EMERGENCY CARE AND MEDICAL TRANSPORTATION IN THE EASTERN QUARTER OF THE UNITED STATES OF AMERICA, 1963

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'EMERGENCY care' has been defined as "the care of the acutely ill or injured from the moment of onset until such time as the patient is ready for operation, hospital bed, or to go home without admission".[1]

The facets of this care include first aid by laymen or paramedical auxiliaries, definitive medical treatment outside a hospital, and the transportation of the patient from the site of the incident to a hospital admission organization. The importance of this part of the medical teamwork necessary in the care of the patient under modern conditions was emphasized in a *Lancet* leader[2]. Here several questions were raised: Was it possible our organization in England was capable of improvement in life-saving measures? No work on this subject has been done in England. Surgical opinion only has been voiced, but without statistical verification. The evolving specialism of accident surgery has been so concerned with the standards of treatment within a hospital that it has neglected to investigate factually the problem of emergency care. Discussions with the technicians of this recent speciality produce curious 'double think' opinions. On the one hand, is their emphasis on the early treatment of shock as a life saving measure. On the other is their opinion that very little except 'first aid' can be done to save a life outside a hospital. In view of their emphasis on the early treatment of shock, it is odd that no attempt has been made to ascertain whether this can be started before arrival in hospital. Problems such as transport, splintage, handling, stretcher design, and how many deaths *en route*

are preventable by definite treatment seem to have no bearing on their emphatic statements on shock treatment[3]. ' Emergency care ' of patients has been static for a quarter of a century: as a family practitioner, who in the past 20 years has had experience of emergency care, I thought there might be some field of investigation that could dispel this fog of specialized subjective opinions by collecting statistical objective facts on the subject of emergency care.

1. No work on the subject has been done in England regarding what happens to the patient *before* he arrives in hospital.

2. Continental surgery seems to have concerned itself with the problem for some years. Factual reports have come from East and West Germany and from Denmark. Professor Lembie, of Magdeburg, states that " every seventh injured is suffocated ", and that in five years 175 people died on the way from the accident to hospital[4]. Professor R. Feyer, of Mainz, gives a short but detailed list of the type of transportation and equipment used in the larger cities[4], with references to the status of emergency care. However, he gives no figures for their need or usage.

In Denmark, anaesthetists have concerned themselves with the problem. A report by a special committee appointed by the Danish Anaesthetico Society gives figures by Camerar, Lauppir and Gamelgard, in three separate investigations that indicate not less than three per cent of patients died unnecessarily *en route* to hospital[5]. A further investigation in 1957 by Dram in Copenhagen to verify these figures in both short and long haul, confirmed the possibility that at least three per cent of patients would have benefited by earlier treatment.

Austrian reports in a private communication indicate that the surgeons there consider the space to intubate a patient in transit a necessary requirement of an ambulance. They also have S.O.S. flags and blood plasma depots on their main roads[6].

In 1958, Dr George Curry maintained to the American College of Surgeons Clinical Congress[7] that from 2,500 ambulance runs 40 were dead on arrival or soon after. Post mortem showed that none would have survived if their injuries had occurred " on the hospital steps ". He was making this point in connection with the dangerous driving of ambulances prevalent in the United States.

These are conflicting reports of emergency care under different systems.

On a visit to America, an investigation was prepared to find out

the state of the ambulance services and emergency care in that country. It was difficult to obtain information in England about any work done in this field in America. The Nuffield Trust seemed to consider that transportation of the sick was a separate problem in England and America, and anyway, " things were different there ". However, more encouragement was received from Dr Revans of the Wessex Regional Hospital Board.

The area surveyed in America consisted of 12 of the eastern states where about a third of the population resides.

The first major difficulty was that no one person could give me an over-all picture of the organization, even in his own area or state. I was referred from one person to another, each giving his own facet. The task assumed a likeness to a search for the Holy Grail, but finally Dr Mainland, professor of statistics at New York University, gave me an introduction to the Director of Research Grants of the U.S. Public Health Services Division of Accident Prevention, who kindly saw me in Washington. He displayed much interest in the questions I asked, indicated that the whole subject was causing concern to the Accident Prevention Section, gave me up-to-date reports from the Committee on Emergency Care of the Traumatic Section of the A.A. surgeons, pressed a research grant application folder in my hand with the remark, " We can finance a project in England ", and finally introduced me to Dr Owen, chief, emergency medical services, Division of Accident Prevention, U.S. Public Health Service.

He confirmed the opinion of the President of the Committee on Trauma, Dr Wade, that the American Ambulance Service was in a deplorable state[1], that there was much concern over this, and interest in emergency care. However, in San Francisco and in Baltimore the emergency care was very good, with equipped doctors at the site of every serious injury.

There is no question in these two cities that emergency care is better than in England. Much could be learned from these two types of organization, with their emphasis on early definite treatment on the site and their high training of paramedical personnel.

Not much useful information relating to my proposed investigation was obtained during my tour of emergency care arrangements in the countryside, but many useful, small ideas were acquired regarding equipment and handling. More information was probably given than received. There is an export market for a good English ambulance.

Method

The method of investigation used was that of interviewing local authorities, crews of vehicles, and finally the various organizers of the medical transport. This was facilitated by the possession of a letter from a federal judge, Judge Bryan, and also the head of the blood bank unit in New York, Dr Markel. These letters were essential as one was moved from state to state interviewing people of different professions. In this way, a much more diverse and accurate picture of the organization was made than if the approach had been made from above, with the inevitable bias from the persons responsible. To give an illustration of this, while talking to one of the people in New York responsible for some of the ambulances, he stated various facts, but when I pointed out what was actually happening in his particular field, we had a much more fruitful conversation. The judge's letter was far more useful to me than any medical introductions; so much of the emergency treatment is given by either State police or the fire service.

It was obvious that the only way to get a picture of the country was to travel by road and as we travelled the 2,500 miles, stops were made at various State police headquarters, fire stations, drug stores, undertakers and private ambulance firms.

Results

Providence, Rhode Island

The small university town of Providence, Rhode Island, was investigated in detail. The medical profession has nothing to do with the organization of medical transport. This comes under the fire service and the undertaker. The major hospital also has two ambulances. All emergency calls were relayed by the police to the fire service, who have rescue trucks dispersed in the town. They are manned by specially selected fire crew who seemed to have had army or forces training. They respond to medical calls as rapidly as to fire. Their trucks were really fully equipped ambulances plus emergency tools for trapped injuries and the like.

We talked to these people all one morning, watched them at work and accompanied them on call, and we had a fair idea of their efficiency. Within limits it was very impressive. The practical knowledge of the drivers was good. (One driver said he would not move a pulmonary oedema because from experience he found they travelled badly. This presupposes a high degree of medical know-

ledge for a lay person.) The organization here through the rescue section of the fire service was as, or more, efficient than anything we have in our towns in England.

In parallel with this was the private ambulance run by the local undertaker. This consists of a $16,000 Cadillac, and a 'small' Pontiac. Apart from a stretcher and a bottle of oxygen, there was no difference between the ambulance and the hearse. The cost to a patient is about five pounds in the town and 7s. 6d. a mile outside. There was, however, a 24-hour watch with their own waveband of RT.

The third organization was operated from the hospital, again Cadillacs with station-wagon bodies. There was no over-seeing by the medical profession of the training of the crews or provision of equipment, although somebody must have advised them at one stage, but it was amusing to see how much interest the local physicians displayed in this facet of their own organization, about which they had never thought.

Equipment of the rescue trucks

One sprung stretcher.
A quick-cut pneumatic chisel tool.
Porto power jack for heavy shifting—mains power taken off the engine.
Dressings and blankets but no large shell dressings.
Sterile sheets, burns.
Oxygen resuscitator and suction apparatus combined.
Fracture back board.
Ingenious 'oubliette' stretcher.

Summary. The fire service rescue truck gave confidence that it could do its job. Both the hospital and the private enterprise undertaking had had too much money spent on prestige, and appearance, rather than on useful equipment.

New York City

Transport to hospital seemed to come under the public health authority, private enterprise ambulances and some, but not all hospitals. Some hospitals had no ambulances because they did not wish to treat everyday casualties; a deviation from the original meaning of hospital which is seen in our own specialized units in England. The hospitals that have ambulances, are allocated certain areas of the city by the police for which they are responsible. There is also the municipal Emergency Transport Service, which goes to anything which is not attended to by the hospitals.

The entire service is organized by the police (except for the private ambulances), but they do not own or equip the vehicles

apart from their ' small ' rescue trucks which carry a stretcher. The ' big ' rescue trucks for major emergencies carry good equipment for resuscitation and equally good equipment for death (a sub-machine gun, shot guns and .44 Winchester rifles).

There are about 30 helicopter landing sites, located at the major hospital.

Ambulances vary from lush private Cadillacs, very fully equipped, to old high four-berth types similar to our utilicars (at Roosevelt Hospital). The older types are preferred by the attendants for ease of movement, but their engines tend to burn out owing to the high average speed of traffic. The picture was that of official chaos buttressed by private enterprise. The sick bay staff of the Queen Mary told me they could get 20 patients away at Southampton to one at New York! At the Roosevelt Hospital I found the ambulance officer struggling with elementary problems. I promised to send him our latest designs. Minimal equipment was carried.

Cooperstown

Mary Imogene Bassett Hospital. In the north of New York State there is a quiet and lovely place called Cooperstown. Here, in the early 20's, the Bassett Hospital was founded. It is a ' closed ' hospital, whose staff have group salaries; it has just under one hundred beds, and has the facilities for a considerable amount of advanced research. Therefore the fact that it has about 18 interns is understandable, for it is affiliated with Columbia University, and staffed by their research specialist consultants.

The hospital covers up to 30 miles of the surrounding area which is largely agricultural country. Since remodelling last year, there are two casualty operating theatres, and each new intern is specifically instructed as to his job when on ' emergency care ' duty. They have two ambulances, Chevrolets, but two out of three accidents are brought direct to the hospital, probably by the villages voluntary (fire department) crews who are first-aid trained.

There is a welfare system, and 95 per cent of this welfare work was done at the hospital: there was also one local doctor in the town, of a good age, who was greatly in demand. The need for a family doctor is a strong one, and people preferred not to be treated continuously by interns. Local communities were providing accommodation to encourage general practitioners to settle in the district.

The hospital runs at a loss of $25,000 per month, but is endowed by a local family. Apart from animal research laboratories, it has a good library, a blood bank and the latest in surgical tools and

gimmicks. Interesting emergency equipment including a Trans-Saver stretcher which had movable wheels and a lift out tray (American Hospital Supply Co.). Ambulance equipment was complete with suction, oxygen, and plasma. This type of hospital does not exist in England. Hospital planners could do well to think seriously about imitating it, rather than down-grading the smaller hospitals.

REFERENCES

1. Kennedy, R. H. (1962). *Emergency Care*, Nat. Health Forum, Nat. Health Council, New York. Pp. 13, 18, 31, 39, 44.
2. *Lancet* (1963). **1**, p. 1337.
3. A report of a Symposium on *Accident Management* (1960). Supplement to J. Coll. gen. Practit. IV. No. 1. Symposium on Accidents (1962). *Coll. gen. Practit.*
4. Lemdcke W., (1959). Congress of Accidents at Erfurt, May.
5. *Dan. Anaethol. Soc.* (1959). Special Committee on Transport.
6. *Pulse* (1962). 28 April, 2.
7. Curry, G. J. (1958). *Amer. Coll. of Surg., Clin. Congress.*

Impact of Malignant Disease on the General Practitioner. RONALD GIBSON. *Brit. med. J.* 1964. **2**, 965.

The author discusses various ways in which malignant disease may present itself to the general practitioner. Many patients come too late for treatment to be more than palliative but these still provide a major challenge in management. Others present with symptoms which may be of serious import although the large majority will turn out to have trivial disorders. Should these people be investigated? Dr Gibson is definite here that " whenever there is even the smallest element of doubt in the mind of the general practitioner the patient should be referred to hospital for further and more specialized attention, no matter how much and what the nature of the disturbance caused ".

Management is discussed with special reference to the problem of ' telling the patient '. A special plea is made that whenever possible the patient should be looked after at home through the last stages of his illness.