

# General Practice Observed

## Contribution of a General-practitioner Hospital

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### Summary

A properly functioning general-practitioner hospital with good facilities including visiting consultants can greatly lighten the work load of the district general hospital. A general-practitioner hospital is described, run entirely by general practitioners, which cares for over 70% of the inpatients of a group practice. It deals with 98% of all who attend casualty, and carries out almost all of its x-ray work. Its facilities reduce the estimated demand for outpatient appointments at the district general hospital by almost half.

The social advantages of a general-practitioner hospital are obvious, and there may be economic advantages as well. Moreover, such a hospital increases the attractiveness of general practice and improves its quality. It is suggested that the general-practitioner hospital is good for the patient, the community, and the doctor—and even the Treasury. There is room for many more.

### Introduction

Until recently Brecon Hospital was 40 miles (64 km) from the nearest district general hospital. Even now that a new hospital has been opened at Abergavenny the distance is still 20 miles (32 km). Thus Brecon Hospital plays an important part in the medical care of the local community. Containing 40 beds, it serves a population of 15,000-20,000 scattered over 100 square miles (260 km<sup>2</sup>). It is staffed and run by the six general practitioners who practise in Brecon, and as well as caring for inpatients they provide a 24-hour emergency service. Consultants in the major specialties pay monthly visits.

Though the Brecon practice, with its list of about 12,000, provides most of the patients five neighbouring doctors also make use of the hospital. At a time when the role of the small local hospital is being debated I thought it would be of interest to find out how much work and of what type the Brecon hospital carries out. This article reports the results of a prospective survey based on hospital and practice records for 12 months.

### Results of Study

Apart from operative surgery cases and maternity cases there were 665 other inpatients; of these, 530 were referred by the Brecon doctors and 135 from outside doctors. The sexes were almost exactly equal in numbers. Roughly 100 patients were

under the age of 15, 275 were aged 15-60, and 290 were 61 and over. In all there were 43 deaths. The average duration of stay was 10 days. Altogether 110 night calls (that is calls between midnight and 7 a.m.) emanated from the hospital; these comprised 41% of all the night calls done by the practice.

Table I shows that 23% of the total were not patients of the Brecon practice. Nevertheless, for those with trauma the proportion was almost double. The figures in Table I are analysed in greater detail in Tables II and III.

TABLE I—Inpatients and Outpatients treated at Brecon Hospital

	Patients of Brecon Practice	Other Patients	Total
<i>Inpatients</i>			
General medicine .. ..	405	75	480
Operative surgery .. ..	220	60	280
Trauma .. ..	60	50	110
Other conditions .. ..	65	10	75
Maternity .. ..	120	60	180
Total .. ..	870	255	1,125
<i>Outpatients*</i>			
Casualty .. ..	2,450	750	3,200
X-ray procedures .. ..	2,350	450	2,800
Consultant clinics .. ..	550	260	810
Physiotherapy .. ..	(Not subdivided)		330
Total .. ..			7,140

\*Number of patients not attendances.

TABLE II—Main Diagnostic Categories of 480 Medical Inpatients

	No. of Patients
Abdominal pain (observation and investigation) .. ..	45
Peptic ulcer .. ..	10
Bronchitis .. ..	29
Pneumonia .. ..	24
Asthma .. ..	15
Myocardial infarction .. ..	25
Congestive failure .. ..	19
Hypertension .. ..	12
Cerebrovascular disease .. ..	33
Diabetes .. ..	25
Rheumatoid arthritis .. ..	10
Various .. ..	233

TABLE III—Surgical Operations Performed

	Procedure Performed by:	
	G.P.s	Consultants
Appendicectomy .. ..	40	
Caesarean section .. ..	4	
Diagnostic dilatation and curettage, etc. .. ..	45	
E.N.T. { Tonsils .. ..	72	13
{ Other .. ..	29	
Hernia .. ..	5	12
Perforated peptic ulcer .. ..	2	
Sterilization (female) .. ..	18	
Termination of pregnancy .. ..	23	
Colporrhaphy .. ..		3
Varicose veins .. ..		17
Other .. ..	24	11
Total .. ..	262	56

Breconshire, South Wales

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Surgical treatment was given to 274 patients, involving 318 procedures (hysterotomy and sterilization, for instance, counted as two procedures) (Table III). General practitioners operated on 218 patients, of whom 166 were patients of Brecon doctors and 52 patients of other doctors; the respective figures for consultant operations were 56 and 45 and 11. The postoperative mortality was nil.

Among the inpatients with fractures 10 treated had those affecting the tibia and fibula, and five each the radius and ulna, spine, and pelvis. Several patients with fractured femurs sent to the district general hospital for pinning later returned for convalescence.

A total of 110 patients were treated for trauma, including 30 with injuries due to road-traffic accidents. Of the total 24 had concussion, 50 fractures, and 36 lacerations. Seventy-five inpatients were treated for a variety of conditions, as follows: overdose 14, acute retention 10, threatened abortion 10, paracentesis abdominis 20, and malignant disease 21.

A consultant in obstetrics visits the hospital every month and is ready to help at any time either with advice or by admitting the case to his own unit. A total of 16 booked cases were transferred to the district general hospital; 7 cases were booked direct for the district general hospital and 10 babies were transferred to the paediatrician there. At Brecon Hospital itself 166 normal deliveries were conducted; forceps were used in six cases, ventouse delivery was performed in seven, and caesarean section in four.

Altogether there were 4,500 attendances at the casualty department by 3,200 patients (76% of whom were on the lists of Brecon doctors). Of these patients 2,940 were treated in the casualty department or referred to their own doctor, 155 were admitted to Breconshire War Memorial Hospital, 65 were referred to other hospitals (either to inpatient or outpatient departments), and 40 were kept temporarily in the casualty ward at Brecon Hospital.

During the 12-month period 2,800 patients attended the x-ray department, involving 3,400 procedures. Of these procedures 2,900 were carried out on Brecon patients. The main groups of x-ray films taken were as follows: hands and feet 1,300; skull, spine, and pelvis 700; chest 700; barium meal, barium enema, intravenous pyelogram, and cholecystogram 300; and sinuses 150.

Thus in the year of the survey 870 patients were admitted by the Brecon practice and a further 550 attended consultant outpatient clinics at Brecon Hospital. Correlation of the hospital and practice figures shows that a further 360 patients were admitted to other hospitals and 350 more were referred elsewhere for outpatient consultations.

Of the 360 patients referred elsewhere for inpatient treatment 220 were admitted either as a result of direct arrangement from the surgery or after outpatient consultation at hospital (Table IV); 95 inpatients were transferred from the wards of Brecon Hospital and 45 cases from the casualty department (Table V).

Figures from two recent important surveys of the work of general practitioners—in the south-west of England<sup>1</sup> and South Wales<sup>2</sup>—and from the annual reports of the Department of Health and Social Security<sup>3</sup> enable one to calculate the approximate hospital referral rate for all purposes from a general practice with a given number of patients. The amount of work the Brecon practice, which renders about 50,000 items of service to patients every year, could be expected to send to the district general hospital in one year if it had no hospital of its own is shown in Table VI, which compares this estimate with the actual figure.

## Discussion

All these statistics refer to a general-practitioner hospital in a small country town run by a group practice of six doctors. It is virtually their own private hospital, though their privileges are

TABLE IV—Patients Referred Direct from Brecon Hospital

Surgical cases (n = 145):		Medical cases (n = 75):	
	No.		No.
Genitourinary disease	34	Geriatric disease	18
Abdominal conditions (excluding neoplasms)	33	Mental disease	12
Orthopaedic conditions	22	C.N.S., eyes, E.N.T.	11
Neoplasms	18	Respiratory disease	7
C.N.S., eyes, E.N.T.	15	Endocrine disease	6
Circulatory disease	6	Neoplasms	4
Plastic surgery	5	Blood diseases	5
Other	12	Other	13

TABLE V—Patients Transferred from Brecon Hospital

Inpatients (n = 95):		Casualty (n = 45):	
	No.		No.
Respiratory disease	12	Fractures, etc.	7
Neoplasms	11	Eyes/E.N.T.	5
Diabetes	7	Mental disease, etc.	5
Fractured femur	7	Abdominal injuries	4
Coronary infarction	5	Soft tissue injuries	4
Mental disease, etc.	5	Head injuries	3
Acute retention	4	Burns	3
Rheumatoid arthritis	4	Other	3
Cerebrovascular disease	4		
Other	36		

TABLE VI—Estimated and Actual Referrals to Hospital

Reason for Referral	Estimated Referrals			Actual Referrals from Brecon Practice
	S.W. England Survey	S. Wales <sup>2</sup> Survey	Department of Health and Social Security <sup>3</sup>	
Diagnostic procedures	2,350	2,000		5,000
Consultant opinion	1,500	1,750	1,775	900
Casualty department	100	350	1,775	2,450
Hospital admissions			1,150	1,230

shared by five neighbouring doctors. From all these figures several questions may be asked. Does such a hospital do useful and necessary work? Can it appreciably relieve the burden on the hard-pressed district general hospital? Is it justifiable on medical, social, and economic grounds? Is it just an excuse for "playing at hospitals" or has it a real contribution to make? Could the provision of general-practitioner beds, either in a general-practitioner hospital, as here, or in a district general hospital, become the cornerstone in a new structure of general practice, and in the long term ensure the future of the family doctor as a respected and responsible member of his profession?

Closer study of the actual and estimated referrals of the practice produces some interesting and significant conclusions. The actual number of diagnostic procedures is about two and a half times the estimated figure. The total of 5,000 is made up largely of x-ray studies and electrocardiograms taken at Brecon War Memorial Hospital and investigations on pathological specimens carried out at a district general hospital 20 miles (32 km) away. The latter are collected and sent to the laboratory and the patient does not have to travel to the district hospital. For this reason our figures are greatly above the average. Nevertheless, because x-ray and other facilities are available locally it is worth while doing other investigations as well, since frequently one can solve a diagnostic problem without involving a consultant at all. The effect of this is clearly shown in the number of referrals for consultant opinion. On average there are about 800 cases a year fewer than expected (that is, just over half), which must represent a considerable saving of outpatient time. Over 60% of all outpatients were seen at Brecon Hospital.

Our casualty figures are most interesting. The S.W. England and S. Wales figures are remarkably low because they relate only to those who are referred to the casualty department. The Ministry figures relate to those who, in its own words, "take themselves to casualty." But the Brecon figures include actual attendances as well and therefore are much nearer to though even greater than the Ministry total. We have found that

Brecon patients attend the casualty department for four main reasons. Firstly, they are referred by a Brecon general practitioner; secondly, they are "rushed to hospital" by anxious and well-meaning friends, even though their general practitioner is available; thirdly, because the general practitioner is not immediately available; and, fourthly, because the Brecon surgery is not open—for example, at week-ends and late in the evening. This last reason is largely because there is now a central surgery. Previously, when each doctor had his surgery at home, most of the emergency cases went there in the first instance.

Other patients attended for various reasons: they were referred by neighbouring general practitioners; "rushed to hospital" by friends without looking for their own general practitioner; casual attenders—for example, road-traffic victims, campers, hikers, people who fell in the street, etc; had a sudden illness in cars, motor-coaches, cafés, etc; or were patients of neighbouring doctors who were not immediately available. Apart from these specific reasons the public has grown to expect that medical attention should be immediately available (even where there is no real urgency) and has become conditioned to believe that only "the hospital" can deal with emergencies and serious illness. This is a sad state of affairs and one that needs correcting.

The total number of hospital admissions from our practice to Brecon and other hospitals, 1,230, is not much above the figure which would be derived from other estimates. Certainly it is near enough to dispose of the suggestion that general-practitioner beds tend to be frittered away on cases which do not justify admission, and are used largely for the convenience of the general practitioner. The inpatient statistics show that as well as acute cases there are many terminal and sociogeriatric cases. For instance, the 290 patients over 60 years of age (43%) included most of the patients with cerebrovascular disease, many of the cardiac cases, many respiratory conditions, and other elderly people needing skilled nursing care. This is consistent with the findings of Warren<sup>4</sup> that 36% of patients in general-practitioner hospitals were over 65 and emphasizes the need for more geriatric beds. At Brecon Hospital there were 43 deaths, most of them in patients with terminal illness who finished their lives peacefully in hospital, often after a long period of illness at home.

Today, when most women of working age are actually working, it is impossible for many elderly patients to be properly cared for at home. Another factor is the break-up of family ties and the dispersal of the family, resulting in old people living alone or with a partner as old as themselves. As a result the high proportion of over-60s found in hospital is becoming an accepted feature.

When Aneurin Bevan introduced the National Health Service in 1948 he was convinced that before many years had passed the health of the nation would be so improved that the demand for medical services would drop. For various reasons the opposite has occurred, and there has never been so great a demand on medical services as there is today. Probably this will continue to increase in the future. As a result the district general hospital has a long waiting list for outpatients and x-ray examinations and is usually short of beds, and for various reasons is unable to enlist enough junior staff.

The general practitioner if he has hospital facilities and hospital beds at his disposal can do a great deal to lighten the load on almost all departments of the district general hospital. Our figures alone show that in one year it was relieved of the care of 870 inpatients, the consultants saw about 800 fewer new outpatients, and the x-ray department dealt with about 2,500 fewer patients. The pathologist received a great many specimens—but he would have had those to deal with anyway. The surgeons were relieved of about 250 operations a year, all of which would have needed their time, theatre time, and nursing-staff time. If all this extra load had been inflicted on any district general hospital its impact would have been considerable. The casualty department, often the most hard-pressed

of all, also benefited by about 2,500 fewer cases, many of which might have required time-consuming minor procedures. Out of 3,200 patients attending Brecon Hospital only 65 (2%) required referral to a district general hospital. Admittedly, ours is a rural area without much in the way of industry and with no motorways as yet. Nevertheless, these figures seem significant<sup>5</sup> and raise the question whether the proposed new career structure for casualty surgeons is really the complete answer.

These figures must also be considered in the context of recent hospital planning. For some years now writers have been denigrating the smaller hospitals and justifying their closure on the grounds that modern medicine is so involved and complicated that only a large district general hospital can provide proper treatment for anyone ill enough to need inpatient care.<sup>6,7</sup> This premise is probably not even half true—many recent surveys have shown that up to 60% of all patients in hospital do not require the technological miracles of the district general hospital,<sup>8</sup> and in our own case the figure is over 70%. For most inpatients the diagnosis is straightforward and the treatment routine, well within the general practitioner's competence. Many forget that general practitioners were trained in large hospitals—on average each one spent one-and-a-half to two years in responsible appointments there<sup>2</sup>—and in future their attachment may be even longer. And, of course, as a safeguard consultant advice is available as and when required. Only a limited number of patients require the "best" care. It should be reserved for these and not too widely dissipated.

Some may feel that the range of work undertaken at this small general-practitioner hospital may be criticized. Nevertheless, this has been the accepted local practice in Brecon for the best part of a century—initially because of its isolation and more recently because the opportunities for hospital work attract the doctor who by training and inclination feels able to take advantage of it.

The social benefits of the general-practitioner hospital have been written about on many occasions. No patient likes to be far from home, and it is comforting to be in familiar surroundings with your family near at hand. There is no problem for visitors and no exhausting journeys on dark winter nights, with their consequent weariness and strain. There is no problem of communication such as exists in a large hospital—"they never tell me anything when I visit him. I only ever see one of the little nurses." His own doctor is in charge, and the relatives know him and can talk to him. As long as the necessary treatment can be carried out there is no doubt what the patient prefers.

Though this survey has not concerned itself with costs some recent articles have shown that there may be economic advantages as well. In the Tamworth study<sup>9</sup> the cost per inpatient week was estimated at £37—about £14 less than the large hospital. Emrys-Roberts<sup>8</sup> quoted £1,350 per year per inpatient bed in a general-practitioner hospital as opposed to £1,800 in a district general hospital. And Loudon<sup>10</sup> says that costs in a general-practitioner hospital are roughly half. Gruer<sup>11</sup> described the economic benefits of consultants visiting peripheral units, finding that when the total cost is worked out (both consultant costs and community costs) "the arrangement which is most convenient for the patient is also the least expensive."

Finally, general-practitioner participation in hospital work, either in general-practitioner hospitals in rural areas or in the district general hospitals in the urban areas, could have a most beneficial effect on the status of general practice and on future recruitment to it. At present very few medical students start out intending to enter general practice and tend to drift into it later as a second best. But if it could be guaranteed that they would lead a medically fuller life than they do at present—if it were obligatory for all general practitioners to be associated one way or another with a hospital—this attitude might well be changed. They would not feel then so "untimely ripped" from the protective environment in which they had grown up and would still be living in part among the familiar trappings of hospital medicine.

It is not money alone that causes young doctors to leave the country for the U.S.A. or Canada. It is the better, fuller medical life they find there, with hospital attachments and all the facilities they need to practise good medicine. And this view is supported by the fact that a practice vacancy in the U.K. if associated with a general-practitioner hospital will not fail to attract many applicants of high standard. Probably the growth of vocational training envisaged in the Todd Report<sup>1,2</sup> would make these points even more relevant.

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# Problems of the Newborn

## Feeding

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"It is gluttony more than genes which causes us to degenerate."  
(Leading Article, *B.M.J.*, 1965)

Those burdens of adult life—obesity, atherosclerosis, and hypertension—would seem out of place when discussing the newly born. Yet there is some evidence, and more speculation, that these and possibly other illnesses affecting prosperous countries, may not be entirely unrelated to present infant feeding practices. About 80% of the nation's babies are now fed artificially, and the reasons mothers have for not breast feeding are complex. Perhaps the commonest, as Dr. Mavis Gunther has said, is "the pleasure of seeing the stuff go in. This pleasure takes thousands of people to the zoo and it warms the hearts of little girls who are allowed to feed visiting babies." Too much of the wrong stuff may be going in at present, and perhaps we should stop to consider possible consequences. Some aspects of feeding which strictly speaking concern the older infant more than the newly born will be discussed, for the mother is likely to be seeking her family doctor's advice in the days after delivery, and he will find this a convenient time to provide her with some guidelines for the following months.

### Some Differences between Breast-fed and Artificially Fed Infants

Most mothers are now delivered in hospital, and hospitals must assume responsibility for giving their babies relatively large volumes of cow's milk from birth in recent years. Moreover, during the first month of life a sizable proportion of these babies are plied with cereals and within a relatively short time other mixed feeding as well. Breast fed infants are never obese; the artificially fed are becoming so with increasing frequency. This obesity often persists into later childhood, when successful treatment is notoriously difficult. Newly born rats if given very large feeds in the first weeks of life continue

to demand them, grow big and sleek, and tend to die younger than their less well fed controls.

The absorption of foreign proteins from the gut into the circulation is likely to be another consequence of early liberal feeding with cow's milk and a mixed diet, for probably the gut may be unusually permeable in the first weeks of life. Babies given cow's milk from birth soon develop circulating antibodies against it, and there is considerable interest in their possible role in causing later disease. The fact that eczema and asthma are more common in the artificially fed may be relevant in this context. Patients with ulcerative colitis are more likely than healthy controls to have high titres of circulating antibodies to cow's milk protein, and more likely to have been weaned from the breast during the first month of life. There is also similar evidence in patients with coronary artery disease<sup>1</sup>—and a necropsy study of infants and young adults has incriminated early feeding with both cow's milk and cereals in the production of atherosclerosis.<sup>2</sup>

### DANGERS OF HYPERNATRAEMIA

Cow's milk contains roughly three times as much salt as human milk. Reconstituted dried milk, if improperly prepared (see below), may contain even more, presenting the newborn kidney with a considerable load which it may have difficulty in excreting. If a baby develops a feverish illness, the intake of salt and fluid may be reduced; but there will also be an increased loss of water from the lungs and skin and, if there is diarrhoea as well, much water may be lost in the stools. So the amount of water available for renal excretion may be very limited, and the concentration of sodium in the serum rises. Such hypernatraemia is almost confined to the artificially fed, and is all too frequently responsible for brain damage and later intellectual retardation.

There is another theoretical and as yet unproved danger in a sustained high salt intake during early infancy—that of later hypertension. Unfortunately research trying to determine whether there is a relation between an excessive intake of salt and hypertension has concentrated on population studies and the adult salt intake. Yet experiments with rats known to be predisposed to hypertension suggest that they develop it more readily if they are fed salt when they are young. Today, in the