Annex I

TENTATIVE CLASSIFICATION OF EMERGENCY SITUATIONS

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The concept of an emergency or urgency (from the Latin *urgens*, pressing) is ill-defined: what is urgent has to be done without delay. However, as there is inevitably some delay before action is taken, an acceptable interval must be specified. One's assessment of this interval necessarily differs, depending on whether one is seeking action and therefore wants it to be immediate, or whether one is being asked to take action and therefore wishes to have more time, and sometimes justifies this.

In the medical field, surgery in wartime has shown how greatly the time elapsing before an operation affects mortality: statistics compiled by SANTY (*1*) are particularly revealing. Mortality among the wounded was recorded as follows:

Hour of operation after wounding	Mortality
1st hour	10%
2nd hour	11%
3rd hour	12%
4th hour	26%
5th hour	33%
6th hour	41%
8th hour	75%
9th hour	75%

However, these statistics do not take into account those who died before being operated, hence it is difficult to draw further conclusions from them.

Nevertheless, surgeons have established a conventional classification of the degrees of emergency (*2*):

- *first emergency:* what must be done within a few minutes or hours;
- *second emergency:* what must be done within 6 hours;
- *third emergency:* what must be done within 24 hours.

When faced with a precarious vascular condition, the surgeon must sometimes decide to delay surgery in order to improve the patient's condition: this is a delayed emergency for the surgeon, but not for the resuscitator, who must do all he can immediately.

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The above classification of emergencies is somewhat outdated today; it must in any case be complemented by the notion of an emergency perceived by the person seeking action as compared with the appraisal of the physician. Indeed, the public is becoming increasingly demanding each year. Since 1945 the French penal code (Art. 63, section 2) has made it compulsory to render assistance, and article 5 of the medical code of ethics requires all physicians, whatever their function or capacity, to give aid in extreme emergencies to a patient in immediate danger if other medical care cannot be assured. We can therefore no longer be bound by the conventional terms, and in 1973 we introduced the term "distress" to describe situations which rapidly have a fatal outcome if suitable treatment is not started (*3*). In our view, the "extreme emergencies" in the code refer only to danger to life or possibly loss of an essential function such as eyesight. These extreme emergencies should be termed "cases of distress" to avoid any confusion with other emergencies (which are, in fact, second or third emergencies).

To clarify the problem of emergencies it seems essential to consider the sequence of the physiopathological events following a traumatic or medical "accident" (*4*). Accident here has the sense of a morbid phenomenon occurring unexpectedly: thrombosis, sharp pain indicative of a perforation, injury, etc. This notion of the chronology or sequence of pathological or therapeutic events is referred to in an INSERM report on operational research relating to emergency aid (*5*). A distinction must be made between two extremes: that where the patient is left without treatment, with the condition developing towards death in a case of distress – the natural sequence; and that where the patient is properly treated without delay – the optimum sequence.

From numerous animal experiments and observations in man, toxicologists have shown that the mortality curve according to dose is a logarithmic normal function, the lethal dose being 50% (median) or LD 50, and it seems logical to apply this function to the sequence of the natural outcome of a distress (*6*). Thus three phases may be described (Fig. 1).

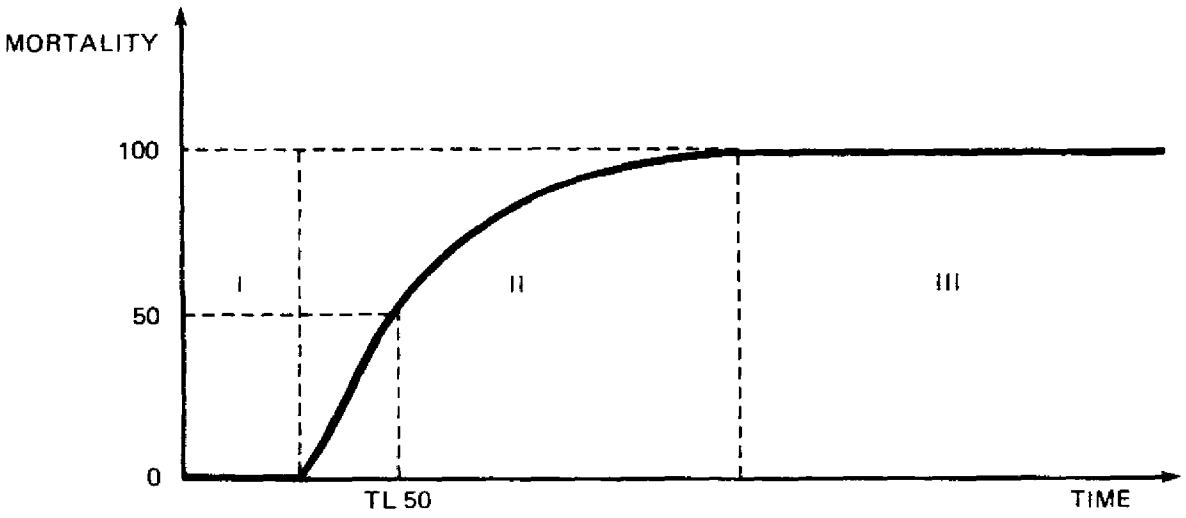
(i) Within a given interval there are no deaths and sequelae are minimized if the cause is removed (simple treatment generally suffices). With infectious diseases, this phase corresponds to that of incubation.

(ii) Within a further interval, the subjects die steadily, even if the cause is removed; mortality is not halted with certainty. SANTY's statistics mentioned above provide an example of this process. Special observations have also enabled us to show (*6*) that, during this phase, treatment is very lengthy and difficult and that there can be extensive permanent disablement (Fig. 2).

(iii) After a certain point all the subjects die and treatment therefore serves no purpose; however, as some time is needed to diagnose the death, medical aid cannot be withheld.

Thus, if arrangements to treat such accidents are to be effective, action must be taken before the third phase. Indeed, to be really effective and

Fig. 1. Standard curve for fatal outcome against the time during which the patient is left without effective care



TL 50 — median lethal time (corresponding to 50% mortality).
I — phase without mortality
II — phase of steady mortality
III — total mortality

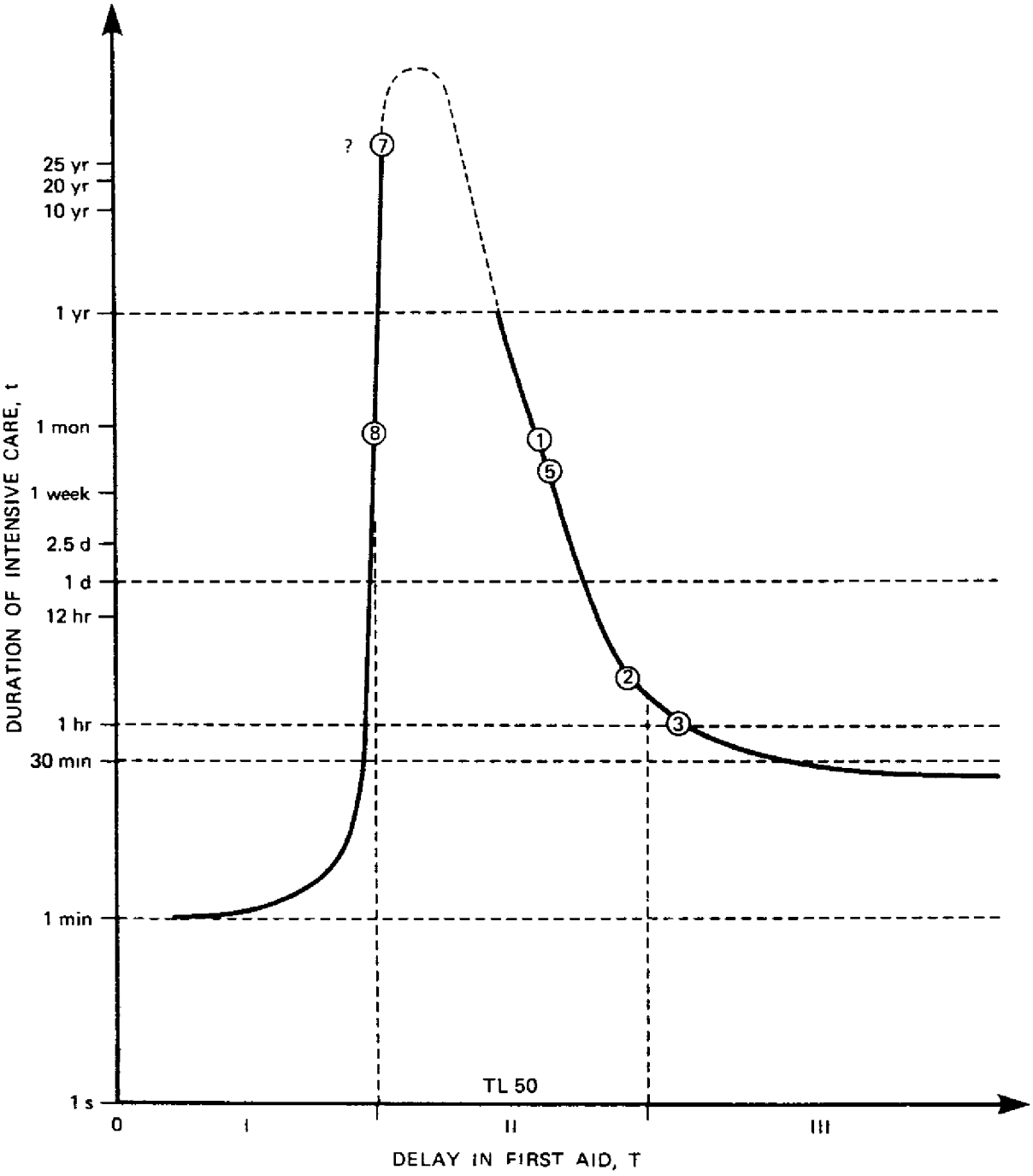
also inexpensive, having regard to the length and difficulty of treatment and to sequelae, action should be taken before the start of the second phase.

If mortality is, in fact, evident at the beginning of the second phase, the reason is that vital damage is taking place. It kills weaker persons and causes irreversible lesions in those who are stronger or protected: here first aid plays a retarding role.

However, the outcome can be more or less rapid depending on the pathology (Fig. 3). The most serious emergency is that of cardiac arrest: everything takes place within a few minutes. In asphyxia there is one minute more because of the reserve of oxygen in the lungs. In haemorrhage the outcome naturally varies considerably according to the rate of flow and only an average can be given; each case is somewhat different and the loss of blood must be assessed for greater accuracy.

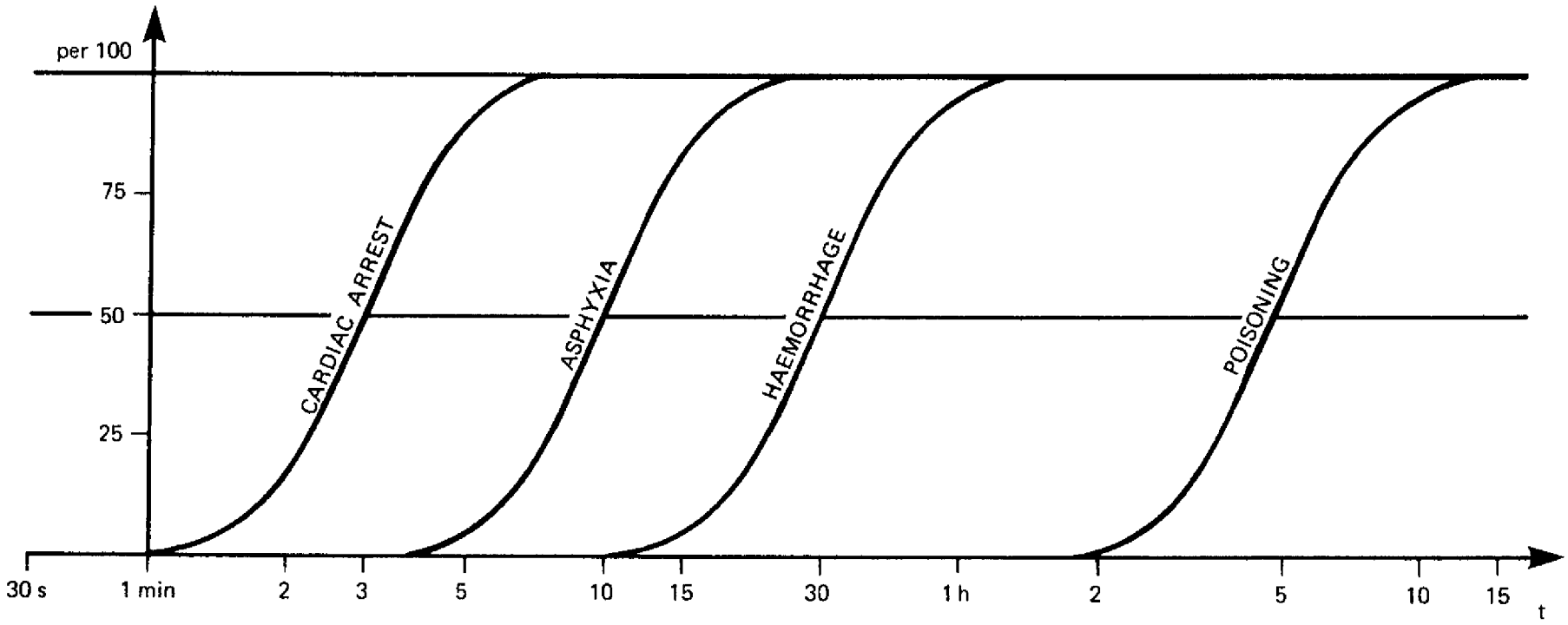
However, it is known that haemorrhage causes tissue trauma, shock and actual intoxication, which then develops on its own, bringing substantial mortality within a few hours, even with haemostasis. Thus the sequence of an accident is not uniform; there can be multiple effects developing more or less separately and provoking secondary effects such as shock. Therapy is designed to alleviate these effects if possible; that is why the outcome of an emergency is progressively altered by different measures (fig. 4).

Fig. 2. Duration of intensive care t, against duration of T between the initial accident and the effective aid (delay in first aid)



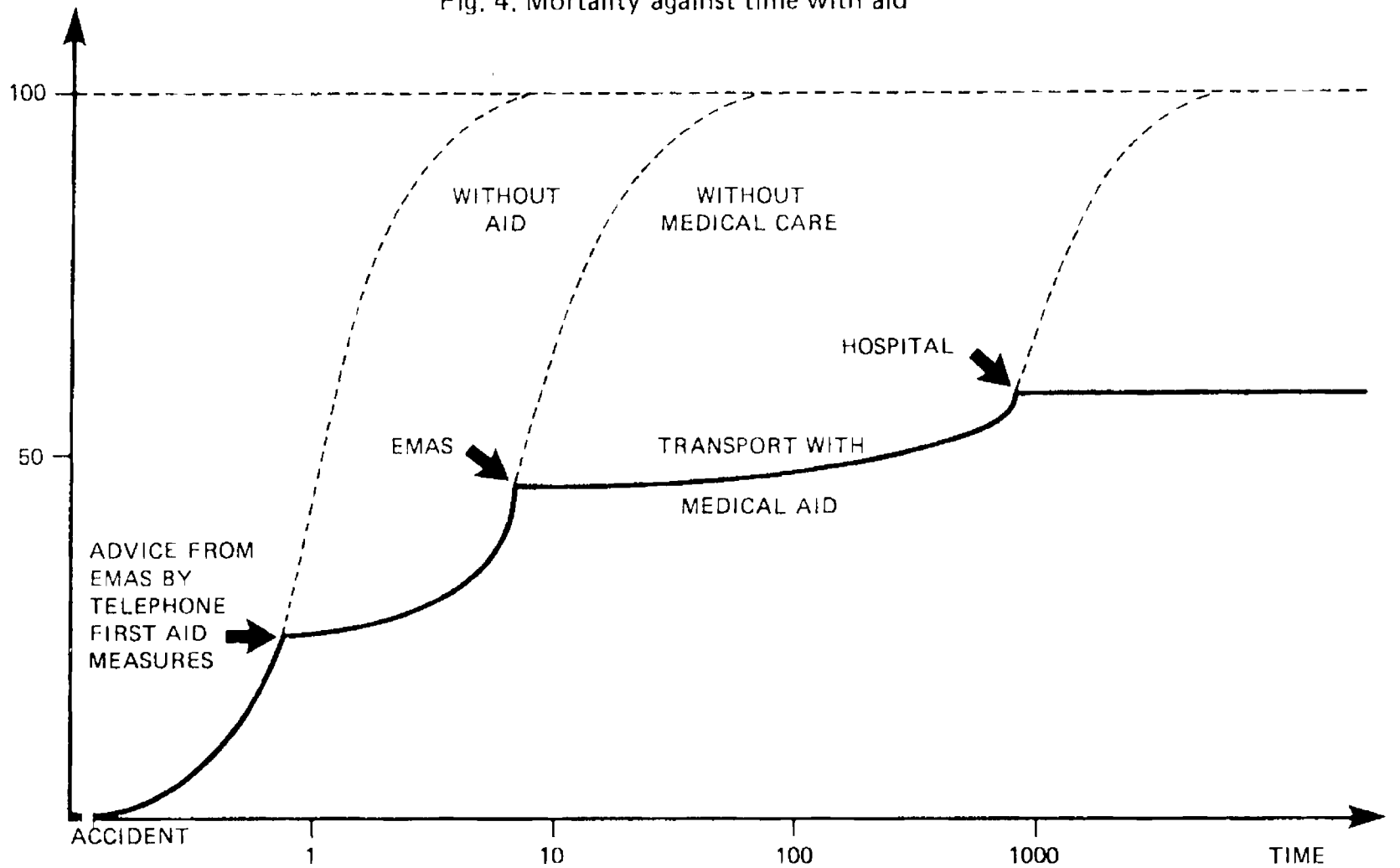
TL 50 — median lethal time (corresponding to 50% mortality).

Fig. 3. Speed of outcome according to pathology



Source: **M. Cara,** Paris, 1977

Fig. 4. Mortality against time with aid



EMAS – emergency medical aid service

Source: **M. Cara,** Paris, 1978

It is clear, therefore, that the time factor is crucial. Certainly the sequence develops more or less rapidly according to the pathology. If the outcome will be fatal, a case of distress is involved and it is important to act very fast. In cardiac arrest there are only one or two minutes, which accounts for the organization of emergency trollies in hospitals with an alarm system in the wards – an arrangement that is not highly developed in France. Patients at very high risk must be watched at all times – hence the importance of wards for recovery and intensive care wards (cardiac and other), which have proved effective. The same precautions should be taken in hospital emergency wards.

Cases of distress occurring outside these special surroundings can only be handled through the organization of first aid and public education. It is out of the question to expect medical practitioners in a town to be responsible for cases of distress, since the sequence is so rapid that generally they cannot intervene until the third phase. In France only an organization such as SAMU (emergency medical aid service) can take action in the first few minutes, and then only in towns, where an alarm can be given promptly and distances are short.

The outcome of other accidents is less rapid; there is about half an hour in which to act. This is the sequence of most traffic accidents. They often develop into a case of distress; it would seem difficult for practitioners in a town to take action in sufficient time and, even if they could, this would not be very effective owing to lack of facilities.

In conventional pathology (oral poisoning, severe infection, convulsion, digestive perforation, etc.) the sequence is less rapid; we therefore propose to retain the established terms of first and second emergencies. Such conditions develop into cases of distress only after a certain interval (more than an hour); they are within the normal scope of medical practitioners who are familiar with them and are used to taking the necessary action, although they often hospitalize patients since attention at home may be inadequate.

Finally, the least serious situation is that of the third emergency, a term that should preferably be avoided in this context; even if the patient cannot be treated at home, at least he can be kept under observation there and any hospitalization should not have to take place outside working hours.

Finally, there are emergencies which are perceived but possibly not confirmed; they must be taken into account since they congest emergency services and are evidence of the unsatisfactory functioning of a health service. Such cases should be screened immediately in order to identify those of distress and other genuine emergencies. Advice over the telephone, as given by the emergency medical aid service, is crucial, and we consider that the system of the single telephone number, being developed in many countries, represents a major advance. France, despite project "15", is falling behind the USA, which is promoting the "991". There remains a need for medical advice at the telephone exchange so that, if there is any doubt, a practitioner can be sent to review the

situation on the spot and, in cases of distress, arrange for the immediate dispatch of a medical team. This is being done increasingly in France and such systems have been established at Grenoble and Rouen in particular.

In conclusion, emergencies should be classified taking into account the rapidity of the outcome for different pathologies. Although this cannot always be done accurately, it is essential to estimate the timing of the initial accident in order to plan correctly.

- If the outcome will be fatal in a short interval, say up to 2 hours, a case of *distress* is involved.
- If the outcome is slower and will not necessarily be fatal, a *medical emergency* is involved; action must be taken promptly, i.e., within a few hours (first emergency less than 2 hours, second emergency less than 6 hours).
- Finally, the less serious situations, described somewhat unjustifiably as emergencies (third emergencies), should not be so termed, although they may require attention by a physician within 24 hours. They do warrant priority visits by physicians in the town, who can judge whether there really is an emergency.

Immediate medical or paramedical (depending on the organization) attention is required in cases of distress.

In medical emergencies a practitioner must be sent or the patient hospitalized.

Perceived emergencies call for careful screening through a switchboard with medical advice. Normally the patient should be sent for outpatient attention during working hours or receive a priority visit if he does not wish or is unable to go to a medical centre.

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Annex II

FIRST-AID TRAINING: BASIC ASPECTS

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We define first aid as: measures taken by lay people in cases of accident or sudden illness to prevent aggravation and to maintain vital functions until qualified aid can be made available. The trained first-aider represents the first link in the rescue chain, bridging the time-gap from the moment of the accident until qualified intervention arrives.

As conditions vary considerably from country to country and often between different regions within the same country, it is of the utmost importance that the fundamental concepts of first-aid training programmes be based on a thorough assessment of existing conditions, taking into consideration:

(1) type and frequency of accidents (illnesses),

(2) availability and distribution of health services,

(3) resources,

(4) established teaching-learning procedures,

(5) cultural aspects,

(6) legal conditions.

A worldwide study, *Standard techniques applied in first aid*, carried out by the League of Red Cross Societies in 1976-77, indicates that the following techniques can be considered the core subjects in all training programmes:

(1) artificial respiration (mouth-mouth/nose) (manual methods are rarely taught as alternatives),

(2) control of external bleeding,

(3) safety position(s),

(4) prevention of shock,

(5) call for qualified aid.

Cardiopulmonary resuscitation, although widely taught, cannot be considered a standard part of such training, as we are still faced with great controversies in this respect.

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Realizing that any person close to the scene of the accident automatically becomes the first link in the rescue chain, we recognize the necessity to promote widespread training of the public in at least these care subjects. The techniques taught in such a programme should be efficient but easy to teach and learn; their application should be possible without the use of any material.

Programmes established for the basic first-aid education of lay people should place emphasis on the teaching of practical skills and make provision for systematic retraining.

Annex III

ACCIDENT AND EMERGENCY MEDICINE: FULL TRAINING PROGRAMME

United Kingdom Joint Committee on Higher Medical Training

General professional training

The general professional experience required before entering higher training should be widely based and lead to a higher qualification. This training may be in medicine, including paediatrics, surgery, general practice or anaesthesia, etc., with as much diversity of experience as the higher diplomas in these specialties allow, and any one of the recognized major higher qualifications will be acceptable (e.g., FRCS, MRCP, FFARCS, MRCGP, etc.).

Higher specialist training

Higher training in this specialty will normally require four years as senior registrar. One year (exceptionally two years) could be allowed retrospectively for a registrar post approved by the SAC. This training may be taken only in posts approved by the Specialist Advisory Committee in Accident and Emergency Medicine. Consultants in accident and emergency medicine will be specialists in initial diagnosis and initial management, and the primary objectives of the specialist training are therefore to provide training in:

(i) acute aspects of diagnosis and initial management of the wide range of clinical conditions which present in the accident and emergency department;

(ii) a broad approach to acute medicine, in the widest sense, to include a competence in acute psychiatric and social emergencies, as well as those more usually considered as the province of accident training;

(iii) administration and organization of an emergency department.

Rotational training through more than one accident and emergency department is likely to be an advantageous feature of training programmes, so that emergency departments are included that have differing types of case-load (e.g., predominantly trauma or acute medicine). However, it will benefit trainees to maintain contact with the parent accident and emergency department concerned with their training during periods of secondment to other specialized units (e.g., one half-day per week in the parent department). This will enable his training outside the parent department to be monitored,

enhance the sense of belonging to the parent department throughout his training programme and enable the trainee to use within this department the special skills he has learnt in the other units to which he is seconded. General surgery and general medicine will be involved in all programmes to ensure that a balanced training is provided. This will also ensure that trainees will be eligible to apply, on completion of their training, for a variety of consultant posts in emergency departments, in which different types of clincial work predominate. In particular consultant posts there may well be an emphasis on special experience in specified areas for which additional training would be required.

Experience in diagnosis and initial management in certain major areas will be obligatory, but experience of treatment in depth will not be essential, since the majority of cases will be passed to specialist colleagues for definitive or long-term management.

A rotating programme involving more than one trainee may be the most satisfactory arrangement. The programme may be centred upon a number of hospitals. An instructional programme must be followed intensively throughout the four years in addition to the practical work.

A. *General experience*

As a senior registrar in an accident and emergency department the trainee should be fully involved in all aspects of the work of a busy department and have some involvement in its organization. Throughout the programme he will undertake clinical work himself, teach and supervise the junior medical staff of the department, while being, himself, under the supervision of the consultant in charge of the department, at a progressively increasing level of responsibility.

B. *Special experience*

These years will be spent in acquiring experience in those aspects of various specialties most relevant to accident and emergency medicine. Previous adequate experience in certain specialties will be taken into account in the case of each trainee and the planning of this part of the training programme will therefore need to be flexible. It is considered essential that attachments to other specialist units in this part of the programme allow full participation by the trainees and not merely their attendance as observers. All the relevant specialties, e.g., anaesthesia, will participate.

Specific experience should be gained in the initial assessment and initial management of the following:

Medical specialties

(a) Cardiovascular emergencies, including familiarity with ECG patterns and resuscitative techniques.

(b) Respiratory emergencies (both medical and surgical), including intubation, oxygen therapy, intercostal drainage, artificial ventilation and emergency tracheostomy.

(c) Acute poisoning, diagnosis and initial management, including initial assessment of psychiatric and social factors.

(d) Psychiatric cases presenting as emergencies, including adolescent and drug dependency cases, assessment and management prior to involvement of psychiatric services when necessary.

(e) Paediatric emergencies: assessment and management prior to involvement of paediatric services when necessary. Experience in children's hospital or a hospital with a large paediatric department is essential.

(f) Minor condition management: this includes competence in assessing and supervising management of a wide range of minor medical conditions that present in an emergency department (medical, paediatric, dermatological, infectious diseases) and appropriate referral when necessary to general practitioner and community medicine services.

(g) General practice experience. It will be important for the trainee to learn something of primary care provided in general practice and of the particular problems and approaches involved in this field of medical work.

Surgical specialties

(a) Working attachment in certain specialties will be essential, e.g.:

- general surgery
- orthopaedic surgery
- neurosurgery
- plastic surgery

Local facilities will influence how much experience can best be gained in individual places.

(b) Experience in the following areas will be essential and may be gained in an accident and emergency department or in specialized units depending upon local facilities:

- soft tissue injuries and infections;
- burns;
- head injuries;
- hand infections and injuries (initial management only);

- fracture (recognition and immediate management);
- ophthalmic conditions (diagnostic competence mainly);
- ENT conditions (diagnostic competence mainly);
- abdominal emergencies (diagnostic competence and assessment);
- gynaecological and obstetric emergencies (diagnostic competence and assessment);
- multiple trauma, (assessment of priorities in the individual patient, and between patients, and experience in resuscitation);
- regional analgesia techniques.

C. *Administrative and teaching experience*

As senior registrar in a busy accident and emergency department the trainee should be given increasing responsibility for the supervision and organization of the work of the department and in the teaching programme of the department.

During this time some instruction in administration and management techniques covering the following areas should be given:

(a) organization of staff and delegation, both for routine work and major disasters;

(b) collection and assessment of data, epidemiological studies;

(c) medical audit: assessment of management of workload and of effectiveness of clinical techniques, etc.;

(d) close association with ambulance, police and social services;

(e) relationship to outside bodies, including the news media.

Tasks (a) to (e) above may be achieved in two ways: first, some experience in hospital administration within a district general hospital (e.g., admission procedures and bed-state management) and second, on a wider front, participation in a management course to learn something of the above subjects in theory, with examples of their application in practice.

(f) Some instruction in medicolegal medicine, and in the relevant aspects of forensic medicine.

Teaching

Formal experience should, if possible, be obtained in teaching undergraduate medical students accident and emergency medicine over a period of time. Teaching may also be given to nurses and ambulance personnel.

Special interest

As a senior registrar, a trainee will be expected to develop a special interest or expertise within the sphere of accident and emergency work. Facilities should be made available for him to undertake a research project while working in one of the departments. It is important that the special interest is relevant to accident and emergency work, and should be pursued within this arena.

Annex IV

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