The accident and emergency service in Portsmouth— present and future

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The problem

From the beginning of the National Health Service the organization for the reception, treatment and after-care of accidents and emergencies in all specialties has been limited. This fact did not arise from defects in training or lack of interest by the medical or nursing professions. Indeed a large number of surgeons who took up orthopaedics after the war had received a great part of their training in accident work and it seemed natural to return to a civilian occupation which would include the skills which had been learnt over the previous bitter years. It is certain that the scope of the anaesthetist was not appreciated at that time and the facilities for work which is now carried out in the intensive care units was poor or non-existent.

Work in casualty can be a challenge which is full of interest, offering excellent training in most branches of medicine; spiritually rewarding but often mentally exhausting; very exacting yet thrilling when success in an emergency has been achieved and an experience of such importance that the Royal College insists on a period in this department as an essential part of pre-fellowship training. How has it come about that this appointment is thoroughly disliked by most doctors, being the chore which must be performed by a junior doctor in training in a rotation scheme through the highlights of general surgery, general medicine and gynaecology? Why should a training post with this wealth of clinical experience be the cause of threatened resignation or the factor which may prompt the prospective candidate to avoid an appointment which includes 'a few sessions covering casualty during the evenings'?

Although many advances in diagnosis and treatment have taken place in recent years, changes in the organization and structure of casualty have been slow to follow. There are many reasons why this department has been neglected for so long. There is the major problem of night and weekend duty and the unattractive proposition of doing 'general practice' work for hospital rates of pay. There is the problem of legal responsibility for errors made under

the pressure of multiple examinations and admissions. All too often there is lack of participation, supervision, and teaching from consultants who form the pillars of the peripheral major Hospitals. These are the specialists in anaesthetics, orthopaedics, general medicine and general surgery. A common failing is the lack of liaison and co-operation between the hospital and the Local Medical Committee for there are frequent high level demands for integration between the hospital and the general practitioner services and it is in casualty that this need is greatest and most practical. Lastly, there is the quite understandable problem of hospital building and equipment in an economy which must supply so many urgent demands.

Definitions

It is always important for descriptive terms to be clear. In this paper the following definitions are implied.

A casualty department accepts both accidents and casualties. The term casual refers not to a chance visitor from another district but to a patient suffering from a lesion which is not caused by an accident. An accident centre should accept only accidents, while the casualties, the acute general surgical, medical, dental, paediatric, gynaecological, psychiatric and attempted suicide patients should be seen and treated in a separate reception area or in another hospital within the group. A first-aid room is a treatment area in a general practitioner medical centre, a factory or a hospital where trivial and minor cases are seen. An intensive care ward is a highly specialized unit administered by an anaesthetist who treats patients in conjunction with orthopaedic, general surgical and general medical colleagues.

The severity of a lesion is divided into three groups. A trivial case refers to an accident or casual in whom a mild lesion needs minimal first-aid treatment. A minor lesion describes an accident or casualty in whom a problem of intermediate severity needs skilled medical attention and supervision. A severe case describes a patient in whom serious pathology is

present. The term major accident or major incident should signify a group accident or emergency such as a train or aircraft crash which involves many people.

A village refers to a community of some 1500 inhabitants, a small town to 50,000 and a big town to a population of approximately 250,000 people while a regional area contains between one and a half and three million people.

The organization

Medical staff

If hospital staff or general practitioners are to be attracted to either the accident or the casualty department the hours of service, the career structure and the rates of pay must be correct for the work involved. It is essential for doctors and administrators to understand clearly the scope of their reception departments. An accident centre should not accept casualties so if a division is made between these two groups a separate area with its own 24-hr staff will be needed for these patients. However, regional boards find that the staffing of one single casualty department is difficult enough without doubling the problem by this division. Although the backing of an orthopaedic surgeon in the accident centre is undisputed, his talents are either wasted or of doubtful value in a large percentage of attendances to a casualty department. The same comments apply to the individual consultants in anaesthesia, general surgery and general medicine. In casualty a general practitioner 'consultant' is needed.

In the casualty department in Portsmouth which dealt with 37,248 new and 15,860 return cases in 1970, one medical assistant and one senior house officer are needed for the morning sessions for 7 days each week, a third doctor works the afternoon period and a fourth is required for evening work. Night duty is rated at three sessions and is covered by a rotation of doctors who have accommodation within the department. One-third of the patients attend in the 16 hr between 1700 and 0900. The typical distribution in the number of new cases during the days of the week is Monday 93; Tuesday 86; Wednesday 69; Thursday 77; Friday 74; Saturday 90; Sunday 66. Thus, forty-eight medical sessions are needed each week for a population of 500,000 which may rise to 700,000 during the summer holiday period.

The work in most big towns is usually done in a casualty centre by a medical assistant who is responsible for the general organization of the department to one consultant who will accept administrative charge. In Portsmouth the orthopaedic consultant does this work. However, if the service is to improve a number of different consultant clinics must also be held within the department. These should usually last for less than 1 hr and they should be held with one of the doctors who is working the morning

or the afternoon session. There should be two of these clinics each week for a series of orthopaedic consultants and one for each of the other three main specialties concerned with the casualty and the accident service. Each consultant will be asked to see only those patients who belong to his specialty and to make comments and helpful suggestions which would improve the organization and general running of the department from his specialized point of view. Thus, from Monday to Friday short daily consultant attendances for supervision, planning and teaching should take place. These short instructional clinics would be of great value to nursing staff and medical students, and they would stimulate the doctors who often feel sadly neglected. All patients who have attended for more than one return visit to casualty should be referred to these clinics.

It is important for the College of Physicians and the general practitioners to encourage their graduates to participate in the running of the casualty department. A few months spent in this work soon after qualification would be most valuable. As a more permanent appointment it must be understood that very few general practitioners will be encouraged by their partners in group practice to accept more than one session in hospital at the current remuneration. However attractive this contact may be from many angles the financial drag must not extend to two sessions or the practice will suffer. Night duty and weekend work holds little attraction for anyone but it is a time when more than 50% of the new cases are seen (Parry *et al.*, 1962).

The question of the appointment of full-time consultants to work in casualty is under consideration by the Department of Health at this time. If these new posts could improve the staffing, supervision and organization of the hospital 'shop window' without dividing responsibility they might perform a great service but only if two important requirements are accepted. Firstly, that these consultants should work *in casualty*, and secondly that they should not delay the immediate transfer of patients to the specialty which should carry out the definitive treatment. It is certain that consultant remuneration will be most attractive to a large number of overseas graduates very many of whom have higher qualifications. These doctors whose entry and further training in U.K. is becoming more restricted by their own governments will no longer have the insecurity of tenure of the senior house officer or registrar grades. They will be independent of home rule and with conditions superior to the senior house officer there should be a great response for these new posts. It might be suggested that this method of staffing for the many casualty departments in U.K. would be so satisfactory that a division into accident centres and casualty centres would be practicable. This would

permit 'accident' surgeons with the FRCS and further intensive training in recognized posts of orthopaedics, general, neuro, thoracic, faciomaxillary and plastic surgery and 'casual' physicians with the MRCP and further experience in anaesthesia, intensive care and psychiatric medicine to continue to treat the 4% of cases who, as a usual average, are taken to the wards from casualty. These doctors would be able to maintain continuity of treatment in the ward and theatre knowing that the 96% of patients who form the backbone of casualty attendances were being cared for by the new generation of overseas casualty officers who might now be anxious to staff this department following the stimulus of the new career structure. Until this unlikely time is reached it would seem more practical to appoint a 'consultant' general practitioner with wide experience in all branches of medicine and surgery who would continue to work in casualty in co-operation with the established consultants in anaesthesia, general medicine and surgery and orthopaedics (Fig. 1).

Structure

The accident service in the Wessex region should be organized at four levels (Table 1). In the villages the reception, diagnosis and treatment for the trivial and minor case is always done by the general practitioner in his own surgery. Severe cases are

sent by ambulance to the casualty department of the big town.

A small town may have a general practitioner hospital where a first-aid room is already well staffed by a rota of practitioners. It seems fashionable to condemn the cottage hospital as expensive and inefficient, yet much valuable work is done for the casual and for the accident service. In this hospital and also in the general practitioner medical centres an organization should be established whereby the qualified nursing sister can *legally* see and give first-aid cover to patients with trivial complaints who are then referred to the correct general practitioner's next surgery. This organization eliminates much wasted time for the patient and does not repeatedly divert the general practitioner from his rounds. Minor injuries must be seen by a doctor without these few hours delay and the sister must keep the patient until the practitioner arrives. Knowing that he will not be called for trivial cases the doctor will make every effort to come quickly. All severe cases should be diverted by the ambulance service to the big town accident centre. The first-aid rooms should be situated where they are easily accessible to the public, well signposted and clearly marked in positions of maximum density of population.

In the big towns an alternative to the main casualty department should be available for the

FIG. 1

TABLE 1. The organization

Location	Staff	Population
Area or regional	Neuro, plastic, thoracic, faciomaxillary surgeons	1½-3 million
Big town	Anaesthetist, orthopaedic, general surgeon and physician	250,000
Small town	General practitioner	50,000
Village	General practitioner	1500

emergency diagnosis and treatment of trivial and minor accidents and casualties. To the patient, the small cut on the head of a child or the developing abscess in the axilla of a labourer is no small lesion. If rapid effective treatment can be obtained easily from the hospital which operates a 24-hr service the patient will go there without delay. It is understandable that he may be a poor judge of the severity or the prognosis of a disease. He is entitled to early and effective treatment under the National Health Service and he must have it quickly and politely. At the present time these patients come to the main hospital casualty department but if there were an effective alternative they would be glad to use it. First-aid rooms staffed by general practitioners and nursing sisters organized in the manner which has been previously described should be located in practitioner medical centres or near hospitals. In Portsmouth City itself there should be three.

The smooth running of a casualty department must depend firstly upon the method of reception and secondly upon the facilities for support.

Reception

A radio link with the ambulance service is essential, a sheltered reception bay backing onto an entrance with electrically operated doors is needed. A short, direct, wide entrance to a large resuscitation room is necessary where all the modern equipment is easily accessible to multiple helpers. A separate entrance is needed for walking cases, and sepsis should be completely segregated within a section of the department with its own nursing staff. Documentation must be at the entrance and overlooking the waiting space, children need special rooms.

In Portsmouth, short stay beds within this department have proved a failure due to the uncertain demand on the nursing staff and the indefinite consultant responsibility. The 24-hr X-ray service is essential and in our department has been efficient despite very limited space. Trolleys with radio-translucent tops have permitted radiological examinations without moving the patient from the trolley to table. Secretarial services are very poor and facilities for research and follow-up much needed. There is a full pathological service including blood transfusion 24 hr a day, 7 days a week. In Portsmouth, attempted suicides at the average rate of two each day take a great deal of time and attention from our staff. We accept all general medical and surgical 999 calls. The gynaecological and ophthalmic emergencies are sent to special units elsewhere. Although faciomaxillary trauma is very well covered, routine dental cases present a considerable problem after office hours. Mental cases are time-consuming but much help is received from a good liaison with the mental welfare officer. A similar close connection with the drug

squad is maintained. Police help is invaluable and most willingly given in many ways. Our casualty department was purpose built in 1955, at this time the annual load was 33,357. Since that date numbers have increased by 1300 each year to the present total of 53,103 in 1970. At this rate of growth we estimate that in the 12 months of 1977, 70,000 patients and 140,000 of their relatives and friends will pass through this building with its 4076 sq. ft of floor space. We find that with every patient who attends our department an average of two other persons accompany him. The combined fracture and orthopaedic clinic (3350 sq. ft) adjoins casualty. The intensive care unit, which contains six beds in an area of 1000 sq. ft, is in the main body of the hospital 125 yards, two floors, and one lift from the casualty department.

The facilities for resuscitation, emergency diagnosis and treatment of severely injured patients in casualty are elementary although some modern equipment has been installed. The 345 sq. ft available in this resuscitation room is rather small for modern treatment.

There is some segregation of emergency medical, surgical, and paediatric cases in the six small treatment rooms in casualty (total 609 sq. ft). Once again gross restriction of space in many small separate rooms makes adequate examination and treatment very difficult. It must be understood that a major hospital rebuilding scheme with a greatly enlarged accident, casualty and orthopaedic department has been contemplated in Portsmouth for a number of years. Under these circumstances the regional board are justified in their reluctance to spend money on relatively minor alterations to existing buildings. However, following the considerable delay of the major project £10,000 was set aside in May 1971 for alterations within the existing framework of the present casualty department.

It is a pity that the recommendation of the Platt Committee (paragraph 95) and now the Osmond Clarke findings that 'in a large department a lay officer of suitable seniority should be responsible for organizing the non-professional work of the Unit' has not been implemented.

Support

An important supporting facility to the accident and emergency reception is the intensive care unit. In Portsmouth this is well organized by one anaesthetist, who works with the other three departmental consultants. In some cases the combined forces of general surgery, medicine and orthopaedics are all needed for their special skills, but usually only one other department is called for the immediate treatment while the airway is being established and while transfusions are getting underway.

It is important to accept that the emergency services of the neurosurgeon, thoracic, plastic and the faciomaxillary surgeons are not usually available to the big town organization. If special teaching, co-operation and understanding is established between these highly specialized branches, and the four consultant departments in the big towns, complex early treatments can proceed smoothly. We find that the best single aid to a difficult diagnosis or treatment in these cases is the telephone.

Every morning a fracture clinic dealing with between fifty and 120 cases is held in the orthopaedic department which adjoins casualty. This great variation between winter and summer is due to the influx of holiday traffic to our seaside area. One orthopaedic surgeon sees all acute hand pathology. Following this early treatment supervision is continued in the weekly hand clinic.

The orthopaedic surgeon must play a greater part in the organization and operation of the accident service. This work must not be left to the resident staff to fit in when they are fortunate enough to find a vacant theatre and a duty anaesthetist.

There must be special theatres, definite times for out-patient and in-patient work and realistic continuity in treatment for accident cases. This would not only improve the accident service but would also stabilize the orthopaedic department. All too often cold lists are stopped by emergency admissions and operations have to be cancelled, ward rounds are interrupted by demands from casualty and orthopaedic beds are taken up by accident work. It is important to share the time and the facilities in our departments so that sufficient personal attention is given to both sections of our work.

The problem of surgery for accident cases is associated with both the lack of theatre space and anaesthetic cover. Usually no theatre sessions are specifically set aside for accident or emergency work and the anaesthetic department has difficulty in meeting the conflicting needs of emergency work. In Portsmouth, alterations have been made to divide working hours, clinic space, theatres, beds and supporting facilities between three teams of three surgeons, and a fourth consultant. Each team, which consists of a consultant, a registrar and a senior house officer, will do in rotation, 1 week on accident duty and 2 weeks with the orthopaedic service. There is no difficulty in the primary supervision or treatment of accidents in either the orthopaedic department or casualty for these two are situated next to each other in the same building. The accident theatre should be staffed by an anaesthetic registrar of some experience and three nurses. It should really be operational for 24 hr each day, but under the present pressure on theatre space it has to be used by another specialty for the morning session. Extensive examina-

tion of admission records confirms that the disturbed hours on night duty for the resident staff should be diminished by the 3-weekly routine. A simple system for orthopaedic work in the 2-week period, uninterrupted by accident admissions, has been planned (Table 2). The fourth consultant heads a team when the chief is on holiday. This fourth position rotates between the orthopaedic surgeons each year so that for 12 months each member is able to reduce his night duty and new case load by a large percentage so that he can find time to consolidate his knowledge and opinions. He should visit other units and with reading and research he should be able to form valuable opinions from reviews conducted with the help of the computerized follow-up system.

Area organization

In the treatment of special problems it is essential for some consultants and their high cost departments to be organized on a regional basis. Accidents requiring the services of the neurosurgeon, the thoracic and faciomaxillary and the plastic surgeon, or the intensive regimen of the burns unit must be supervised from a central point in the region. This will usually be done from a town which, because of its geographical position, accessibility and importance, is the county capital or university town. In this region, Southampton is the obvious choice.

These area specialist centres should serve a population of between 1½ and 3 million people, they should if possible, be no more than 30 miles from the furthest big town. They should be on the edge of a town, on the intersection of fast roads. A helicopter landing area is needed.

It is wrong to provide these treatment centres with all their complex facilities and staff in more than one of the big towns. The highly specialized buildings and equipment are too expensive for anything but area commitments, and the continued experience, research and the training of all grades of medical staff is only possible in units where a large number of cases are being treated.

This centrally placed area town must also have the first-aid rooms and the accident centre or casualty department already described. These should be quite independent from the specialized area units which will accept serious cases from all the big towns under their care after discussion over the telephone between the two consultants concerned.

The area centre should only admit cases from accident centres. These patients will be either recent untreated injuries or burns which are in need of extra special care and who are fit to travel, or those patients who have already had their primary emergency operation and who now require definitive surgery. It is essential for all surgeons to understand

TABLE 2. Orthopaedic work—Portsmouth

First week						Second week						Abbreviations		
MONDAY	C	WR		AM	C	T J & N						C	Consultant	
	C4	OP V			C4	OP V						C4	The 4th consultant	
	Reg	WR			Reg	F						Reg	Registrar	
	SHO	WR			SHO	WW						SHO	Senior house officer	
	C	OP L		PM	C	T J & N						WR	Ward round	
	C4	T J & N M			C4	T J & N M						T	Theatre	
	Reg	OP L			Reg	F						OP	Out-patients	
	SHO	OP L			SHO	OP H						WW	Ward work	
TUESDAY	C	T M		AM	C	T N						BT	Conference	
	C4	OP Gen			C4	OP Gen						Gen	General	
	Reg	W R			Reg	T N						F	Free time	
	SHO	T M			SHO	W W								
	C	OP Gen		PM	C	OP L						L	Long case	
	C4	OP FU			C4	OP FU						Sh	Short case	
	Reg	OP X			Reg	OP L						FU	Follow-up	
	SHO	OP H			SHO	OP L						V	Postop. review	
WEDNESDAY	C	T J & N		AM	C	WR						H	Theatre preparation	
	C4	OP Sh			C4	OP Sh						X	Research project	
	Reg	T J & N			Reg	WR						WEC	Workers emerg. clinic	
	SHO	WW			SHO	WR								
	C	F or OP V		PM	C	F or OP V						J	Major operations	
	C4	F			C4	F						M	Minor operations	
	Reg	OP X			Reg	OP FU						N	Intermediate operations	
	SHO	OP H			SHO	F								
THURSDAY	C	F or OP V		AM	C	F or OP V						DUTY		
	C4	WR			C4	WR						Team 1	Team 2	Team 3
	Reg	T N			Reg	WR						Acc.	Orth. 1	Orth. 2
	SHO	WW			SHO	WW						Orth. 2	Acc.	Orth. 1
	C	OP FU		PM	C	OP Gen						Acc.	Orth. 1	Orth. 2
	C4	T J N M			C4	T J N M						Orth. 1	Orth. 2	Acc.
	Reg	OP FU			Reg	T M						etc.	etc.	etc.
	SHO	OP H			SHO	T M								
FRIDAY	C	T J & N		AM	C	OP Sh						Weeks		
	C4	WR			C4	WR								
	Reg	T M			Reg	OP WEC								
	SHO	T J & N			SHO	OP Sh								
	C	BT		PM	C	BT								
	C4	BT			C4	BT								
	Reg	BT			Reg	BT								
	SHO	BT			SHO	BT								
SAT.		Nil				Nil								

the importance of selected intake, and early discharge to the centres of origin. The high cost beds at the area centre must never be blocked by convalescent cases for the pressure of work through them must be great to justify the expense.

The surgeons in these specialized area centres have two inter-related tasks. Firstly the treatment of referred cases within their own units and secondly by tactful co-operation, instruction and visits to the peripheral centres, help to improve the standard of

treatment in their specialties in the big towns within their region so that the appropriate patients may be treated in the correct place at the right time.

Conclusion

For years it has been said that casualty departments must be reorganized. The need has become urgent following the withdrawal of many immigrant doctors from this country. It is suggested that the change in name from 'casualty' to 'accident and

emergency' has done harm as it has confused the priorities without altering the structure of the department.

Although the accident centre must be under the combined supervision of the anaesthetic, orthopaedic, general surgical and general medical consultants a large part of the work in a casualty department is neither accident nor emergency. It is this group of patients during night duty and weekend sessions who create the problem. There is a world shortage of doctors so the hospital casualty departments must be staffed either by making this work compulsory in medical training, or by attracting doctors who would otherwise stay overseas, go overseas, or qualify for general practice. Consultant status would achieve the second requirement, but it is absolutely vital to avoid overlap with other specialties and to ensure the most rapid transfer of patients to the correct department where definitive treatment is to

be given. *There must be no delay and no division of early responsibility for all admission to hospital from the casualty department.*

In Portsmouth, greater consultant participation from all four specialties might increase interest and efficiency. An attempt is being made to share the urgent accident and emergency orthopaedic admissions between three teams of orthopaedic surgeons so that each may concentrate on the accident service for one week in three. This should prevent the disorganization of routine orthopaedic work by emergencies, and ensure that acute orthopaedic and accident patients will receive their fair share of consultant supervision.

Reference

PARRY, C.P., COOPER, D.B., SHELSWELL, M.E., DUNKERLEY, G.E., DENHAM, R.A. & MURRAY, C.M.M. (1962) The Portsmouth casualty survey. *British Medical Journal*, **2**, 909.