

EMERGENCY ADMISSION TO HOSPITAL FROM A DEPUTIZING SERVICE

A CONTROLLED STUDY OF DURATION OF STAY AND OUTCOME

B. T. WILLIAMS, R. A. DIXON AND J. KNOWELDEN

Medical Care Research Unit, Department of Community Medicine, University of Sheffield

The Gillie report on The Field of Work of the Family Doctor (Ministry of Health, 1963) maintained that the family doctor's personal knowledge of his patients equips him as 'the essential intermediary in the transmission of specialist skills to the individual'; and, 'without this function of the personal doctor, the hospital service can be used wastefully, even damagingly to the patient'.

The use of a deputizing service implies a departure from personal doctoring since the doctors who act as deputies, many of whom are employed primarily in the hospital service (Williams, Dixon, and Knowelden, 1973), are unlikely to be acquainted with the patients they are called upon to treat. To determine whether this led to a wasteful use of the hospital service, a group of patients referred for admission to a Nottingham hospital in 1970 by deputizing service doctors was compared for duration of stay and outcome of admission with a group referred by doctors not using the deputizing service. The comparison was restricted to patients admitted only during the hours when the deputizing service was operating.

CHOICE OF NOTTINGHAM

Nottingham was a suitable place to study for several reasons. A deputizing service had operated in the city since 1965 and by 1970 four out of every five general practitioners used it in varying degrees (Williams *et al.*, 1973). The deputizing service was available in nearly every part of the catchment area of the Nottingham hospitals and these hospitals had co-ordinated their admission policies so that, in the main specialties, only one hospital received emergency admissions on any one day irrespective of the source of referral. Thus no bias was introduced in the way in which the deputizing service or other doctors directed their referrals. No bed-bureau or other agency intervened between the referring doctor and the duty doctor in the receiving specialty. Finally, Hospital Activity Analysis had been fully

implemented in the Nottingham hospitals by 1970.

In 1970, the British Medical Association Deputizing Service in Nottingham received 17,215 calls which resulted in 16,028 consultations with deputizing service doctors; 1,373 (9%) of these consultations led to referral of the patient to hospital for immediate admission; 557 (41%) of these referrals were to the hospital used for this study; this hospital had the largest number (651) of non-psychiatric beds in the city but no accident and emergency department.

METHOD

As a routine practice in this hospital, when an emergency admission was arranged the duty telephonist completed a form on which, among other details, the referring source, deputizing service or other doctor was noted. All such forms completed in the periods of the day or night when the deputizing service was operating (and only those periods) were selected with the exception of those relating to the immediate admission of routine maternity cases. Eighty-three deputizing service referrals were excluded for this reason.

The identification numbers of patients admitted were noted and copies of their Hospital Activity Analysis punch cards were obtained from the Sheffield Regional Hospital Board. A column was used on each card to distinguish cases admitted via the deputizing service from those admitted via doctors not using the deputizing service; 1,703 cards were analysed.

RESULTS

Similar proportions (97%) of those referred for admission by the deputizing service doctors and by other doctors were actually admitted (Table I); thus no bias was introduced through selective rejection by the hospital of cases from one source or the other.

The two groups of patients admitted resembled each other closely in respect of factors known to

TABLE I
NUMBERS AND PROPORTIONS ADMITTED BY SOURCE

	Deputizing Service		Other Sources	
	(No.)	(%)	(No.)	(%)
Admitted	459	96.8	1,244	96.7
Not admitted	15	3.2	42	3.3
All referrals	474	100	1,286	100

influence duration of stay and mode of discharge, viz., sex, age, marital status, clinical specialty, and diagnostic group (Table II).

The distributions of mode of discharge from hospital were similar in the two groups (Table III) and, in particular, the proportions dying in hospital were identical.

At every interval that elapsed after admission the cumulative proportions discharged alive in each group were similar (Table IV). After three days 27% of the live discharges of deputizing service patients had already taken place compared with a similar proportion (25%) of those of the patients from other doctors. After three days in hospital all cases should have had an adequate appraisal even when admitted at the beginning of a weekend when diagnostic facilities may not have been fully available. If the admission of a patient was thought to have been unwarranted on clinical grounds it is unlikely that the patient would have been retained longer than three days.

Operations were performed on 30% (139) of the patients admitted from the deputizing service and on the same proportion—30% (369)—of those admitted by other doctors.

COMMENT

No evidence has emerged from this study to suggest that patients are referred unnecessarily to hospital more often by deputizing service doctors than by others.

The hospital admitted similar proportions of those referred from each source; the case mix by age, sex, marital status, clinical service, and diagnosis of patients admitted from the deputizing service was similar to that in the comparison group; the deputizing service referrals were no less likely to die in hospital or to have operations and, if discharged alive, were no more likely to leave hospital soon after admission, i.e., the deputizing service referrals for admission did not appear trivial compared with those from other sources. It might be argued that similarity in duration of stay could result from excessively rigid

TABLE II
COMPARISON OF PATIENTS ADMITTED BY DEPUTIZING SERVICE AND OTHER DOCTORS

	Deputizing Service (n = 459)		Other Doctors (n = 1,244)	
	%	%	%	%
Sex:				
Male	46.4		46.0	
Age:				
0-14	20.1		16.0	
15-44	37.3		35.1	
45-64	18.1		22.5	
65+	24.6		26.3	
Marital status*				
Male				
Married	74.8		73.7	
Other	25.2		26.3	
Female				
Married	68.8		65.4	
Other	31.2		34.6	
Specialty:				
General medicine	38.3		41.9	
General surgery	31.8		29.0	
Gynaecology	15.9		17.9	
Other	13.9		11.2	
Diagnostic group:				
ICD 390-458: circulatory	17.3		19.6	
ICD 460-519: respiratory	17.0		12.9	
ICD 520-577: digestive	19.3		19.1	
ICD 630-678: pregnancy	15.9		16.5	
ICD 780-796: symptoms, ill-defined conditions	11.0		10.2	
All other	19.5		21.7	

* Patients aged 15 and over

TABLE III
DISPOSAL BY SOURCE OF REFERRAL

Disposal	Deputizing Service (n = 459)		Other Sources (n = 1,244)	
	%	%	%	%
Died	11.8		11.8	
Home	75.8		74.8	
Transfer	12.2		12.9	
Other	0.2		0.6	
All outcomes	100		100	

TABLE IV
LIVE DISCHARGES: CUMULATIVE PROPORTIONS DISCHARGED BY TIME SINCE ADMISSION, BY SOURCE: BOTH SEXES

Days since Admission	Deputizing Service (n = 402)		Other Doctors (n = 1,097)	
	%	%	%	%
0	2		1	
1	9		9	
2-3	27		25	
4-7	54		48	
8-14	78		76	
15-29	93		93	
30+	100		100	

hospital routines which disguised real differences in the severity of the illnesses treated; but such an explanation could hardly apply to the similarity in hospital fatality and in the proportions operated upon. It is reasonable to conclude, therefore, that the conditions of patients admitted from the deputizing service and from other sources were of equal severity.

In trying to explain why the expected differences in the type of case admitted did not materialize, it must be noted that all that was known of the non-deputizing service doctors is that they were not using the deputizing service on these occasions. It is not known how many of them were the patients' own general practitioners, their partners, assistants, locums, or doctors manning an off-duty rota. Nevertheless, it is likely that many of the patients referred by those in the non-deputizing service group were seen by doctors familiar with their previous medical histories.

The similarities in the type of patient referred to hospital by the two groups of doctors, and in their subsequent experiences in hospital, suggest that knowledge of a patient's past medical history and general circumstances is not crucial (as had been thought) in determining proper use of hospital resources *for emergencies*. We can offer no evidence, however, on the relationship of such knowledge to other types of admission to hospital; nor can we assume that the findings which relate to the BMA Deputizing Service in Nottingham would apply to all other deputizing services.

SUMMARY

The duration of stay and mode of discharge of 459 patients admitted as emergencies to a Nottingham hospital in 1970 via a general practitioner deputizing service was compared with that of 1,244

patients admitted as emergencies by doctors not using the deputizing service in the periods of the day when the deputizing service was operating.

The two groups of patients were similar with regard to age, sex, marital status, clinical specialty to which admitted, and diagnostic groupings.

Similar proportions (12%) died in hospital in each group; of those discharged alive, 27% of the deputizing service admissions and 25% of the non-deputizing service admissions had left hospital after three days; operations were performed on 30% of the patients in each group.

These similarities suggest that patients are not referred to hospital by a deputizing service for relatively trivial conditions.

Familiarity with patients' past medical histories and general circumstances does not appear to be crucial in determining the proper use of hospital resources for emergencies.

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REFERENCES

- MINISTRY OF HEALTH (1963). *The Field Work of the Family Doctor* (Gillie Report). Report of Subcommittee of Standing Medical Advisory Committee. H.M.S.O., London.
- WILLIAMS, B. T., DIXON, R. A., and KNOWELDEN, J. (1973). BMA Deputizing Service in Sheffield, 1970. *Brit. med. J.* 1, 593.