CASUALTY ATTENDANCES IN A SEMI-RURAL AREA IN NORTHERN IRELAND

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"It is said that there is a tendency for the casualty department to grow until it becomes a duplicate outpatients department, differing from the outpatient department proper in being subject to less regulation as regards hours of attendance and enquiry into circumstances."

King Edward VII Hospital Fund for London, 1910.

THE FIRST point of contact which an accident or emergency case has with the hospital is the casualty department. By virtue of this very function the casualty department finds it difficult to limit or control the flow of patients through its doors. It is expected to see and examine all comers irrespective of the duration and severity of their complaints. In this exposed position it is little wonder that the casualty department in its present form is regarded with disfavour by administrative and medical staff alike. The British Orthopaedic Association (1959) clearly stated the need for a proper accident and emergency service. The Nuffield Provincial Hospitals Trust (1960) reported on the poor conditions under which many casualty departments were working. This latter report made a strong plea for the recognition of this department as the place for the reception and initial treatment of accidents and emergencies by well trained and experienced staff.

In Northern Ireland the number of patients attending casualty departments has shown a rapid and progressive increase over the years. Casualty attendances may soon outnumber outpatient attendances; the quotation of 1910 has now been underlined by the facts of 1967. The population of Northern Ireland has increased by 2.26 per cent between 1964 and 1967; in the same period attendances at outpatient departments have increased by 5.85 per cent. During the same four years casualty attendances have increased by 41.34 per cent (N.I.H.A. Annual Reports, 1964-67). From these figures it can be seen that casualty attendances have increased out of all proportion to the population at risk. It is against this background that it was decided to investigate the casualty attendances in one of the areas in the province.

METHODS

The survey was carried out in an area with an estimated population of 261,000 (General Register Office, 1966). The area, while being essentially agricultural, contained a number of towns, the population range being 6,000 to 20,000. Many of the towns have small factories, while the new town area has attracted a considerable volume of new industry.
Five general hospitals serve the area; the available acute beds within these hospitals are shown below:

Hospital A 63 acute beds
Hospital B 123 acute beds
Hospital C 167 acute beds
Hospital D 120 acute beds
Hospital E 200 acute beds

The survey included all new attendances at casualty departments from 7th January, 1968, to 21st January, 1968, inclusive. Excluded from the survey were:
(a) Waiting list admissions
(b) Routine outpatient attendances
(c) Emergency admissions already arranged by the general practitioner and going direct to the admitting ward.

RESULTS
A total of 681 new patients attended casualty departments during the period under review. A chi-squared test showed that the attendances during the survey were statistically comparable to the annual attendance figures.

The age distribution of the patients who attended during the survey was compared with the age distribution of the population in the area. From this it was seen that the age group 15–24 years made significantly more demands for casualty services than any other age group in the population.

The distribution of the casualty work load throughout the 24 hours of the day is shown in Table I below.

| Time of Arrival (Totals for Area) |
|----------------------------------|
| 6 a.m.– 12.00– 6 p.m.– 12.00– 6 a.m. | Total |
| Attendance | 289 | 258 | 97 | 37 | 681 |
| Percentage | 42.4 | 37.9 | 14.2 | 5.4 | 100 |

Attendances were further broken down to show the duration of symptoms before arrival at hospital, Table II below. In retrospect, the four time intervals chosen leave much to be desired. The first period, 0–3 hours, probably accommodating the accidents and emergencies, the second period, 3–12 hours, less urgent cases. The third period is an unfortunate choice as it undoubtedly aggregates the reasonable patient injured in the evening who waits until the morning before seeking advice with those who wait three days before coming to casualty to have been seen at an outpatient department or general practitioner’s surgery.

| Duration of Symptoms (Totals for Area) |
|---------------------------------------|
| 0–3 hrs. | 3–12 hrs. | 12 hrs–3 days | 3 days+ | Total |
| Attendance | 249 | 109 | 177 | 146 | 681 |
| Percentage | 36.6 | 16.0 | 26.0 | 21.4 | 100 |
Patients attending casualty departments were classified and 77.1 per cent attended as a result of trauma. A total of 1.0 per cent attended as a result of poisoning or alcohol. Only 2.6 per cent came to casualty because of sepsis. Almost 20.0 per cent of attendances were unclassified.

The disposal of patients attending casualty departments is shown in Table III. It is interesting to note the wide variation in the disposal of patients from the five hospitals.

| Hospital | A | B | C | D | E | Area Total |
|----------|---|---|---|---|---|-------------|
| Attendance | 6 | 18 | 65 | 20 | 29 | 138 |
| Percentage | 7.3 | 18.5 | 30.8 | 13.9 | 19.7 | 20.2 |
| Admit or Transfer | 4 | 19 | 14 | 23 | 68 | 128 |
| Discharge | 66 | 47 | 68 | 75 | 34 | 290 |
| To reattend Hospital | 80.5 | 48.5 | 32.2 | 52.1 | 23.1 | 42.6 |
| To G.P. | 6 | 13 | 64 | 26 | 16 | 125 |
| Total | 82 | 97 | 311 | 144 | 147 | 681 |

In view of frequent comments about the abuse of the ambulance service by patients attending hospital, figures were obtained which showed that 69 per cent came to casualty by private car. The ambulance service carried 7.6 per cent of attendances while 17 per cent walked into the departments. Public transport was used by over 6 per cent of attenders.

The sources of the referrals to casualty are shown in Table IV.

| Referred for admission | Referred for opinion with letter | Referred for opinion no letter | G.P. out | Casual |
|------------------------|---------------------------------|-------------------------------|----------|--------|
| Nos.                   | 21                              | 332                           | 67       | 32     | 229    |
| Percentage             | 3.08                            | 48.75                         | 9.80     | 4.7    | 33.6   |

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DISCUSSION

In view of the acknowledged difficulty in defining hospital catchment areas no attempt has been made to calculate casualty attendance rates per 1,000 population served. An examination of national figures for 1967 shows that slightly higher attendances per 1,000 population occur in England and Wales. Nevertheless, the figures from the survey in Northern Ireland suggest that even within a small area attitudes and environmental factors produced a wide variation in the casualty attendances generated within a population.

The age distribution of patients attending casualty departments was obtained; the age distribution of the total population served was also available. A comparison of these figures showed that the very young and the very old make less demands on the service than one would have expected. On the other hand, the young adults make the largest demands of any age group. The age group 15–44 years contains 47 per cent of all casualty attenders. Similar figures were obtained by the Nuffield Provincial Hospitals Trust (1960) where the percentage of patients in the age group 16–44 years was within the range 40 to 52 per cent. A survey at Cardiff Royal Infirmary by Evans and Wakeford (1964) showed that 65 per cent of attendances fell within the age group 14–43 years. This very high figure may reflect poor sampling technique as no effort appeared to have been made by the authors to check the statistical validity of their sample. In this latter survey it was also noted that the age distribution of the population served was similar to that in Northern Ireland.

Examination of the times of arrival of patients at the casualty departments confirmed that 80 per cent arrived between 6 a.m. and 6 p.m. Rather more of the attendances within this time took place before mid-day. Hospital “C” was a notable exception with almost 50 per cent of the attendances taking place between 12.00 mid-day and 6 p.m. A factor in this may be found in the abnormally high percentage of patients admitted from casualty by this hospital, 31 per cent compared to the area average of 20 per cent. Patients seen by their general practitioner after the morning surgery and referred for admission could reasonably be expected to arrive at hospital after lunch.

A close examination of the survey results showed that over a period of 14 nights from 6 p.m. to 6 a.m. five general hospitals had a total attendance of 134 patients. One small hospital closed its casualty at night, a second small hospital had a total night attendance of 15 patients for the 14 nights. The remaining three larger hospitals had 56, 26 and 31 attendances during the two weeks of the survey. There can be little justification for attempting to maintain fully staffed casualty services after 6 p.m. at all these hospitals; it can only lead to junior medical staff spending long hours on call for the benefit of a very few patients who could be seen at the larger hospital at little inconvenience and no danger to themselves.

As already mentioned above, the choice of time intervals for the duration of symptoms proved a little unfortunate but nevertheless the figures in Table II are worthy of examination. The misuse of casualty departments becomes clear when it is seen that more than one fifth of all attendances had had their complaints for more than three days before referral. The majority of these patients could have been referred to an outpatient session or to the general practitioner rather than to the casualty department. In the survey by Evans and Wakeford (1964) 38 per cent
of patients attended within 3 hours of the onset of symptoms and 28 per cent had had their symptoms for more than 24 hours. Similar figures were found in the Northern Ireland survey where 36 per cent of patients attended within 3 hours of the onset of symptoms. In the Nuffield survey between 10 per cent and 33 per cent had symptoms for more than 24 hours before attending hospital. Attendances of those with symptoms for less than 2 hours ranged from 31 to 57 per cent.

In the Northern Ireland series it may be significant that the hospital with the largest percentage of attendances for trauma also had the highest percentage of attendance within 3 hours of the onset of symptoms. On the other hand, the hospital with the lowest percentage of attendances within 3 hours of onset of symptoms had substantially the highest review rate of any hospital and also the lowest rate of discharge to the care of the general practitioner. One cannot help but feel that the former is fulfilling the function of an accident and emergency department while the latter is providing a general practitioner service.

An attempt was made to divide the attendance into broad diagnostic groups so as to separate the cases arising from trauma from the remaining medical and surgical problems. In view of the widespread comments suggesting abuse of the casualty department it is surprising to see that in the first hospital mentioned 95.8 per cent of attendances were due to trauma. This figure may indicate poor sampling or may simply be due to good relations between the hospital and the general practitioners thus avoiding the referral of non-traumatic cases. The relative disappearance of sepsis as a reason for attendance is striking and is probably a result of the early treatment of soft tissue infections with antibiotics. In the Nuffield survey involving eight hospitals 2 to 15 per cent of attendances were for sepsis while in the Northern Ireland survey only 0.7 to 5.4 per cent (mean 2.6)) attendances were for this reason.

Having discussed the various reasons for attendance at hospital it is profitable to examine the disposal of the patients seen at the casualty department. The figures for the Northern Ireland survey have been shown in Table III. Table V compares the findings from the Cardiff Royal Infirmary survey by Evans and Wakeford (1964) with the figure in Table III.

| Table V — Disposal of Patients — Percentage |
|-------------------------------------------|
|    | Admitted | Discharged | Discharged to G.P. | To reattend |
| Cardiff Royal | 3 | 33 | 27 | 38 |
| N. Ireland | 20 | 19 | 18 | 43 |

From the above figures it can clearly be seen that many more patients are admitted to hospital through the casualty departments in Northern Ireland than in Cardiff. In the Nuffield survey 4 to 12 per cent of patients attending casualty were admitted to hospital. Too few patients in Northern Ireland are discharged from casualty to the care of their general practitioner. In one hospital no less than 80 per cent of patients reattended the hospital. There can be little justification for high reattendance rates except for orthopaedic cases. Sutures inserted in hospital could be removed by the general practitioner or district nurse; abscesses once adequately incised could be dressed by the district nurse and supervised by the general
practitioner. Apart from "job satisfaction" there is little need to recall this type of patient to hospital; the only exception to this might be patients at a teaching hospital where doctors in training should be able to see the results of their work. The advent of health centres and group practices complete with treatment rooms and nursing staff presents an opportunity to the general practitioner to again undertake much of the minor surgical work which became the province of the hospital casualty officer after 1948. The under utilisation of the district nursing service shown by the Queen's Institute of District Nursing (1968) could to some extent be reduced by the referral of many of the minor cases from casualty to domiciliary care after treatment. This review expressed the hope that improved communications and an awareness of the abilities of district nurses would result in an increased use of the service with consequent mutual benefits to district and hospital. For their part the hospitals should support the health centres and district nurses in this work by supplying C.S.S.D. packs for dressings and minor procedures.

The method of referral was investigated and the figures are shown in Table IV. An examination of this table shows that almost half the patients attended at the request of their general practitioner and had with them a letter to the hospital. Only one patient in ten was referred by his general practitioner without a letter. The most disturbing feature was the high percentage of patients who attended without attempting to contact their general practitioner. One patient in three had made no attempt to use the general practitioner service before coming to hospital. Although 33.6 per cent of patients fell within this category it should be noted that a small proportion of the patients in this group are admitted as the result of a serious accident or emergency when they could not have been expected to contact a general practitioner. The Cardiff survey showed that 47 per cent of patients were casual attenders, while in the Nuffield series 54 to 75 per cent of attendances were of this type.

An assessment of the type of medical care needed by the patients attending casualty departments was carried out in the Nuffield survey. The results of this assessment showed that only 29 per cent of patients attending casualty needed more than general practitioner or domiciliary nursing care. An estimate of the severity of the patients' injuries or illness was carried out in the Cardiff survey. This showed that assessments of the same case were often very different when performed by different doctors.

Patients attending casualty departments make heavy demands on the radiological services of the hospital. The hospital with the lowest number of acute beds referred the highest proportion of patients to the X-ray department, and in spite of these X-ray examinations this hospital had also the highest recall rate for casualty patients in the survey. One reason for high radiology referral rates and high recall rates could be large numbers of patients suffering from trauma. In the case of the hospital above 83 per cent of patients came as the result of trauma while the area average was 77 per cent. Against this argument, this hospital attracted the highest percentage of patients who arrived on foot, this latter fact suggesting minor rather than major trauma. Nevertheless, the most potent cause of high radiology and review rates is the employment of relatively junior medical staff in casualty posts. The Accident and Emergency Department at the Luton and Dunstable Hospital achieves a low reattendance rate by having a consultant on duty in the department.
at all times. It should also be noted that the hospital mentioned above has had a long period of staffing difficulties with frequent changes of medical staff in the intermediate grades.

The percentage of patients attending casualty who were sent for X-ray changed throughout the four survey periods in each 24 hours. Table VI shows that the highest proportion of attenders were referred before mid-day and the lowest after midnight. Those patients attending after midnight probably contained the highest proportion of true traumatic cases; if so, these are the cases most in need of radiological examination. Yet, during this time (midnight–6 a.m.) only 32.4 per cent have an X-ray while of those attending in the morning (6 a.m.–mid-day) 70.2 per cent are referred for X-ray examination. These figures immediately question the need for some of the radiological examinations performed in casualty departments during the day.

| TABLE VI — Demands for Radiological Examination |
|-----------------------------------------------|
|                  | 6 a.m.–mid-day | mid-day 6 p.m. | 6 p.m.–midnight | midnight–6 a.m. |
| X-ray – Patients | 203            | 156             | 44              | 12              |
| No X-ray — Patients | 86             | 102             | 53              | 25              |
| Per cent having X-rays | 70.2         | 60.5            | 45.4            | 32.4            |

There has been considerable comment in the past about the use of the ambulance service by patients attending the outpatient and casualty departments. Table VII shows clearly that in the survey area the majority of new patients attending casualty arrived in private cars: almost 69 per cent came by private transport, and only 7.6 per cent arrived in hospital transport. As genuine accident and emergency cases are within this 7.6 per cent, there can be little criticism of the use of the ambulances in this group of hospital attenders. To ascertain how many of these patients who arrive by private car are brought back for review by ambulance is a subject worthy of further examination in another survey.

A section of the survey by Evans and Wakeford (1964) is devoted to an examination of the methods by which the patients arrived at the Cardiff Royal Infirmary. These results are compared to those obtained in the Northern Ireland series in Table VII.

| TABLE VII — Transport to Hospital (Percentages) |
|-----------------------------------------------|
|                  | Bus      | Private car | Ambulance | Walking |
| Northern Ireland | 6.6      | 68.9       | 7.6       | 16.9    |
| Cardiff R. Infirmary | 50       | 25         | 6         | 12.0    |

The high numbers of patients arriving at the Cardiff Royal Infirmary by bus probably reflects the highly urban nature of the area around the hospital which would be well served by buses. It is interesting to note the similarity of the figures
for ambulant and ambulance patients in the two surveys even though one area is urban and the other semi-rural. In a survey of casualty attendances in London Fairley and Hewitt (1969) found that 15 per cent arrived by ambulance.

This survey has confirmed, as previous papers have done, that the casualty department has always been regarded by the public as a convenient source of medical care at any time of the day or night. Mestitz (1957) stated: “Many patients go to the casualty department as they would go to their own doctor’s surgery.” He showed that 700 patients out of a total number of 975 could only be regarded as casual attenders having no clear explanation as to why they attended hospital in preference to their own general practitioner.

Griffiths, King and Preston (1967) asked the question: “Casualty Department or G.P. Service?” The casualty department of the hospital in which the authors worked served the student quarter in Chelsea and Kensington, and the figures quoted support the findings of Beloff (1968) that the fluid population of a large city regard the casualty department as the universal source of medical care. The problem is not peculiar to the National Health Service as can be seen from an American publication by Beloff (1968). Beloff reasons that “the emergency room crisis brought on by the increased number of patients who appear with non-urgent problems is essentially a responsibility of the total health community and not solely that of the hospital. The traditional system of delivering medical care is not meeting the needs of the people, especially the poor. By default, this system has forced the hospital emergency service to fill the gap and to be used inappropriately by many people unable to get care when they need it. This inappropriate use interferes with the primary function of an emergency department, which is to be the community’s medical resource for emergency problems that are not manageable in doctors’ offices, clinics, or at home.”

The above quotation is included in full because it seemed to underline some of the problems here under the National Health Service. While one can see how the high cost of medical care in the United States could drive patients to a hospital casualty department, the provision of a comprehensive health service here does not seem to have materially affected the demands for this type of service even though everyone has access to a general practitioner without charge.

The Oxford Accident Service has reduced the non-accident content of its work to 5 per cent of attendances, but Scott (1967) states that it is only by constant vigilance that they prevent the service being misused as was the old casualty department. Even with this degree of selectivity, the director is concerned at the load placed on the service by minor trauma. Scott has shown that multiple high velocity injuries are increasing in number; if these are to be successfully treated, accident and emergency departments must be relieved of the unnecessary load of trivial problems.

A study of casualty department attendances by the Nuffield Provincial Hospitals Trust (1960) has shown that only 29 per cent of casualty attendances require hospital treatment. If accident and emergency departments could be relieved of some of the unnecessary load they could then perform their correct and essential function – that of saving life.

The increasing number of well equipped health centres throughout the country should provide a method for first line treatment. It would seem reasonable that
patients should be seen at these centres during normal working hours. After working hours the hospital accident and emergency department could by consent treat the small number of patients with minor trauma, firmly referring back to the general practitioner all casual attenders falling outside this category.

A recent circular (Department of Health and Social Security, 1968) gives support to many of the findings and recommendations of this survey, particular mention being made of the rationalisation required to allow proper staffing levels to be maintained. Guidance is also given as to the attitude to be adopted to casual attenders.

CONCLUSIONS

There is little doubt that if the accident services of the province are to function as they should, radical reforms are necessary:

1. Fewer but better equipped and staffed accident and emergency departments are required.
2. These departments must provide a full service throughout the 24 hours.
3. Casual attenders should be firmly discouraged and returned to their general practitioner.
4. The general practitioner should again assume responsibility for the first line service for minor trauma and sudden illness. This becomes a more practical possibility with the increase in group and health centre practice.
5. The casualty department should not provide a convenient method of admitting patients to hospital.

I end by quoting again from the article by Beloff (1968):

"The emergency room crisis is essentially a responsibility of the total health community and not solely that of the hospital."

I would like to thank the hospital staffs who were involved in the completion of the returns.

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