

rehearsed in this way, minds would be kept alert to the possibility of disaster, and under the pressure of a real event routines would flow smoothly.

Disaster Organization at the Site: Forces of Chaos and Forces of Order

One of the outstanding factors at the site is the highly charged emotional atmosphere. One emotion which may affect many people is a sense of terror. People become incapable of speech or of deciding the simplest detail of what they ought to do. Another emotion is curiosity: the disaster acts as an enormous human magnet sucking in crowds of people. A more positive emotion is a deep concern for the injured, the realization that they may be in great danger and needing to be taken rapidly to hospital. Before there are shovels, people will lift masonry away brick by brick. Before there are excavators or lorries, people will pass rubble from hand to hand.

The admixture of all this emotion and the resulting activity results in confusion on a massive scale. Into this highly charged amateur situation members of the services arrive as professionals. It is the job of policemen, firemen, and ambulancemen to think coolly, to use common sense, to withstand the negative aspects of the crowd's response and to harness the positive.

Medical Role at the Site

RAPID TRANSPORT OF PATIENTS TO HOSPITAL

In all but one or two disasters we have been involved in no doctor has been sent to the site either from the hospital or from the area board. The ambulancemen have themselves extracted the injured patients with the help of firemen, police, and soldiers. The bombings have all occurred within a four-mile (6-km) radius of the hospital. The emphasis has been on rapid movement of patients to hospital, and doctors have been concentrated ready to receive and treat patients in hospital. No resuscitation was carried out on site, and I do not know of any case where this affected the outcome unfavourably. No doubt there may be rural disasters and even other types of urban disasters where resuscitation on site might be advantageous. But

in urban bombing we have found that rapid evacuation to hospital is a satisfactory system.

It is true that this policy results in minor casualties often arriving first in hospital. Whenever a seriously injured victim was extracted, he was always given priority for transport. But before the serious cases could be extracted, no merit was seen in keeping crowds of people with minor injuries waiting around at the site.

ON-SITE MEDICAL OFFICER

Ideally I think there should be a senior medical officer at the site. His presence would relieve considerable anxiety from the police, fire, and ambulance officers, and enable them to do their own work more efficiently. His reports to hospitals on the extent of the disaster and possible numbers of casualties would be of great help in hospital. He might be of some help in sorting out which hospitals casualties should be taken to. This matter, however, can probably be best decided in the offices of the ambulance control or emergency bed service.

MEDICAL TEAMS

Where there is an emergency rescue service operating from a hospital for road traffic and other accidents, its services would be welcome at the disaster site. Doctors and nurses with no previous experience of this work are likely to be a hindrance rather than a help. In a rural setting a general-practice rescue service would be especially welcome, as with longer ambulance journeys the value of resuscitation for the badly injured will greatly increase.

Conclusion

Planning for disaster still presents many difficulties. The question arises of who is ultimately responsible to see that proper plans exist in an adequate state of readiness, covering the whole country and all the services needed. It is a question which is so far unanswered.

Contemporary Themes

Accident and Emergency Services in Russia

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In the Spring of 1974 we were privileged to visit the U.S.S.R. as guests of the Russian Ministry of Health to see their accident and orthopaedic services. Our tour included Moscow, Lenin-

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grad, Kiev, Tbilisi, and Kutaisi, and we found much of interest. In every orthopaedic department we saw examples of the unique Russian method of treating complicated limb fractures by the compression distraction apparatus. The results were impressive, especially when used in the management of an infected pseudarthrosis of the tibia. At the famous Sklifosovsky Institute (Moscow), where Professor Yudin first used cadaver blood for transfusion, we spent some time in the special department where cadaver material is collected. Half of the blood is put in the plasma stores and the other half in the transfusion bank. This department supplies blood to all Moscow's hospitals. All tissues useful for transplantation are removed and stored: bone, cartilage, tendon, fascia, cornea, kidney, and liver. Surgical and

radiological equipment was elaborate and sophisticated, and in one new hospital there was a visual telephone available for relatives of patients in an isolation unit.

What impressed us most, however, was the excellent organization for accidents and emergencies and the conspicuous absence of "casualty departments," and we looked closely at the accident and emergency arrangements in Leningrad and Kiev.

Administrative Network in Kiev

In Kiev, which has a population of 2 500 000, the administrative centre with the main ambulance station is situated in the middle of the city. There are eight substations, all sited near a district general hospital and its associated polyclinic (health centre). As the city increases in size a new hospital, polyclinic, and ambulance substation are built to serve the new community. The central unit houses the administrative staff for all the Kiev services and at the time we were there was under the direction of Dr. Lengawr, who started as a nurse in Kiev, then qualified in medicine and was awarded the Order of Hero of Socialist Labour and the Order of Lenin for her work in this unit.

There are facilities for research and a conference room with accommodation for 300 people. There are 400 doctors and 650 paramedical personnel available for ambulance duties, and 500 000 emergency calls were dealt with last year, of which 9% concerned trauma and 2% poisoning incidents.

CENTRAL COMMUNICATIONS

In the communications room 12-14 qualified nurses answer telephone calls, arrange doctors' visits, and advise simple remedies for minor ailments (fig. 1). A specially trained doctor is also available to take over the more serious problems involving ambulance teams and admission to one of the district hospitals. Each telephone message is recorded on a card with the time and date and is also taped for record purposes. If an ambulance is necessary the signal is passed to a dispatcher and an ambulance is sent from the appropriate substation to deal with the emergency.

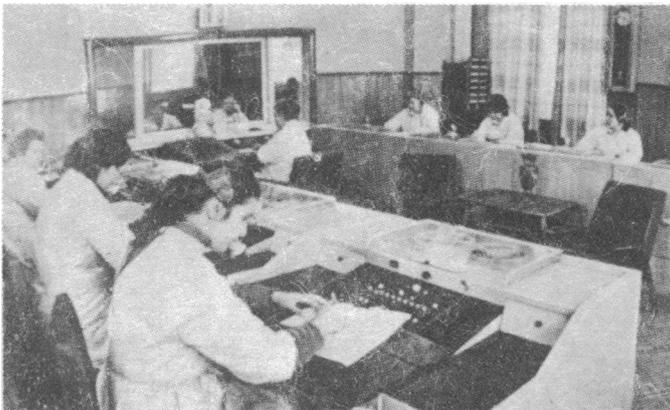


FIG. 1—Medical officer and nurses working in communications room. Tape recording machine can be seen.

Ambulances

During the day 125 staffed ambulances are available and at night there are 86. Each vehicle carries a doctor, a feldscher (a person whose training is midway between that of a doctor and a nurse), a nurse, and a driver. Though most ambulances are staffed by accident teams some are manned by specialists and are specially equipped for dealing with cardiac, neurological,

toxicological, gynaecological, psychiatric, and obstetric emergencies and whose personnel can be called from their hospital duties. We were intrigued with the arrangement for patients with "strokes," when the medical team included a neurosurgeon as well as a neurologist. The equipment for these special ambulances was highly sophisticated and brought to the patient life-saving measures which in other countries are usually only available in hospital. The toxicological ambulance carries a small laboratory as well as a full range of antidotes, and the feldscher is a laboratory technician trained in analysis of poisons. The ambulance service in Kiev also houses the poisons information centre for the whole of the Ukraine.

The vehicle used in all cases is a Raf and carries only one stretcher (fig. 2). All ambulances carry pain relieving drugs, dried plasma, and a synthetic plasma substitute similar to dextran 40. Syringes are of the disposable type (elsewhere in Russia glass syringes are used). All ambulances carry an anaesthetic machine with cylinders of nitrous oxide and oxygen as well as trichloroethylene. Entonox is not used. Splints are of the malleable metal type; we were told that though inflatable splints had recently been introduced for trial purposes they were not yet in general use.



FIG. 2—One of the ambulances used in Leningrad with doctor, feldscher, and nurse.

Medical Personnel

Doctors, feldschers, and nurses in the ambulance service spend some of their time in hospital and have an opportunity to follow up the patients they have dealt with as emergencies. As a general rule the team that deals with the emergency in the district admits that patient to its own ward. Doctors have a period of 10 months training before they are allowed to be in charge of an ambulance team. The doctor who goes with the ambulance will control bleeding, start intravenous infusion if necessary, supervise splinting, initiate treatment—for example, in a case of poisoning—and maintain contact by radiotelephone with the receiving staff. Every member of the ambulance service is required to take part in a teaching programme on accident prevention in schools, factories, and farm communes by lectures, radio, and television. This part of their work is competitive and is rewarded financially and can lead to promotion.

MEDICAL DISCIPLINE

Most calls to the central department are dealt with by the nurse arranging for the district physician to visit the patient or to see the patient in the polyclinic. When the doctor visits a patient he is required to telephone in the time of his arrival and the

diagnosis, and this information is then fed into a computer. At regular intervals the doctor's performance in accuracy of diagnosis and time taken to get to the patient are calculated. Inefficiency is an indication for a period of postgraduate education, and prompt good work is rewarded. Medical discipline of this nature is possible because the chief of department is of professorial status and there is no shortage of doctors.

Polyclinics

Since the disposal of patients is arranged by telephone there is no need for a sorting department (casualty). Patients with real emergencies are taken to the accident ward or to special departments. Since the polyclinics are adjacent to the district hospitals the doctor on duty can get immediate specialist advice by internal telephone. There are about 25 general practitioners in the polyclinic and there is a rota for emergency duties. Specialization is encouraged and we heard of one practitioner who was preparing a thesis on the wrist injuries that he had treated. There is a large supporting ancillary staff and they deal with all patients who arrive with urgent problems (except ambulance cases) as well as their own general practice. The chief doctor in the polyclinic is a consultant and his duties are mainly administrative.

Lessons for Britain

We were most impressed by three unique features of the accident

and emergency services. Firstly, the organization is large and efficient and obviously this specialty has equal standing with other special departments. Secondly, all grades of staff in the ambulance service feel they have an important part to play in accident prevention. Thirdly, the casual attender does not present a problem as minor injuries and medical complaints are dealt with in the polyclinics adjacent to the district hospitals.

A service of this quality can only exist if there are enough medical personnel. In the U.S.S.R. there are 35 doctors for every 10 000 people compared with 10 for every 10 000 in the United Kingdom, and provision for health care has a very high financial priority. The lack of adequate numbers of doctors precludes the establishment of accident services in the United Kingdom on the Russian pattern, but one feature which might with advantage be adopted in certain places is the polyclinic. For example, in large conurbations where a hospital has an unusually large general practice load the provision of a polyclinic in the grounds of that hospital could lead to a considerable improvement.

This visit was organized by the British Council under the provisions of the Anglo-Soviet cultural agreement. We would like to pay tribute to the British Council for its excellent and comprehensive arrangements for our visit. We would also like to thank the officials of the Russian Ministry of Health and the many people in Russia who went out of their way to make us welcome and show us what we asked to see. The hospitality of the Russian surgeons was almost overwhelming.

Medical Education

Assessment of Clinical Competence using Objective Structured Examination

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Summary

To avoid many of the disadvantages of the traditional clinical examination we have introduced the structured clinical examination. In this students rotate round a series of stations in the hospital ward. At one station they are asked to carry out a procedure, such as take a history, undertake one aspect of physical examination, or interpret laboratory investigations in the light of a patient's problem, and at the next station they have to answer questions on the findings at the previous station

and their interpretation. As they cannot go back to check on omissions multiple-choice questions have a minimal cueing effect. The students may be observed and scored at some stations by examiners using a check list.

In the structured clinical examination the variables and complexity of the examination are more easily controlled, its aims can be more clearly defined, and more of the student's knowledge can be tested. The examination is more objective and a marking strategy can be decided in advance. The examination results in improved feedback to students and staff.

Introduction

Despite the increased interest in assessment procedures in medicine and the wide use of objective techniques in written examinations the clinical examination has remained largely unchanged. The use of objective tests of the multiple-choice type has been regarded as impracticable as the answer is suggested to the candidate in the test.¹ Any changes must not increase the already considerable difficulties in assessing clinical competence in the many medical students who have to be examined.

Attention has recently been drawn to some of the serious

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