Contemporary Themes

Is the emergency ambulance service abused?

D L MORRIS, A B CROSS

Summary and conclusions

Analysis of 1000 consecutive patients brought to the accident and emergency department of a busy district general hospital by ambulance after emergency "999" telephone calls showed that 51.7% of these journeys were unnecessary. Medical cases accounted for a greater percentage of necessary calls than did trauma and surgical cases. Medical education of the public is essential if the number of these calls is to be cut.

Introduction

Only one recent paper has analysed emergency "999" ambulance calls in Britain.¹ The information, which was collected by ambulance personnel, gave no indication as to the severity of illness or whether the call was justified.

We have analysed 1000 consecutive patients brought by emergency ambulance (after 999 telephone calls) to the accident and emergency department of a major district general hospital in Birmingham during March and April 1978. Birmingham has the internationally recognised Accident Hospital, and therefore the proportion of serious trauma is less in Birmingham's district general hospitals than in similar hospitals elsewhere in Britain.

Data

In an attempt to avoid bias only people actually recording data knew of the survey. The medical information was taken from the standard casualty card, with an additional proforma to determine who called the ambulance and the embarkation point.

The diagnosis used for each patient was that made in the accident and emergency department. Data on each patient were collected and analysed by one of us and recorded under clinical specialties with the two additional classifications of "alcoholic intoxication" and "no pathology." Each specialty was further categorised into "major" (life-threatening), "intermediate" (potentially serious), and "minor." Finally, we considered in each case whether the 999 call had been "justified," "possibly warranted," or "unnecessary."

Results

This survey of 1000 patients (540 male, 460 female) was completed in 58 days, of which 37 were working days and 21 weekend days or holidays. The average number of patients per working day was 16.9 compared with 17.8 on the other days.

Dudley Road Hospital, Birmingham B18 7QH

D L MORRIS, MB, FRCS, surgical registrar (present appointment: surgical registrar, County Hospital, Hereford)

A B CROSS, MD, FRCSI, consultant, accident and emergency medicine (present appointment: consultant, accident and emergency medicine, East Birmingham Hospital)

Subjects were divided into five age groups (table I). The largest number of patients (487) was in the 17-50 age group. The 170 attendances in the elderly group (66 and over) were comparable with the 161 schoolchildren (5-16).

TABLE I—Proportion of justifiable calls for ambulances in each age group

	0-4	5-16	17-50	51-65	≥66
No of people	54	161	487	128	170
% justifiable cases	40.7	26.0	32.0	47.6	61.7

WHO CALLED THE AMBULANCE?

Most (358) of the 999 telephone calls were made by relatives and only 49 by patients. Neighbours were responsible for 177 calls. The police summoned the ambulance for 99 people while employers did so for 51. A total of 113 were brought to hospital after emergency telephone calls by passers-by. Calls by teachers were responsible for only 21 of the 161 children who were brought to hospital by such ambulances. Various people, including wardens in old peoples' homes and publicans, alerted ambulances for the remaining 130. Eight calls were from general practitioners' receptionists, and in two cases the caller was unknown.

PATIENT'S EMBARKATION POINT

Over half (567) of the cases boarded the ambulance at their homes, 57 at their place of work, and a further 21 at schools. One hundred and ninety-five people, of whom 89 were victims of road traffic accidents, were picked up in the street, and 51 were collected from public houses. In only five cases were the requests for help from sporting venues. The others came from miscellaneous sources, while two were unknown.

DISPOSAL OF PATIENTS FROM THE ACCIDENT AND EMERGENCY DEPARTMENT (table II)

Altogether 593 patients did not require admission to hospital and a further 19 took their own discharge. Of the remaining 388 patients, 356 were admitted to this hospital and another 19 transferred to specialist hospitals (10 to psychiatric institutions). Thirteen deaths occurred in the accident and emergency department.

ANALYSIS OF CASES BY CLINICAL SPECIALTY (tables III and IV)

Trauma (44%)

Of the 440 patients who arrived as a result of trauma, only 34 were considered "major" emergencies, and 18 of these were fractures of the femoral neck. Of the 293 cases of "minor" trauma, most were small lacerations, abrasions, and contusions to limbs and face. One hundred and fifty-seven patients were picked up from their homes and 149 from the street. Thirty patients in either "intermediate" or "minor" categories were brought from public houses. Of the 21 children brought from school, 19 were the result of injury.

Ambulances were summoned in five cases of minor dog bite and in three cases for a needle lodged in a finger. A considerable proportion of those summoning the emergency ambulances were the police (67 cases) and passers-by (82 cases). One schoolboy in this category died in the accident and emergency department of multiple injuries, having fallen from a block of high-rise flats.

TABLE II—Disposal of patients

Category	Discharged home	Admitted	Transferred to other hospitals	Took own discharge	Died
Trauma	350	83	3	3	1
Medical	121	189	5	6	11
Surgical	29	43	0	0	1
Gynaecology	8	32	1	2	0
Psychiatry	17	2	10	0	0
Otolaryngology	20	6	0	0	0
Alcoholic intoxication	21	0	0	4	0
No pathology	27	1	0	4	0
Total	593	356	19	19	13

TABLE III—Severity of the patient's pathology in each medical discipline

Category	Major	Intermediate	Minor
Trauma	34	113	293
Medical	169	73	90
Surgical	9	32	32
Gynaecology	5	12	26
Psychiatry	7	5	17
Otolaryngology	1	2	23
Alcoholic intoxication	0	0	25
No pathology	0	0	32
Total	225	237	538

TABLE IV—Necessity of the ambulance call

Category	Justified	Possibly warranted	Unnecessary	Total
Trauma	122	40	278	440
Medical	209	34	89	332
Surgical	31	11	31	73
Gynaecology	13	9	21	43
Psychiatry	5	5	19	29
Otolaryngology	1	2	23	26
Alcoholic intoxication	0	0	25	25
No pathology	0	1	31	32
Total	381	102	517	1000

Medicine (33.2%)

Of the 332 patients with a medical diagnosis, 169 were considered "major" emergencies and only 90 "minor." The largest single diagnosis was that of self-poisoning, of which 60 cases were considered "major" and four "minor." One of the latter was said to be an overdose of toothpaste. Myocardial infarction was confirmed in 40 cases and suspected in a further 22. Epileptics having fits, usually in public places, resulted in 22 ambulance calls, and asthmatics in distress in 13. Eleven cerebrovascular accidents were recorded, and 11 diabetics needed attention. In children the commonest single medical emergency was febrile convulsions.

Of the 11 medical deaths in the accident and emergency department, nine were from myocardial infarction and one each from hypothermia and cerebrovascular accident.

Surgery (7.3%)

In this survey only 73 surgical patients were brought to hospital. There were only nine "major" cases, which included two perforated peptic ulcers and one ruptured spleen. The remaining cases were evenly divided between the "intermediate" and "minor" categories. One minor case was sent to hospital by ambulance having swallowed a ball-bearing. The symptom of abdominal pain initiated most of the calls for help (49), and in many of these a definite diagnosis was not made. A common problem was trouble with indwelling catheters (seven cases), and there were three cases of acute urinary retention. The single death was due to a ruptured aortic aneurysm.

Gynaecology (4.3%)

The commonest diagnosis was threatened abortion (14 cases). There were a further seven inevitable abortions. The most serious emergencies were two ectopic pregnancies and two postpartum haemorrhages. Thirty-two of the patients were admitted.

Psychiatry (2.9%)

Surprisingly, five patients telephoned for the ambulance themselves. In the remaining cases the vehicle was summoned as a result of the patient behaving in a peculiar manner. In only three cases were the patients in any way violent. Twelve were either admitted or transferred to psychiatric hospitals.

Otolaryngology (2.6%)

Of the 26 patients brought to hospital by the emergency ambulance, 16 had epistaxis, none of whom required blood transfusion, and five were suffering from tonsillitis. Six individuals were admitted. The only "major" case was a man with a large bone lodged in his oesophagus.

Alcoholic intoxication (2.5%)

Of the 25 cases, five were women and all but two were in the 17-50 age group. The ambulances were summoned by well-intentioned passers-by in six cases, the police in four, and publicans in a further three. Ten were picked up from the street, and six were actually collected from public houses.

No pathology (3.2%)

This diagnosis accounted for 32 individuals. The commonest symptoms were headache, chest pain, and a choking sensation. Four patients appeared well but took their own discharge before clinical examination and investigation were complete.

WAS THE AMBULANCE JUSTIFIED? (table IV)

When deciding whether such an ambulance was justified, not only was the diagnosis considered but also the age and social state of the patient. All but the most trivial head injuries were considered "justified" whereas minor lacerations to the head were usually not. Most minor injuries in the elderly justified an ambulance. Examples of unnecessary calls were sprained ankles of some days' duration, nausea, and minor epistaxis. With due consideration of such factors it was found that of the 1000 patients, 381 "justified" the ambulance, 102 "possibly warranted" one, and in 517 cases the ambulance was "unnecessary." In one instance a patient was needlessly brought to hospital three times in a single day by emergency ambulance, while in another a boy was brought to hospital protesting vigorously that he was only a spectator at an accident.

In the two specialties responsible for most calls 287 (63.2%) trauma calls were "unnecessary," whereas in medicine 209 (63%) were "justified."

Discussion

The quality of the ambulance service in Britain is excellent, especially when compared with those in America and some other European countries. In Italy, where the service is a conglomerate of voluntary society, hospital, and fire service ambulances, communication between each is poor.² In America ambulances are usually privately owned and staffed by paramedical personnel.³ In Russia and much of France calls go to a central control station, where the urgency of the call is graded, often by a doctor. An ambulance may be sent but often the local general practitioner is instructed to call.^{4,5}

This analysis of 1000 consecutive patients shows that in 51.7% of cases transport by emergency ambulance was con-

sidered unnecessary, and a further 10.2% were of doubtful validity.

In 1978, 31 311 ambulances were dispatched after 999 calls in the Birmingham central area (population 1.1m). Non-essential emergency ambulance work must be an enormous monetary drain. Not only must expense be considered, but also the potential danger to which ambulance personnel are exposed when hurrying to answer emergency calls.

An important finding is that in 42.6% of medical cases an emergency ambulance was deemed unnecessary, while in cases of trauma the figure rose dramatically to 63.2%. Although much of the major trauma in this city goes to the Birmingham Accident Hospital, there were, nevertheless, 278 patients with "minor" trauma needlessly brought to hospital in the emergency ambulance. The seriousness of the medical emergency is emphasised when it was found that of the 13 deaths in the accident and emergency department, 11 were due to acute medical conditions.

If one accepts that the limited resources of the NHS are to a degree squandered on unjustified emergency ambulances, what should be done to help alleviate the problem?

Would a financial disincentive be a deterrent? A standard charge of £5 would not seem unreasonable and might reduce the proportion of unnecessary calls. It would seem rational that if fees were to be levied children and the elderly should be exempted (table I).

Education of the public is essential to reduce the number of unnecessary ambulance calls. Most do not appreciate what constitutes a medical emergency, nor the expense of transportation by ambulance. Should the teaching of first aid in

schools be mandatory and adult medical education through the media be intensified?

Would the authorisation of these ambulances by a medical practitioner, after such calls, as happens elsewhere, be feasible and acceptable in Britain? The medical officer could be based either in the ambulance control centre or in the district general hospital.

This small Birmingham survey shows that in over half the cases patients are taken to hospital by ambulance unnecessarily after emergency 999 calls. Surveys from other areas of Britain would be of interest and if shown to be similar to the Birmingham experience would further highlight the abuse of a fine service increasingly under pressure.

We thank the medical records, nursing, and medical staffs of the accident and emergency department, Dudley Road Hospital, Birmingham, for their invaluable help during this survey.

References

- ¹ Boughey WNF. Accidents, emergencies and ambulances. A survey in Portsmouth. *Br Med J* 1968;ii:369-72.
- ² Koff SZ. Emergency medical services in crisis. An Italian case study. *Milbank Mem Fund Q* 1975; 53:377-401.
- ³ Morgan TH. Accident services in America. *Injury* 1973;4:95-101.
- ⁴ Hindle JF, Plewes LW, Taylor RG. Accident and emergency services in Russia. *Br Med J* 1975;ii:445-7.
- ⁵ Fletcher SB. A different approach to accident and emergency services—the French experience. *Hospital and Health Service Review* 1978;74: 152-6.

(Accepted 29 May 1980)

Private Medicine

An old chestnut reassessed

BY A SPECIAL CORRESPONDENT

Two fantasies were born with the National Health Service: firstly, that as the Service did its work the demand for health care would diminish; and, secondly, that because first-class medical care would be free and universally available the need for private medicine would disappear. Even the British United Provident Association (BUPA) subscribed to the second fantasy. Neither has come to pass. The NHS has grown as fast as Jack's magic bean, and private medicine too has prospered. But what is the future of private practice as both the economy and the NHS falter? Might the private sector expand to take up the increasing slack left by the NHS, or might control over the private sector have to be tightened to ensure that there is no runaway expenditure on what it could be argued is an "unproductive" part of the economy?

The Royal Commission on the National Health Service looked at the relationship between the NHS and private practice and concluded that: "The private sector is too small to make a significant impact on the NHS, except locally and temporarily."¹ But will this conclusion (a convenient one for academics and civil servants who do not want to be dragged into a violently controversial debate) hold true if there is considerable expansion, as some of the moguls of private practice expect and as some economists would like?² Will the private and public sector be forced into competition or can they collaborate? Are the omens good for doctors to pay more attention to private practice by trying to build new private hospitals or by full-time consultants

taking up the options in their contracts and earning 10% of their income from private practice?

These are some of the questions I want to consider, but private practice is an especially difficult subject to study for two reasons: firstly, because, as the Royal Commission observed, "precise information is lacking"; and, secondly, because the subject generates such political passion.

Size of private sector: is it increasing?

Rudolf Klein has observed that: "Determining the scale, and nature, of private practice is far from easy,"³ and the size of the private sector has to be inferred from the peripheral statistics available. One important measure is the number of people taking out private medical insurance. This increased fourfold from 585 000 in 1955 to 2 315 000 in 1975, and the increase has continued (although there was a dip in 1975 and 1976—after the row over pay-beds); indeed Private Patients Plan (PPP), the second largest insurance company, grew by about 20% in 1979, and the acceleration in the rate of growth has continued. Indeed, figures just released show that almost 2.8m people (about 5% of the population) were insured by the main provident associations at the end of 1979. Growth during 1979 was three times greater than that in 1978, which itself had been a record year.⁴ Furthermore, not all patients treated privately are covered by