Comparing trainer and trainee referral rates: implications for education and allocation of resources

ALY RASHID

CAROL JAGGER

SUMMARY. Referral rates and urgency of referral to hospital by six pairs of trainers and trainees were compared over one month in 1986. From 5846 consultations, 327 resulted in referral to hospital. Overall, the referral rate was low at 5.6 per 100 consultations; however, there was considerable variation in individual referral rates with trainees tending to follow their trainer's referral patterns, despite statistical adjustment for sharing the same practice. This paper critically examines the wisdom of using general practitioner referral rates for the purpose of resource allocation and education.

Introduction

THERE is an increasing focus of attention on general practitioner referral patterns and rates; indeed even the government white paper on primary care[1] alluded to its importance. Perhaps this belief has been inspired by the concept that understanding variations in referral rates may help in the rational utilization of precious hospital resources. However, previous studies using small numbers[2-4] and a recent large study by Wilkin and Smith[5] have failed in their efforts to provide any satisfactory explanation for observed differences in referral rates which may vary from one to 24 patients referred per 100 consultations.

The information gained from referral studies has been notoriously difficult to interpret because of the difficulty of controlling the large number of practice and patient variables. As early as 1971, Morell[2] concluded that age, sex and social class individually as variables did not explain differences in referral rates; subsequent studies have confirmed this finding. Attempts to relate referral behaviour of general practitioners to their date of qualification, possession of higher qualifications and practice list size have also been unsuccessful.[2,5]

Mitchell and Porter,[6] commenting on wasted resources, stated that to plan clinical services in the National Health Service, organizers of vocational training schemes needed to audit the impact of the new generation of trainees on patterns of practice (in particular referral patterns to hospital) as they are gradually replacing general practitioners who did not necessarily have the benefits of organized vocational training. This study is an attempt to explore the above statement and its implications.

Method

A questionnaire was used to collect the age and sex of patient referred; location (surgery or home visit) and time of consultation; and the urgency of referral (emergency, urgent outpatients or routine outpatients). The total number of patients seen during the study was also recorded. The questionnaire was designed to minimize disruption to the practices during the study and in fact during pilot studies it took of the order of one minute to complete a questionnaire for each referral. The questionnaire was then distributed to all trainers and trainees on the Salford vocational training scheme at the time of the study (1985/86).

A total of six pairs of trainers and trainees took part in the study. The study ran for one month during which there were no reports of major or minor epidemics of illness in the area which may have biased the results. The practices were all in urban areas situated within a three mile radius of a major teaching hospital.

Referral frequency in this study was expressed as referrals to hospital outpatient departments per 100 consultations. Statistical analysis of referral rates and urgency of referral were carried out by fitting log linear models to the rates using the GLIM programme (generalised linear interactive modelling). For both analyses the changes in deviance between the models can be compared with the chi-squared distribution.

Results

During this one month survey a total of 3875 patients were seen by the six general practitioner trainers. Of these, 216 (89 males and 127 females) were referred to hospital (referral rate 5.6%). The six general practitioner trainees saw 1974 patients in the same period. Of these, 111 (52 males and 59 females) were referred (referral rate 5.6%). The age and sex characteristics of referred patients are given in Figure 1. Trainees had higher referral rates among younger patients than trainers.

Individual referral rates per 100 consultations for the six pairs of trainers and trainees by practice are given in Table 1. This shows a variation in referral rate between 2.3 and 10.5 per 100 consultations for trainers and 3.3 to 10.3 per 100 consultations for trainees.

Of patients referred by trainers, 17% were seen on visits (6% on emergency calls/visits) and 83% in surgery. General practitioner trainees referred 27% of patients on visits (11% on emergency calls/visits) and 73% from surgery.

There was a significant difference in referral rates (χ^2 = 34.8,

Table 1. Individual referral rates per 100 consultations for trainers and trainees.

	Referral rate per 100 consultations (no. of patients referred/no. of patients seen)	
Practice	Trainer	Trainee
A	2.3 (16/685)	7.0 (21/299)
B	5.0 (47/939)	5.0 (22/440)
C	4.9 (31/632)	4.6 (22/475)
D	7.0 (33/472)	3.3 (10/306)
E	5.3 (32/605)	6.7 (20/299)
F	10.5 (57/542)	10.3 (16/155)

A Rashid, MRCGP, general practitioner, Leicester; C Jagger, PhD, lecturer in medical statistics, Department of Community Health, University of Leicester.

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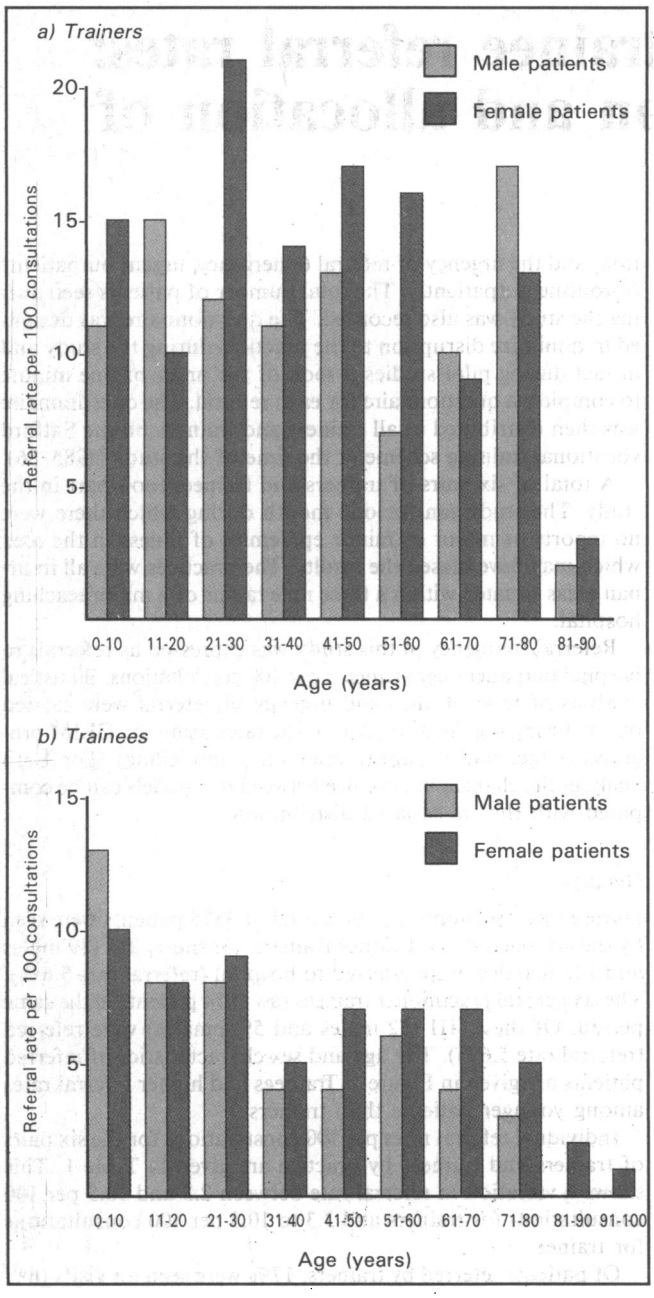

Figure 1. *Referral rates per 100 consultations by age and sex of patients.*

df = 5, $P<0.001$) between the pairs of trainers and trainees, but the trainers did not differ significantly from their trainees within the pairings.

Table 2 shows that referrals for emergency admissions were twice as high for trainees than for trainers. The three degrees of urgency were analysed separately. There was a significant difference in the rates between the pairs of trainers and trainees with respect to emergency admissions (χ^2 = 8.177, df = 1, $P<0.001$) and routine admissions (χ^2 = 6.316, df = 1, $P<0.01$), but no significant difference in the rates for urgent admissions. The relative risk of an emergency admission for a trainee as compared with that for a trainer was 1.85 (95% confidence intervals 1.20, 2.83) while the same relative risk for routine admission was 0.65 (0.46, 0.96). Hence trainees were nearly twice as likely to refer patients as emergency admissions than trainers.

Table 2. Urgency of referrals by trainers and trainees.

	Percentage of referrals		
	Emergency admission	Urgent outpatients	Routine outpatients
Trainers (n = 216)	*21*	*14*	*64*
Trainees (n = 111)	*42*	*17*	*41*

n = total number of referrals.

Discussion

Since the introduction of vocational training for general practice much has been expected of trainers in raising the standard of general practice. This study was designed to see if referral rates and urgency of referral to hospital could be used as performance indicators of general practitioner standards for the purpose of resource allocation.

The question can be asked whether auditing referral rates is worthwhile in view of the many studies which have found it an impossible task to explain variations in referral rates.[2-5] This study shows that vocational training does not appear to have had an impact on reducing the wide variation in referral rates observed between general practitioners. It was also interesting to observe that trainees tended to follow their trainer's referral patterns. This could be one explanation of why there continue to be differences in referral rates between general practitioners (the data from this study is more recent than any published work to date on this subject), although it is difficult to quantify the influence of practice characteristics and availability of hospital resources.

This study indicates that trainees referred patients to hospital with a significantly greater degree of urgency than trainers. It may be that experience in general practice — observing patients over a longer time span and knowledge of patients and their expectations — promotes a higher threshold for urgent referrals in trainers than in trainees. Alternatively it could be that despite being well into their trainee year, trainees remain more available to see acute problems than established partners in a practice. Unless proper guidelines for referral are formulated (perhaps by discussions between general practitioners and consultants) the decision-making process by which urgency of referral is determined will remain essentially ill-understood. Further study into this aspect of referrals to hospital is needed because the length of time a patient has to wait for a hospital appointment may determine compliance in keeping that appointment. One recently published study suggests that non-compliance of patients with respect to referral to hospital is a problem.[7]

The government and family practitioner committees are keen to give general practitioners more information on their referral rates for comparison with neighbouring practices. For referral rates to be of any value and for researchers to be able to make any sense of them they will have to be studied using a combination of qualitative and quantitative approaches.[8,9] Others have gone so far as to say that referral problems may need to be analysed by case conference.[10] That would be an enormous undertaking even if general practitioners or their trainees agreed to provide such detailed data.

Before the government and health authorities commit substantial resources to monitoring and feedback on the basis of referral rates alone, they must ask themselves if such data can be used as a sensitive performance indicator.

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Address for correspondence

Dr A Rashid, St Matthews Medical Centre, Malabar Road, Leicester LE1 2PU.