

The work of an accident and emergency department

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SUMMARY. In a six month period 2,379 new patients were treated in a designated major accident centre. Of these cases two thirds (67·9 per cent) were thought to be appropriate for management by general practitioners. I suggest that these cases are properly treated in an accident and emergency department and that these departments should be developed as part of the primary health care teams.

Introduction

“ All group practices should be equipped and able to deal with minor injuries and casual attenders, thus relieving the hospital accident and emergency department of inappropriate work” (Department of Health and Social Security, 1971).

This quotation implies that doctors in general practice should be trained to attend these cases. Furthermore, the Royal College of General Practitioners (1974) has recognised some senior house officer posts in accident and emergency departments as “ suitable for training future general practitioners ”.

I therefore decided that while I worked as a trainee general practitioner in a designated major accident centre I would record my experience. This was my first senior house officer post, after completing my preregistration year and I then worked for one month in a general-practitioner hospital and for one month in general practice.

Aims

My aims were:

- (1) To count the number of patients with fractures and burns.
- (2) To count the number of patients x-rayed, referred, and admitted to hospital.
- (3) To estimate the proportion of patients who could have been managed by general practitioners.

Method

This study, which was carried out from September 1973 to February 1974 in a hospital serving a mainly industrial population of 500,000, consists of all the new patients I treated during that period. I made duplicate records and analysed these by hand. I worked one weekend in five at a children's hospital, and patients seen there are put together in one age band; since 14 years-olds could be seen at either hospital, they are noted separately in the tables.

Results

General features

The total number of patients (table 1) was 2,379 (M:F ratio 1.9:1). There was a marked excess of women (M:F ratio 1:1·8) in the over 65 age band.

Analysis of injuries

Parts (b) to (h) of table 1 show the age and sex distribution of those with no injury, those asked to re-attend the casualty department, those with lacerations, road accident injuries and fractures, those in whom no abnormality was found on x-ray, and those who were admitted.

TABLE 1
AGE-SEX DISTRIBUTION OF PATIENTS AND THEIR INJURIES

Age in years	(a) All patients											Total				
	0-13	14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59		60-64	65-69	70+	Not known
Male	65	55	270	225	166	141	106	84	92	87	68	65	42	61	22	1,549
Female	34	40	132	92	70	61	44	48	40	72	62	46	49	132	8	830
Male	13	14	45	46	34	22	21	11	18	12	3	9	5	10	6	269
Female	5	8	29	19	11	13	6	11	7	9	11	8	6	19	0	162
Male	5	4	20	18	12	10	9	6	5	11	5	5	2	6	1	119
Female	0	2	6	7	4	4	4	1	5	10	4	4	5	6	2	64
Male	8	2	42	27	24	12	12	14	11	14	9	11	2	7	5	200
Female	7	2	6	6	8	6	2	4	0	8	5	3	4	9	1	71
Male	1	1	25	17	9	3	8	5	5	7	2	10	2	7	4	106
Female	1	0	7	2	3	1	1	1	1	1	1	2	1	2	1	25
Male	5	4	23	15	15	14	11	7	10	4	8	4	5	7	0	118
Female	6	3	6	2	3	4	3	0	3	15	10	9	16	35	2	115
Male	14	20	73	55	48	30	24	20	17	15	8	14	4	12	6	360
Female	4	15	31	22	17	13	8	15	8	13	19	14	10	19	0	208
Male	7	3	15	15	13	6	8	2	6	11	5	5	5	8	2	111
Female	1	2	10	12	6	5	4	2	5	4	2	2	1	26	2	84

(b) Patients found to have no abnormality

(c) Patients asked to re-attend the accident department

(d) Patients with lacerations

(e) Patients seen as a result of road traffic accidents

(f) Patients with fractures

(g) Patients in whom no abnormality was found on x-ray

(h) Patients admitted

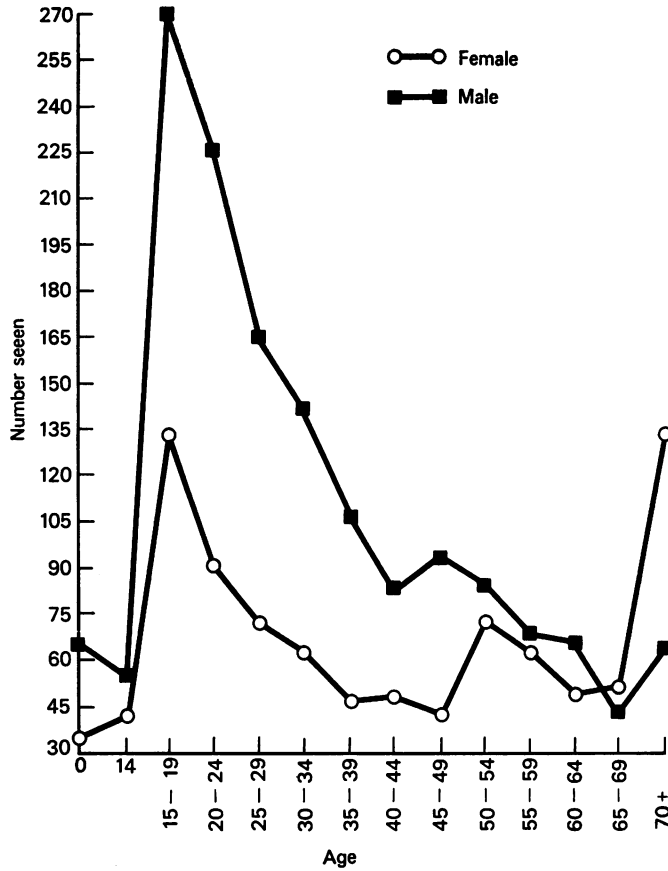


Figure 1
Age-sex distribution of all patients seen

Fractures

Of the 233 patients with a fracture (figure 2), 54.5 per cent were referred to the fracture clinic. Although the totals for the two sexes are almost equal, most men were aged 14-44 (89 cases), whereas most women were 45 or over (88 cases).

No abnormality on x-ray (table 1g)

Of the 830 patients (34.9 per cent) in the series who were x-rayed, 568 were normal, 233 showed a fracture, and 11 a foreign body; there were 18 other x-rays.

Admissions

Tables 2 and 3 show how many patients were admitted and some of the reasons why. The category of overnight observation is entirely made up of those who had temporarily lost consciousness.

TABLE 2
ADMISSIONS

Category	Medical	Surgical	Orthopaedic	Overnight observation	Others	Total
Number	68 (1)	33 (5)	38 (0)	46 (4)	10 (0)	195
Percentage	34.9	16.9	19.5	23.6	5.1	100

Figures in brackets show the number of children

TABLE 3
MAIN REASONS FOR ADMISSION

	Fracture	Overdose	Temporarily unconscious	Myocardial infarction
Male	16	9	32	11
Female	22	13	14	1

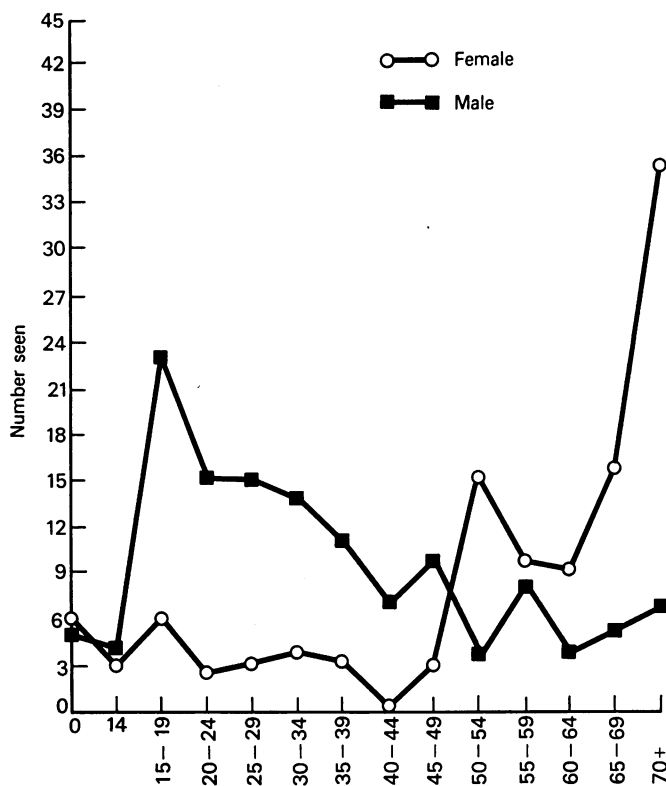


Figure 2
Age-sex distribution of patients with a fracture

Referrals

Table 4 shows the sex distribution of the 210 cases referred to outpatients (8.8 per cent of the total). These are distinct and separate from those asked to return to the accident and emergency department.

TABLE 4
REFERRALS TO OUTPATIENT CLINICS

Clinic	Hand clinic	Fracture clinic	E.N.T.	Minor op*	Medical	Surgical	Psych.	M-F†
Male	32	56	16	1	5	4	1	1
Female	8	71	9	3	2	0	0	1

*Minor operations list
†Referred to the maxillo-facial surgeon

Distribution of the remaining cases

The miscellaneous group (table 5) is only an approximation made by subtracting the other diagnostic groups from the total figure. It includes such cases as insect bites, dog bites, or abrasions which may need dressings, and accounts for almost 50 per cent of all patients.

TABLE 5
DISTRIBUTION OF THE REMAINING CASES

<i>Category</i>	<i>Sprain</i>	<i>Burns</i>	<i>Infection</i>	<i>Dead on arrival</i>	<i>Assaults</i>	<i>Miscellaneous</i>
Male	57	15	37	5	—	—
Female	59	20	29	3	—	—
TOTAL	116	35	66	8	49	Approx. 1,400

The figure in the miscellaneous column is only an approximation as there is some cross over between the different categories such as fractures and lacerations.

Discussion

The male to female ratio found in this series is approximately the same as that published by other authors.

	<i>Crombie (1959)</i>	<i>Fry (1960)</i>	<i>This series</i>
<i>M/F ratio</i>	2:1	3:1	1.9:1

Compared with earlier ones, this study shows that a younger age group is coming into an accident and emergency department than before and in larger numbers.

	<i>Fry (1960)</i>	<i>Garraway (1969)</i>	<i>This series</i>
<i>Age group with highest incidence</i>	20-49 years	16-44 years	14-39 years
<i>Percentage of all attending</i>	48	40	55

A large number of women aged 65 years and over was seen; this peak was not emphasised in the other published figures (figure 1).

Only 7.7 per cent of the cases were asked to return for follow up by a senior house officer in the Accident and Emergency Department. In addition, 11.4 per cent, i.e. those with lacerations, were re-examined by the nursing staff and 8.8 per cent were brought back to consultant clinics (table 4). If one adds, as an approximation, the small number of cases asked to return to the burns clinic at which they were seen by the registrar, then 30 per cent in all were asked to return to the hospital. This is markedly below Garraway's figure of 90 per cent and also lower than the figures obtained by Fry (48 per cent) and Fairley and Hewett (55 per cent). This last figure is sub-divided into 46 per cent to the accident and emergency department and nine per cent to consultant clinics. The other differences probably reflect departmental and personal trends on referral of cases to the family doctor, the proximity of other major accident centres, and transport services to the hospital.

Road traffic accidents were responsible for 5.5 per cent of the cases seen. Fairley and Hewett in a survey of accident and emergency departments in Greater London in 1969 report an incidence of less than four per cent road traffic accidents, whereas The Nuffield Provincial Hospitals Trust (1960), in *Casualty Services and their Setting* give a range of 7-12 per cent road traffic accidents when eight hospitals were surveyed.

In my opinion, the reason for the higher percentage of road traffic accidents found in this study, in comparison with the figures for the London hospital, is due to the difference in the type and size of the catchment areas. No comment can be made on the other figures as the individual hospitals involved were not recorded.

Fractures totalled 9.7 per cent of the cases seen. This is close to Crombie's (1959) figure of nine per cent, but higher than Fry's (1960) of six per cent and Clarkson's of five per cent in 1960. Fry and Clarkson give figures based on London hospitals and in my opinion the higher figure obtained in the present series is due to a different population. Crombie's series was based in Birmingham.

A total of 830 patients or 34.9 per cent were x-rayed. Crombie x-rayed 20 per cent of his cases, Fry 33 per cent and Roy, Williams and Bourns 41.5 per cent of their cases. This increasing usage of the x-ray department is probably due to an increasing medico-legal awareness, a point made by Anderson. Roy, Williams and Bourns found that only 30 per cent of the patients x-rayed had "significant findings" whereas Anderson had positive results in 43 per cent of his x-rays. In this series 31.6 per cent had positive findings.

Admission rates

The admission rates of several series were:

	<i>Clarkson</i> (1960)	<i>Crombie</i> (1959)	<i>Fry</i> (1960)	<i>Garraway</i> (1969)	<i>Fairley/Hewett</i> (1969)	<i>This series</i>
<i>Percentage admitted</i>	3	4.4	9	10.9	15	8.2

There is a wide range in the figures and the reason for this is unknown. The figures obtained in this series are similar to those of Fry for total percentage admitted and also similar to his figures in the analysis of medical and surgical cases.

Garraway's figures on the percentage of cases admitted for medical reasons are quite different, but the reason for this cannot be ascertained from his paper.

Referral rates

Referral rates in this series and in other studies are compared:

	<i>Crombie</i> (1959)	<i>Fairley/Hewett</i> (1969)	<i>Parry et al.</i> (1962)	<i>Fry</i> (1960)	<i>Garraway</i> (1969)	<i>This series</i>
<i>Percentage of total referred</i>	2.2	9	11.1	15	16	8.8

Here again it is not possible to ascertain a reason for the differences between the various series. It is seen, however, that the referral rates of this series, the London based survey (Fry) and the Portsmouth survey (Parry) show some uniformity in total figures. The same also applies to the admission figures for this series, those of the London survey (Fry) and those of the Edinburgh survey (Garraway).

Burns

Burns appear to have a uniform incidence in different areas and over a time interval of 14 years, as can be seen from the following figures:

	<i>Crombie (1959)</i>	<i>Fry (1960)</i>	<i>This series</i>
<i>Percentage of total cases</i>	2.2	3.5	1.5

The percentage of cases of infection in this series is much lower than in other surveys, as can be seen below:

	<i>Crombie (1959)</i>	<i>Fry (1960)</i>	<i>This series</i>
<i>Percentage of total cases</i>	8.3	10	2.8

This may be due to a wider usage and a greater public knowledge of antibiotics in recent years as both the above surveys were carried out approximately 14 years before the present one.

There has been much discussion on how to cope with the minor casualty cases

(Catlin, 1974; Christian, 1974; *British Medical Journal*, 1974; Evans *et al.*, 1974; Lamont, 1974; Reeves, 1974; Hindle *et al.*, 1975). Minor casualty here included the following categories: sprains, burns, infection and the miscellaneous group (table 5). This adds up to 67.9 per cent of the total caseload which could have been appropriately managed by the general practitioner. Dixon and Morris (1971) give a figure of 60 per cent and the same figure is given by the Royal College of General Practitioners (1974). These figures are higher than those found in other series. Fry (1966) gives a figure of 40 per cent, Blackwell (1962) 35 per cent, and Parry *et al.* (1962) a figure of "over 34 per cent".

Lacerations are not included in the figure of 67.9 per cent as this is an urban setting and few general practitioners in towns suture their own patients with lacerations.

If it is accepted that a general practitioner should be able to make "an initial decision on every problem his patient may present to him" (Royal College of General Practitioners, 1972) then there is no reason in theory why he should not deal with every case. In practice he does not. To change this implies a re-education of the general public and a change in resources of the general practitioner. If the general practitioner were to cope with these cases then he would need to staff his health centre 24 hours a day. Dixon and Morris (1971) state that it would be uneconomical to do this unless the practice population is in the region of 114,000 people. Also the general practitioner would need x-ray facilities, and it would not be economical to have these in every health centre. The implications are that general practitioners should staff accident and emergency departments of district hospitals or that casualty services should be based in general-practitioner hospitals. As the number of sessions a general practitioner can give to an accident and emergency department is limited and general practitioner or community hospitals were not intended for this work (Royal College of General Practitioners, 1974) then the present accident and emergency departments should be developed as part of the primary care team (British Medical Association, 1974).

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