comments made it clear that the choice of staff was influenced by such factors as underlying diagnosis, severity of illness, and availability of staff. Of the 181 respondents, 75 (41%) thought that the existing arrangements for secondary transport were unsatisfactory, although only a tenth said that the lack of transport facilities prevented transfer.

Discussion

Although the level and use of staff and resources that are necessary for primary transport are controversial points,^{4,5} the need for advanced monitoring and life support in secondary transport is not in dispute.^{1,3} The outcome for most patients who require secondary transport depends on safe transfer to the referral centre under the best conditions.

The provision of secondary transport facilities in Britain is developing haphazardly, and before we carried out our study there were no details on the nature, adequacy, and distribution of existing facilities. Anecdotal information only on patients in general intensive care units has been recorded,⁶ although more precise data exist for victims of head injury. Gentleman and Jennett showed that in a series of 150 patients transferred to the Institute of Neurological Sciences in Glasgow 67 (45%) had been inadequately treated before or during transfer. The commonest mishaps were airway obstruction and hypotension.⁷

The results of our study show that of a total of 69 933 patients, 5315 (8%) were transferred. To this figure may be added 1881 patients, representing the 35% (99) of units from which no replies were received. Although this was outside the scope of the survey, many respondents stated that most of their transport workload concerned the transfer of patients directly from accident and emergency departments to specialist units (such as neurosurgical, burns, and cardiothoracic centres). Thus a reasonable minimum estimate of the number of patients with life threatening illness who are transferred throughout the United Kingdom would be 10 000 a year. Most of these patients would require some advanced monitoring and life support. Although most transfers were within urban communities, respondents commented on problems with long distance transport from rural or offshore regions. There was no tendency for larger units to accept a greater proportion of transported patients, unlike the pattern described in some centres on the Continent and in the United States.¹⁸

Although a large proportion of units claimed to have a dedicated ambulance and trolley, personal experience and internal inconsistencies in the responses suggest that a less ambiguous question would have elicited a lower figure. Even if these figures were correct, however, 117 (65%) units had no dedicated ambulance and 143 (79%) no dedicated trolley. Many groups have described suitable apparatus for the transfer of critically ill patients, ranging from a converted standard ambulance trolley⁹ to a specially equipped ambulance used for no other purpose.^{10,11} Most of the hospitals had adequate portable equipment, but many were ill equipped. Mechanical ventilation is necessary to ensure stable physiological conditions,^{12,13} and adequate monitoring warns of changes in vital signs that would otherwise not be suspected.¹⁴ Only one fifth of the units had the facilities for intra-arterial pressure monitoring. This has been shown to be the standard against which automated systems are judged¹⁵ and to be especially useful in transport,¹⁶ and so it should perhaps be more widely adopted. Pulse oximetry is useful, simple, and reliable and has been strongly recommended for use during transport where early signs of hypoxaemia, especially, may be missed.¹⁷

Medical staff who accompany critically ill patients must have experience and skill in the techniques of endotracheal intubation

TABLE II—Number of patients admitted in a year to intensive care units

No of patients admitted	No of units	No of patients admitted	No of units
0-49	1	600-649	5
50-99	2	650-699	2
100-149	10	700-749	3
150-199	12	750-799	5
200-249	21	800-849	2
250-299	24	850-899	3
300-349	16	900-949	3
350-399	15	950-999	0
400-449	20	1000-1049	3
450-499	10	1050-1099	0
500-549	13	1100-1149	1
550-599	3	1150-1199	2

TABLE III—Number of units transferring patients in or out by number of patients transferred annually

No of patients transferred annually	No of units transferring patients	
	In	Out
0-10	95	89
11-20	27	44
21-30	11	26
31-40	15	11
41-50	6	3
51-60	10	2
61-70	0	0
71-80	3	1
81-90	2	1
91-100	0	0
>100	12	4

TABLE IV—Proportion of total admissions transferred from other hospitals by size of unit defined by number of admissions a year

Unit size	Percentage of total admissions transferred in	Unit size	Percentage of total admissions transferred in
<149	3	650-699	0
150-199	8	700-749	10
200-249	7	750-799	2
250-299	7	800-849	3
300-349	8	850-899	8
350-399	5	900-949	5
400-449	9	950-999	0
450-499	8	1000-1049	2
500-549	4	1050-1099	0
550-599	4	1100-1149	4
600-649	6	1150-1199	0

and assisted ventilation, cardiovascular monitoring and support, and necessary pharmacological intervention.^{1 10 12 18} In Britain anaesthetists are generally regarded as best qualified to accompany critically ill patients; doctors in other specialties may be needed depending on the patient's illness or injury. In intensive care a multidisciplinary approach is being adopted,¹⁹ and in the future, as more junior staff from various specialties are trained in critical care medicine, the distinctions noted above will become less important. More important is the seniority of the staff who accompany patients.^{1 10 12} In many replies to the questionnaire it was emphasised that patients were assessed by a consultant before being entrusted to junior staff. Nevertheless, two thirds of hospitals routinely send house officers or senior house officers on some transfers. Though these doctors can most easily be spared from the referring hospital, it is questionable whether they are adequately trained for this.

Almost half of the respondents were dissatisfied with the present arrangements for transferring critically ill patients, although less than 10% delayed or prevented transfers because of lack of facilities, which probably reflects a policy of "making do" with inadequate resources. The overwhelming impression from the comments made on the questionnaire was that constraints on resources made it difficult, but not impossible, to purchase equipment, and although some units are inadequately equipped, most have suitable portable apparatus. On the other hand, providing experienced staff is an overriding problem. For many hospitals transporting a patient outside normal working hours means leaving the hospital without relevant cover, often for many hours.

Most intensive care units transfer few patients, and given the problems noted here it is illogical to expect every hospital to have facilities to transfer critically ill patients. It would be more sensible to expand the system of regional transport units based in referral centres.^{3 9 10} Each unit could be adequately equipped and staffed and provide training experience in the exacting discipline of transferring seriously ill patients. This does not necessarily require extra

resources but merely a reallocation of resources to where they are most needed.

We thank our colleagues in intensive care units throughout the United Kingdom who responded to the questionnaire, and we appreciate the support of the Council of the Intensive Care Society, who approved the survey.

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MATERIA NON MEDICA

Bodyman bowled by bureaucracy

"Can you send me a docket?" This was the reply from the joiner in response to my request to have a hook fixed to the back of the door on which to hang my coat. If you have not guessed already this was necessary because we have moved into a new hospital building with plenty of workers—joiners, builders, electricians, carpet layers, etc—doing the odds and ends usually necessary with such a move. In the old building such a request would have been dealt with in less than half an hour.

For the various odd jobs that are always necessary in the wake of a new move in the NHS form filling seems to be the order of the day—red tape at its best. On this occasion I was reminded of an incident during my preclinical student days in the subcontinent. Our "bodyman" (that was the unofficial name of the man who was in charge of the cadavers) had retired a few months before and was enjoying a well earned rest when he fell ill. It was May. He could not draw his pension for the month of May as he was not well enough to go to the treasurer's office. The normal routine was for him to produce a certificate from a doctor to say that he was still alive. On production of that he got paid. In June he was well enough to visit the treasurer's office with his doctor's certificate to say that he was alive in June. The bodyman requested

that he be paid for June and May on the strength of the present certificate, although it did not state his condition in May. The clerk at the treasurer's office paid him for the month of June and refused his pension for May as he had failed to produce a doctor's certificate to say that he was also alive in May; it did not take long for the poor simple bodyman—illiterate though he was and able to put only a left thumb impression for signature—to realise that somebody somewhere was not thinking straight. He was told in no uncertain terms that if he wanted his pension for May he should produce a certificate to state that he was alive in May—a certificate that he was alive in June was simply not enough. If for nothing else they needed it just for the records. Alas.

It is said that the British gave their colonies, especially the subcontinent, the three Rs—roads, railways, and red tape. The colonials, like good pupils, excelled the British at it, especially red tape. But then, it is the same with cricket.

By the way, the hooks (not one, but two) were fixed without recourse to a docket. I threatened the joiner with the prospect of keeping him on the waiting list for 10 years if he ever consulted me with any surgical condition that needed an operation. My remark, facetious as it was, triumphed over a docket.—PRADIP K DATTA, consultant surgeon, Wick, Scotland.