Hospitals

THE PORTSMOUTH CASUALTY SURVEY

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As the reception, treatment, and disposal of casualties are becoming such an urgent problem it was decided in 1960 to analyse every new case attending the casualty department at the Royal Portsmouth Hospital for a period of six months. In this paper the results of that review are given.

Each year there are some eleven million attendances in the hospital casualty departments of this country (Steering Committee Report, 1960). Numbers attending industrial first-aid rooms and general practitioners' surgeries cannot be counted, but the work done and the time spent in the treatment of accidents and injuries must be great. The Royal Society for the Prevention of Accidents has estimated that the cost to the country of road traffic accidents alone is £219m. each year, and in the Portsmouth area the cost to the National Health Service for the treatment of 11,230 patients seen in the casualty department in five months was over fourteen shillings per case.

In 1959 there were 6,140 fatal injuries among a total of 333,453 road traffic accidents in this country (Ministry of Transport, 1960). This is the highest fatality rate ever recorded in peacetime, and, although the number of deaths was exceeded in 1941 during the abnormal conditions of war, the 1959 figures represent an increase of 10% over 1958 and a 50% increase over the immediate post-war years. The provisional statistics for 1960 show a similar upward trend—354,551 accidents and 6,970 deaths—representing a 4.2% and a 7% increase in these two groups over the previous year.

Accidents at home (Macqueen, 1960) and in the factory are also increasing. The numbers of deaths from injuries at home approached 7,000 and there were 665 fatal industrial accidents in 1960.

Area of the Portsmouth Casualty Service

The area covered by the Portsmouth Casualty Service is shown in the map. Hospitals and distances are also shown. The great increase in holiday traffic along the South-coast road (A27) and the London road (A3) during the summer months should be remembered.

It is impossible to estimate the increase in population due to the visitors in summer. One experienced general practitioner in Hayling Island has estimated that in his area alone the normal population of about 8,000 rises

to 45,000 at the height of the season. We therefore estimate that our casualty figures relate to a population of over half a million.

There are three general hospitals serving the County Borough of Portsmouth (Table I). The main casualty centre to which nearly all ambulance cases are brought is in the Royal Hospital. St. Mary's and Queen Alexandra Hospitals have small casualty departments staffed by part-time general practitioners and resident house staff, but these two units together handle less than one-sixth of the total new casualty attendances for the group and none of the serious cases.

The surrounding areas of Gosport, Havant, Emsworth, and Petersfield are served by cottage hospitals staffed by general practitioners. No serious cases are treated in these units.

The Portsmouth Eye and Ear Hospital accepts accidents and casualties in its specialties. All emergency midwifery and gynaecology is seen at St. Mary's Hospital.

The Naval Hospital at Haslar has a casualty department of its own where Service casualties and a small number of civilian accidents are treated.

Key to map.

Hospitals

1. Portsmouth Royal.
2. St. Mary's.
3. Queen Alexandra.
4. Gosport War Memorial.
5. Havant Cottage.
6. Emsworth Cottage.
7. Petersfield Cottage.

Districts

- P. Portsmouth.
S. Southsea.
C. Cosham.
G. Gosport.
F. Fareham.
PT. Petersfield.
D. Droxford.
H. Havant.
E. Emsworth.
HI. Hayling Island.

Roads

- A3 London to Portsmouth.
A27 South Coast.

Populations

Portsmouth and Southsea (Cosham)	..	217,520
Gosport	..	65,760
Havant and Waterloo District (Emsworth and Hayling Island)	..	71,760
Fareham	..	59,750
Petersfield Area	..	31,330
Droxford Area	..	22,120
Total	..	468,240

The total number of attendances, new and follow-up, treated in casualty departments in the Portsmouth Group area in 1949 was 58,000. In 1960 this figure had risen to 73,000, an increase of 15,000 in 11 years. This

TABLE I

Area	Population	Hospitals	Beds	Total New and Return Casualties Treated in 1960
Portsmouth and Southsea (Cosham)	217,520	Royal (main casualty centre) St. Mary's Queen Alexandra	220 700 450	44,012 5,404 5,783
<i>G.P. Hospitals without Resident Staff</i>				
Gosport	65,760	Gosport War Memorial	70	11,951
Havant and Waterlooville District (Emsworth and Hayling Island)	71,760	Havant Cottage Emsworth Cottage	23 17	1,726 1,040
Fareham	59,750	—	—	—
Petersfield	31,330	Petersfield Cottage	27	3,548
Droxford and District	22,120	—	—	—
Totals	468,240		1,507	73,464

corresponds to the general trend over the rest of the country. In the main casualty department of the group, the Royal Portsmouth Hospital, 34,000 cases were treated in 1949; this figure had risen to 44,000 in 1960.

The Review

A review of 11,230 new cases attending the casualty department at the Royal Portsmouth Hospital during the months of May to September, 1960, has been carried out. Details of diagnosis, treatment, disposal, and general information such as age, sex, and time of arrival, etc., were recorded upon a 100-hole punch card. This report is based upon the analysis of 11,230 of these cards. Statistics relating to the month of April, 1960, have not been included in the survey, as many inaccuracies were detected in the early organization of the review, and the 1,702 forms were discarded.

No statistics relating to reattendance cases were included. No figures relating to the other six small casualty departments in the group are given.

In this review "a casualty" refers to all groups of patients coming to the casualty department. These cases are subdivided into "accidents" and "casuals." Serious, minor, and trivial refer to the severity of the case. The term "major accident" should be reserved for group injuries.

Three groups of patients attend the casualty department: (1) accident cases, serious and minor; (2) acute medical and surgical cases, mostly referred by the general practitioner or some other responsible person; and (3) general practice work cases—patients attending on their own responsibility.

Tables II and III give the important statistics obtained from the card index review.

Of the 11,230 new cases seen in the five months under review, 8,951 (80%) were accidents and 2,279 non-accident cases. This compares with 51% of accident cases at King's College Hospital (Fry, 1960) and only 33% at Guy's Hospital (Clarkson, 1960).

Observations and Recommendations

Area.—The place where the accident occurred or where the casual became ill is recorded. It is noted that Portsmouth and Southsea are the main centres for work

and holidays with a large influx of non-resident population. The central position of the main casualty centre is chiefly responsible for the high numbers attending from these two places. The 1,299 new cases in the section labelled "Other" were those patients who attended the department from the 100 square miles (259 square km.) of agricultural land or from the roads north of the coastal strip. Attendances were found to be directly related to the population and inversely related to the distance from the centre.

Age.—Fifty-seven per cent. of subjects were under the age of 25 and the highest accident and casualty attendance was in age-group 6–15.

Time of Arrival in Casualty.—The heaviest attendances in the department were during the morning. This also was the time when it seemed most convenient for the return cases to attend. If increased efficiency is to be obtained with the best division of labour, return cases should not be given appointments between 9.45 and 11.30 a.m., 1.30 and 2.45 p.m. or 6 and 6.30 p.m., the times when the majority of new patients may be expected to arrive. The high attendance rate between 6 p.m. and midnight should also be noted. Medical staffing during these hours always presents a problem, and is a period which in many hospitals is covered not by the usual casualty staff but by junior residents from other specialties.

Location.—It was found that on average out of seven accidents occurring during this review one occurred at work, one on the roads, one on the street, one at sport, and three at home. Although the severity of the road traffic accidents was greater, campaigns to prevent accidents in the home must not be relaxed.

Referral.—The biggest group is made up by patients who came to the department without prior authority from doctor, work, hospital, or school clinic. Though this group contains all emergency ambulance calls, only 5% were severe enough to require admission to hospital. The group includes a large number of patients suffering from complaints which should never have been seen in the hospital casualty department. We estimate that some 25 patients each day, or 34% of the total attendances, fall directly into the group of general-practitioner work. Most of the patients with boils, coughs, backache, headache, sprains, stings, sore throats, and minor cuts, grazes, and bruises should have seen their own doctor instead of coming to hospital. It was found that 25% of these patients had a history of over 12 hours, and that their presence in the midst of the seriously injured and the seriously ill caused over-

TABLE II.—New Cases

Total first attendances (May–Sept., 1960, inc.)	11,230	Referred by:	
Area:		Doctor	2,536
Portsmouth/Southsea	7,494	Work	413
Cosham	725	Hospital	259
Fareham	604	School	295
Havant	904	Not referred	7,727
Gosport	204	Treatment:	
Other	1,299	Drugs	4,404
Sex:		Dressings	4,439
Male	6,771	Minor surgery	2,050
Female	4,459	Anaesthesia	698
Age:		Gastric lavage	87
1–5 years	1,295	Strapping	2,709
6–15	2,858	X-ray	4,809
16–25	2,268	None	1,194
26–50	2,864	Disposal:	
51–70	1,461	Own doctor	2,217
> 70	484	Come again	3,626
Time of arrival in casualty:		Clinics	1,447
9 a.m.–1 p.m.	3,997	Other hospitals	223
1–6 p.m.	3,840	Ward (admission)	501
6 p.m.–12 midnight	2,891	Discharged	3,157
12 midnight–9 a.m.	502	Own discharge	40
		Brought in dead	17
		Died in casualty	2

crowding and long delays. Table IV compares cases referred to casualty departments at Portsmouth, King's College Hospital, Guy's Hospital, and the eight hospitals investigated by the Steering Committee. From these 11 casualty departments it can be seen that a major part of the casualty service is to patients who attend without medical authority.

Treatment.—The casualty department should be mainly for the reception, diagnosis, and treatment of serious and minor accidents and casualties. A 24-hour x-ray service is essential. In our series x-ray examination was carried out in over one-third of the cases. The minor surgery performed in 2,050 cases consisted mainly in the suturing of cuts and the opening of abscesses. It will be seen that 87 cases required gastric lavage for accidental or suicidal poisoning. Although not great in numbers, these patients take much time and space, needing at least three members of the staff to manage their treatment. Few fractures are treated in the casualty department. All but the trivial cases are referred to the fracture clinic, which is in the same block, for treatment and subsequent supervision by the orthopaedic staff.

Disposal.—Accident cases were admitted to the orthopaedic unit (104 beds), which also took those with head injuries, chest injuries, and burns. The general medical and general surgical services examined their own cases in casualty when requested by the casualty staff, and admitted patients needing hospital treatment. Wherever possible cases were seen, diagnosed, treated, and returned to the family doctor. During this review a

total of 7,404 return visits were made while the 11,230 new cases were seen.

Conclusions

The casualty services must be under the supervision of one hospital department, and there must be close liaison between all branches of medicine and surgery. The casualty centre therefore should be attached to a general hospital where other consultants and house staff are readily available. In Portsmouth the casualty services are the responsibility of the orthopaedic department. Many new casualties arrive after 6 p.m., so it is essential to have casualty officers, who should not be below S.H.O. grade, to cover the 24-hour period.

We consider that the division of accidents and casualties into two different departments is impracticable, but we do believe that the separation of different groups of patients is desirable—that is, severe, minor, sepsis.

The review has shown that a mass of trivial material was seen in the casualty department. At least a quarter of the cases attending should have been seen and treated

TABLE IV

	Ports- mouth	King's College Hospital (Fry, 1960)	Guy's Hospital (Clarkson, 1960)	Casualty Service at 8 Hospitals (Steering Com- mittee Report, 1960)
Referred by doctor	22.6%	24.0%	10%	9%–35%
Not referred (in- cluding ambu- lance accidents)	68.9%	72.5%	81%	53%–75%
Other sources ..	8.5%	3.5%	—	9%–20%

TABLE III

	Accidents							Casuals																
	Fracture	Sprain	Foreign Body, Cut, Bruise, Graze	Burn	Head Injury	Other Soft-tissue Injury	Orthopaedic	General Medical	C.V.S. and C.V.A.	Diabetic	Epileptic	Mental and Hysterical	Suicide. Coal Gas	Suicide. Overdose	Suicide. Self- inflicted Injury	Accident. Overdose	Reaction, Various	Stings	Acute Surgical	Objects Swallowed Accidentally	Dental	Far. Nose, Throat, Eyes	Sepsis	Brought in Dead
Total ..	1,898	1,550	4,734	285	288	196	202	265	53	21	63	34	10	52	2	47	43	172	106	95	101	93	903	17
Sex:																								
Male ..	1,141	881	3,066	162	172	130	103	150	33	10	45	9	4	13	0	23	24	71	74	48	57	53	496	11
Female ..	757	669	1,668	123	116	66	99	115	20	11	18	25	6	39	2	24	19	101	32	47	44	40	407	6
Age:																								
1–5 years ..	150	106	616	59	62	28	8	38	0	0	4	0	0	0	0	39	1	18	14	67	5	19	89	3
6–15 ..	600	411	1,249	47	55	73	25	22	4	2	1	5	0	2	0	8	12	37	7	19	24	19	192	0
16–25 ..	255	329	1,017	65	59	31	45	50	2	1	8	10	1	17	1	0	11	49	26	6	21	11	216	0
26–50 ..	405	479	1,183	79	53	32	80	73	7	8	31	11	5	24	1	0	12	57	29	3	45	27	292	1
51–70 ..	313	187	535	34	38	23	37	51	28	10	16	6	3	9	0	0	5	11	16	0	6	13	96	7
> 70 ..	175	38	134	1	21	9	7	3	12	0	3	2	1	0	0	0	2	0	14	0	0	4	18	6
Time:																								
9 a.m.–1 p.m. ..	743	668	1,568	94	79	50	109	62	19	2	10	10	1	16	0	14	15	46	40	22	29	20	401	4
1–6 p.m. ..	610	556	1,617	96	97	66	59	81	24	8	29	7	1	13	0	10	12	75	25	39	26	26	327	6
6 p.m.–12 m.n. ..	454	271	1,309	77	102	69	27	103	6	9	18	13	3	16	1	18	13	44	21	33	34	38	150	2
12 m.n.–9 a.m. ..	91	55	240	18	10	11	7	19	4	2	6	4	5	7	1	5	3	7	20	1	12	9	25	5
Disposal:																								
To ward ..	186	6	103	6	111	4	5	26	6	1	7	0	1	14	0	11	0	0	10	4	0	0	3	0
Other clinics ..	1,196	107	136	8	20	2	52	32	5	4	2	8	7	12	0	1	0	0	27	8	10	27	18	0
Other ..	516	1,437	4,495	271	157	190	145	207	42	16	54	26	2	26	2	35	43	172	69	83	91	66	882	17
Referred by:																								
Doctor ..	718	526	665	11	53	12	94	25	6	2	1	4	0	19	0	8	2	2	29	24	3	14	284	4
Work ..	72	79	274	10	8	6	4	1	4	0	1	1	0	0	0	0	0	2	0	1	3	14	0	0
Hospital ..	72	24	139	5	14	0	5	3	1	0	0	1	0	0	0	0	0	0	3	1	0	0	12	0
School ..	51	61	115	4	3	9	5	1	2	0	0	0	0	0	0	0	3	1	2	1	1	0	14	0
Not referred ..	985	860	3,541	255	210	169	94	235	40	19	61	28	10	33	2	39	38	167	70	69	96	76	579	13
Site:																								
Head and neck ..	295	122	1,429	73	288	41																		
Arms ..	1,089	711	2,013	149	0	93																		
Legs ..	514	717	1,292	63	0	62																		
Where:																								
Work ..	335	346	1,237	76	30	12																		
Road* ..	254	110	544	5	89	4																		
Home ..	655	573	1,642	168	89	82																		
Street† ..	320	253	749	20	48	78																		
Sport ..	315	259	499	16	25	11																		
Violence ..	19	9	63	0	7	9																		

* Road: an accident where a vehicle is involved. † Street: an accident or illness occurring in the street without any vehicle involved.

C.V.S. = Cardiovascular system. C.V.A. = Cerebrovascular accident.

by the general practitioner. This could happen if the original conception of the health centre were introduced. The reduction of pressure on the casualty department would then allow the limited hospital staff to do their work more efficiently and quickly.

In this area much valuable work was done in the cottage hospitals by general practitioners, and this underlines the statement made by various authorities (Lowden, 1956; British Orthopaedic Association, 1959) that peripheral hospitals have an important role in the treatment of casualties.

All serious accident cases must be taken to the main accident centre even if the ambulance has to pass a small hospital on the way, for much time can be wasted and little good result if such a case is taken to a hospital not equipped to deal with it. Since this survey was made a new seven-bed resuscitation unit with separate nursing staff has been established at the Royal Hospital.

The need for building new accident centres is emphasized. Present accommodation in Portsmouth, although of post-war construction, is now inadequate because of the ever-increasing number of casualties.

We thank the Portsmouth Group Hospital Management Committee for its readiness to support the survey and for supplying us with secretarial aid and the required punch cards. We also thank Sister M. F. P. O. McCabe and her staff in the casualty department for their keen interest and great help during the months of the review, and Mrs. M. May who acted as secretary.

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Speaking at a press conference in connexion with the National Industrial Safety Week organized by the Royal Society for the Prevention of Accidents (RoSPA), Mr. W. Whitelaw, Parliamentary Secretary, Ministry of Labour, said: "... In mounting this attack, the human implications must, of course, be our primary concern; but the economic results cannot be overlooked. Unofficial estimates have put the annual cost of industrial accidents at something between £100m. and £300m. The average cost of a lost time accident has been calculated at about £300; for a minor accident £10 to £20. This loss of earnings and profligate waste of skilled manpower and resources is a considerable drag on our national efficiency. The majority of accidents can be directly attributed to human failings of one sort or another, such as carelessness or neglect of elementary safety principles; indeed they are anything but inevitable. Too often people think 'It can never happen to me'; but the fact is it can and unfortunately does. Let me put the figures to you in a different way. One in every 300 men working in a factory will be killed at work; the chances are that all of them will have at least one accident serious enough to keep them away from work. In the more dangerous jobs such as construction, shipbuilding or metal manufacture, the chance of being killed is higher at 100-1, and the chance of being badly injured is 3-1 on. In all the circumstances, I am sure you will agree not very good odds! The only real and lasting solution to this accident problem is an acceptance of the importance of safety precautions on the part of everyone in industry from the chairman of the board down to the newest recruit."

HOSPITAL CENTRAL STERILE SUPPLY

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The Nuffield Provincial Hospitals Trust (1958) and the *Journal of Clinical Pathology* (1961) have emphasized that in hospitals the practical difficulties of destroying bacteria and preventing recontamination of sterilized materials are greater than was generally believed. All the techniques are so exacting that they cannot be carried out effectively without a degree of special training and equipment which cannot be provided in every ward and department. Therefore, if the standard of sterilizing instruments and materials is to be improved, central sterile supply departments (C.S.S.D.) must be introduced. The Ministry of Health (1961) advocates this and describes a C.S.S.D. for an area service. Our experience, however, has shown that a hospital C.S.S.D. can be established without elaborate building and with a comparatively low running cost.

Although C.S.S.D.s are not intended primarily to reduce costs, much saving results from economies in materials, in maintenance of sterilizing-rooms, and, of great importance, in the more efficient use of nurses' time. By using materials supplied by the C.S.S.D., and especially by adapting techniques to make the best use of them, the ward nursing staff requires only half the time previously taken to complete dressings. This does not mean that hospitals can reduce their establishment of nurses, but nurses have more time to care for their patients, who have noticed and commented on this change.

Central sterile supply and associated changes in techniques have been introduced gradually in the Sunderland Royal Infirmary during the past three years, and we have no doubt that these have contributed to a reduction of sepsis and have led to an improvement in the patients' well-being. The original pilot scheme was expanded in 1960 with a grant from the Nuffield Provincial Hospitals Trust to investigate the problems of providing a C.S.S.D. for a 300-bed acute general hospital with associated departments—casualty, chest clinic, dental clinic, E.N.T., out-patient, pathology, physiotherapy, psychiatry, radiotherapy, skin, special treatment, and urology. These methods are now being adopted by the 14 hospitals in the Sunderland Group of approximately 2,800 beds.

Planning

From our experience the initiative for the introduction of a C.S.S.D. should come from the senior medical staff, and only their active and interested co-operation makes possible the establishment of an efficient department. The full co-operation of the matron, sister tutor, and ward and departmental sisters is also essential.

As the materials which a C.S.S.D. must produce are determined by the techniques of the users, planning of