THE ORGANIZATION OF AN EFFICIENT ACCIDENT SERVICE

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With the advent of fast motor cars and extended industrialization one expects more accidents of a serious nature, and to be able to deal with these expeditiously certain adjustments to the methods of treatment and, even more important, hospital facilities should be considered.

The erection of a hospital in a particular area depends directly on the demand. Should the demand exist it is reason enough to have an accident hospital, but it is very unlikely that anywhere in South Africa a case could be made for such a hospital, considering that even in a great industrial area such as Birmingham, England, the demand is really smaller than justifies the very excellent accident hospital they have.

THE CASUALTY DEPARTMENT

Most hospitals are equipped with a so-called casualty department, which is very much misused as a rule. However, one should realize that the main function of a casualty department is to deal with (*a*) surgical emergencies, (*b*) medical emergencies, and (*c*) gynaecological and obstetrical emergencies. Every case for treatment has to be fitted into one of these categories. One must bear in mind that the state of emergency is always determined by the patient himself or his relatives, and if they decide that this is an emergency it is for the doctor in the casualty department to examine and reassure and not to criticize. The time of

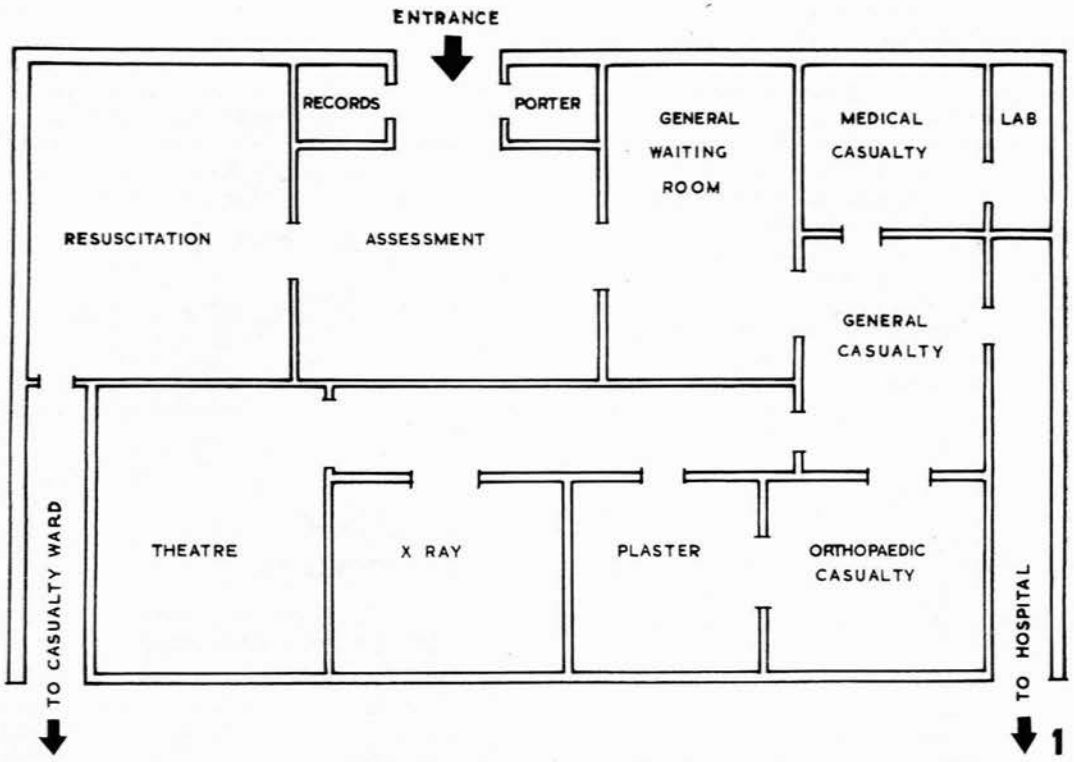

Fig. 1. Schematic lay-out of a casualty department.

day and the period of the illness have also very little bearing on this matter.

Resuscitation unit. The obvious alternative to a full casualty hospital, which might not be justified in the particular area, is to develop the casualty department into a worth-while unit where serious cases can be attended to without causing a serious upheaval every time such a case is admitted. It should be possible with a little reorganization and some additional staff to create an adequate resuscitation unit in every casualty department which justifies it. Fig. 1 is a diagram emphasizing the elements of such a unit. Its main point is that in addition to the ordinary features of a casualty department it should also comprise a so-called resuscitation ward.

Geographical location. In South Africa such resuscitation units may only be justified in larger centres and if they are connected with the larger Provincial hospitals they would be most beneficial. In smaller centres, where the staffing of such a unit is not justified and where trained specialist staff is not available, it may be necessary to have a so-called resuscitation trolley in readiness for immediate use. It is immaterial whether a team of doctors is flown to a patient or whether the patient is resuscitated and flown to one of the larger centres or even sent by road ambulance; the main point is that ample facilities should be available immediately and at every hospital for this treatment.

Records

The importance of keeping accurate and adequate records cannot be over-stressed. I am aware of the danger of giving the impression that the record is of more importance than the patient, but I am convinced that a sympathetic and careful clerk need incur no recriminations.

A register is kept of certain particulars that can easily be filled in by the clerk. Table I gives one an idea of what such a casualty register may look like. It is so organized that the clerk keeps track of all the patients that enter the department and, except for cases of emergency, he completes the register as far as possible and then provides the patient with a so-called 'casualty board'. This board consists of a 9″×14″ piece of hardboard with a special 'casualty sheet' clipped on (Table II). The first

TABLE I. CASUALTY REGISTER

No. ..... NAME .....

Date ..... ADDRESS .....

Time ..... Folder No. .....

Diagnosis .....

Motor Accident YES NO

Insurance W.C.A. S.A.R. Other

Disposal: HOME/RESUSCITATION/ADMIT TO

..... TRANSF. TO .....
MORTUARY / POLICE MORTUARY

Doctor attending .....

TABLE II. CASUALTY SHEET

To be completed by Records Clerk

Reg. No. ..... Date ..... Time .....

NAME .....

ADDRESS .....

Ambulance Driver .....

Motor Accident YES NO

Insurance RAILWAY OTHER

Been treated in this Hospital before YES NO

Folder Number if available .....

Which Department? .....

Treated by whom? .....

Treated anywhere else before YES NO

Where? ..... When? .....

To be completed by Sister or Doctor

Name of Doctor attending .....

Is resuscitation necessary? YES NO

If YES. Who notified the Accident Team ..... Time .....

If NO. Attended by whom? .....

Diagnosis .....

Consultation YES NO Time .....

Consultant .....

Disposal

HOME RESUSCITATION ADMIT TO .....

TRANSF. TO ..... MORTUARY POLICE MORTUARY

.....

DOCTOR'S SIGNATURE

part is completed by the clerk and the second by the doctor or the nurse. And when the patient is disposed of this 'casualty sheet' is returned to the clerk, who then completes his register from the information it contains.

In cases of dire emergency the patient is provided with such a board with only the number inserted, and it will be the duty of the doctor or the nurse or the clerk to obtain further particulars at a later stage.

The casualty board has also attached to it the so-called 'clinical sheet', on which the casualty doctor makes his notes. This is eventually filed with the patient's folder for further reference.

This may appear to be all red tape, but although one agrees that there should be a minimum of this, it can never be dispensed with altogether. It happens all too frequently that no record is kept of serious accidents, obviously because of the serious nature of the injuries and the urgency of treating the case.

Assessment

As the patient is wheeled into the area marked 'Assessment' he should be met by a casualty officer and a sister. The doctor has to look at the patient and has to make one quick decision whether resuscitation is indicated, 'Yes' or 'No', and for a conscientious doctor this should not be very difficult. It is doubtful whether a highly qualified accident surgeon is required for this duty, which any qualified doctor should be able to perform. Should he decide 'Yes' the patient is wheeled directly into the area marked 'Resuscitation' (i.e. resuscitation ward), and it is then the duty of the doctor firstly to institute immediate treatment and secondly to notify the accident to the resuscitation team. If his answer to the question is 'No' the patient goes into the area marked 'General Waiting Room' and is attended to by casualty officers in due course.

The Resuscitation Ward

This is a ward directly approached from the assessment area, and its size will depend on the demands that will be made on it. It should be very clearly stated at this stage that this is not a surgical ward, but a ward for the treatment of any acute emergency, whether surgical or medical.

The room should be air-conditioned, and it should be equipped with an accident bed similar to the Woolwich accident bed, which is eminently suitable for the examination and for any type of resuscitation. Oxygen and suction should be laid on. The following equipment must be provided and kept always ready for use: A portable X-ray plant; a Boyle's machine with some form of intermittent positive-pressure respirator; a tracheotomy set with an external cardiac stimulator and a tray ready for thoracotomy; a laryngoscope with endotracheal tubes. Blood must be ready for immediate use. An electrocardiograph machine and a small but well-equipped laboratory are also essential.

The staffing office of this ward is important. A specially trained nursing unit must be available to take over at a moment's notice and to commence the required resuscitation, and they should be ready to assist any member of the emergency team that may be on duty. On their efficiency depends the success of this ward and the lives of many patients.

*Resuscitation Trolley**

In addition to the resuscitation ward, or as an alternative to it, a resuscitation trolley could be kept in every hospital, and if it is properly maintained it should be of immense value even in the bigger hospitals. It should be easily movable, and in special compartments the following instruments should be kept in readiness: (1) Transfusion equipment with serum or blood; (2) syringes with all the necessary emergency drugs, hormones, electrolytes, etc.; (3) a laryngoscope, endotracheal tubes, and a tracheotomy set; (4) a mechanical respirator machine; (5) a mechanical suction pump; (6) an external defibrillator with a thoracotomy tray; (7) a small portable transistor electrocardiograph machine; (8) an oxygen cylinder; and (9) a small portable laboratory.

*Whitman and Norman described a similar trolley in a recent issue of *The Lancet* (1963): **1**, 46.

A trolley or even a portable box can be devised to contain all this equipment; and this could be hurried to any bedside in an emergency, or even taken on an aeroplane to an emergency anywhere in the country. Such a trolley may be a life-saving measure in any hospital, and it is immaterial whether it is a surgeon or a physician who makes use of it.

The Emergency Unit

In a major hospital there are usually three emergency teams on 24-hour call. By the nature of their function the obstetrical team is usually geared for this type of work, but what is not always realized is that there should be such a team for surgical and medical emergencies. Each team should have a registrar on duty 24 hours of the day for any emergency. This registrar should be available within 5 minutes of being called to take over the case.

The surgical team—usually called the 'accident team'—consists initially of a general surgeon and a registrar who are both on 24-hour call. They are notified immediately of any serious accident so that they can take over the treatment from the casualty officer within 20 minutes. From then on the responsibility for all serious and multiple injuries rests with them. Extensive treatment is given in the resuscitation ward and the patient is usually not moved until his systolic blood pressure is 100 mm.Hg or over. The patient is usually at once examined by the accident team, the injuries assessed, and all details carefully written down. It is very important that these be judged at this early stage, to establish their seriousness and to decide on the priority of treatment. To each accident team there are also attached an orthopaedic, neuro-, thoracic and genito-urinary surgeon and these specialists are also on call when the team is on call.

The medical team may be referred to as the 'resuscitation team'. It is usually led by a competent physician well versed in the practice of resuscitation and it also has the assistance of a thoracic surgeon. It is for this team to make an immediate diagnosis and commence suitable treatment.

Minor Accidents

Should the casualty officer decide that resuscitation is not required, and that the case is not one of multiple injury, he will proceed to treat the case himself. It is to be noted that more than 90% of attendances at an ordinary casualty department do not require resuscitation and can be dealt with by the ordinary casualty officer. To all these cases he attends personally; and if necessary he may consult the appropriate hospital department, and may even decide that the patient should be admitted into their wards.

Multiple Injuries

Where a case with multiple injuries after an accident is spotted by the casualty officer he refers this case to the surgical accident team for attention, for various reasons. Experience has taught that these cases are usually of a serious nature and in need of expert attention, and that certain injuries are liable to be overlooked in a busy casualty department. The team keeps a register of every such case, with its injuries listed, and organizes the treatment. The most urgent needs are seen to first, but unless contact is kept with the patients the less urgent injuries may not be attended to, and this may result in much inconvenience and suffering later, and also possible legal action against the hospital. It should be a rule that no patient admitted by the accident team may be discharged before receiving a check-up from the same team.

The Casualty Ward

A so-called casualty ward should be provided in each hospital where various emergencies that come to 'Casualty' may be housed for a while until they are admitted to the hospital. It should not be confused with a resuscitation ward. In the casualty ward there should be a sufficient number of beds for acute accidents and other emergencies that might occur. The patient stays in this ward for a maximum of 48 hours only, when he should be transferred to an appropriate department for treatment. This ward should also have the necessary facilities for intensive therapy, X-ray diagnosis etc. and should receive all emergency cases from the resuscitation ward, along with the other casualties, medical or surgical or obstetrical.

Conclusion

To the best of my knowledge there is not in existence a casualty department like the one described in this article, but I wish to suggest it as a basis for more efficient treatment of emergencies in our hospitals.

SUMMARY

1. A casualty department with facilities for resuscitation is described.

2. A method of bringing this service to the patient is advocated.

3. Its organization, staffing and equipment are discussed.