PRACTICE OBSERVED

Practice Research

List size, screening methods, and other characteristics of practices in relation to preventive care

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Abstract

Twenty eight practices carried out a review of patient records for information about preventive procedures on two occasions in 1980 and 1982. We have now undertaken a survey of certain characteristics of the practices in an attempt to demonstrate features associated with effective preventive care. Significant favourable factors are a small list size, the setting up of a formal screening programme for cervical cytology and measuring blood pressure, and few registered patients in social classes IV and V. More successful practices also tend to be training practices, have principals with higher qualifications, and have developed good records organisation. Opportunistic screening for cervical cytology and measuring blood pressure was not shown to be more effective than no policy of screening at all.

Introduction

In a survey in 1980, 8522 records from 38 practices were examined for evidence of recorded preventive procedures. In 1982 the audit was repeated by 29 of these 38 practices, examining 6561 records.¹

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Analysis showed that the 1980 results of the nine practices that did not repeat the survey did not differ significantly from those of the practices that did. The rank order of the practices for each preventive procedure was similar on the two occasions. The results of the second survey have been reanalysed for practice characteristics associated with the preventive care of patients.

Methods

The 29 practices were invited to complete a practice profile questionnaire. Twenty eight participated; one could not because it had divided since the 1982 survey. The full questionnaire is available on request. Information about the patient list was derived chiefly from the family practitioner committee quarterly returns and included the registered list size, the number of elderly patients (aged over 65), and the number of new patient registrations and withdrawals during one year. An index of patient mobility was obtained by expressing the sum of new registrations and withdrawals as a percentage of the list size. Twenty five of the practices undertook an additional study in which each doctor recorded the social class of 100 consecutive patients who consulted. The social class of minors was based on that of the householder and of wives on their husbands. The number of patients in social classes IV and V as a percentage of the total number in social classes I to V was used as a social index. In an analysis of data from the Second National Morbidity Study such an index based on the social class of patients who consulted correlated closely with that based on the social class of patients who were registered.²

Information about the practice structure included the number of principals and their age and qualifications, whether the practice was a training practice, the number of hours that ancillary staff were employed, and practice policy for screening. Five features of records organisation were surveyed—use of A4 records, use of summary cards, possession of an age-sex register, maintenance of a disease at risk register, and use of a computer; practices were assigned a score (0-5) according to the number of these features that they possessed.

In each practice roughly 240 records were sampled by taking every third record in each alphabetic group up to a maximum of 10 records. The sampling method has been described.¹ Available information about six preventive procedures was studied: evidence of a cervical cytology examina-

association between performance in cervical cytology and in recording information about rubella immune state (table V). Other significant associations include cytology with blood pressure recording, rubella immune state with polio immunisation, and blood pressure recording with information on smoking. It is notable that success at primary immunisation was not significantly associated with any of the practice characteristics studied nor with success in other preventive procedures.

Discussion

The notable features of this survey are that practices seem to do steadily better with decreasing patient list size and that we failed to show any benefit from opportunistic screening. Smaller list sizes and more opportunistic screening have been widely advocated as means of improving the provision of medical care, but there is little evidence from research regarding the effect of either. In interpreting these data we must recognise the danger of generalising from practices that have selected themselves and also recorded themselves. Nevertheless, the practice characteristics that were analysed are in general provided by the family practitioner committees or are statements of fact that are not subject to bias. Furthermore, given the motivation in these practices for continuing education, they are more likely to provide useful information about the delivery of preventive care than randomly selected practices.

For years the General Medical Services Committee has campaigned for a reduction in list sizes, and in *General Practice—a British Success* it was argued that an average of 1700 patients would "allow doctors to spend sufficient time with each patient to deliver the standard of service at which we aim."³ In an editorial in the *Journal of the Royal College of General Practitioners* it was stated that "despite the fact that the number of patients that an average general practitioner can look after is one of the most crucial parameters in the whole field of primary medical care, remarkably little work has been carried out on it."⁴

The most comprehensive review was carried out by Butler,⁵ who found few consistent differences in the structure and process of care that related to list size. He found that doctors with larger lists had lower consultation rates and in general gained less satisfaction from their work. He has since studied standards and performance in relation to list size, of which the pilot study has been published.⁶

TABLE III—Mean performance measures in relation to practice policy for cervical cytology and blood pressure recording

Practice policy	Cervical cytology		Blood pressure	
	No. of practices	Mean rate	No. of practices	Mean rate
Screening programme and opportunistic policy	12	69.3	4	68.9
Screening programme, no opportunistic policy	9	65.0	5	71.0
Opportunistic policy, no screening programme	1	47.0	10	57.2
No screening programme and no opportunistic policy	6	55.7	9	54.9
Screening programme	21	67.5	9	69.9
No	7	54.4	19	56.1
Opportunistic policy	13	67.6	14	60.4
No	15	61.3	14	60.6

Results of Mann-Whitney U test (two-tailed): Yes vs No, $p < 0.05$, N/S.

TABLE IV—Mean performance measures by degree of records organisation

Degree of records organisation	No. of practices	Cervical cytology	Polio	Primary immunisation	Blood pressure	Smoking
0, 1, 2	8	63.8	32.3	77.8	54.0	21.5
3, 4	16	56.7	18.4	77.9	58.1	21.7
4, 5	10	64.7	44.7	78.8	60.6	36.1
Association R _s		0.50	0.54*	0.41	0.27	0.19*

* $p < 0.05$, one-tailed test. *Polio and primary immunisation based on 27 practices distributed as indicated in parentheses.

tion in the past five years (women aged 30-59); recording of rubella immune state (women aged 15-39); recording of polio immunisation (men and women aged 20-39); a record of completed primary immunisation (children aged 1-9); a blood pressure recording in the past five years (men aged 40-69); and recorded information about smoking (men and women aged 40-59). The percentage of eligible records in the 1982 survey in which a preventive procedure was recorded as having been carried out is referred to as a performance measure. There are thus six performance measures for each practice corresponding to the six preventive procedures studied. One practice did not complete the analysis for polio and primary immunisation.

The associations between the performance measures and the practice variables (list size, proportion of elderly, patient mobility, and social index) were examined using a two-tailed test of the Spearman correlation coefficient. Training characteristics and the influence of screening programmes were examined using a two-tailed Mann-Whitney U test. One purpose of improved records organisation is to achieve better preventive care, and so the records organisation score that was assigned to a practice was examined with a one-tailed test of the Spearman coefficient. Since attitudes towards preventive care would be expected to have similar effects in several variables of performance a one-tailed test was also used to examine the interrelations of performance measures.

Results

Effect of list size.—Table I gives the analysis of the performance measure in relation to three categories of list size per principal. The average list size was 2257 patients; in seven practices it was under 2000 and in 11 over 2500. There were decreasing rates for all performance measures (except a record of smoking) as the list size increased. The inverse association is highly significant for cytology, significant for polio immunisation, and just fails to reach significance at the 5% level for rubella immune state.

Effect of elderly population, patient mobility, and social index.—The proportion of elderly people was not significantly associated with any performance measures. Practices with a mobile list did significantly well for cytology, and the association with rubella just failed to achieve significance at the 5% level (table II). There was an inverse relation between the social index and performance measures that was significant for cytology and again just short of significant for rubella immune state. These features are not independent; in particular, the proportion of elderly people is inversely related to the patient mobility index ($R_s = -0.49$, $p < 0.01$). We therefore

TABLE I—Mean performance measures by patient list size per principal

List size per principal	No. of practices	Performance measures					
		Cervical cytology	Rubella	Polio	Primary immunisation	Blood pressure	Smoking
<2000	7 (6)	71.7	48.9	23.5	84.7	65.6	29.4
2000-2499	10	64.0	41.9	23.4	79.1	60.5	31.1
>2500	11	60.0	39.5	17.7	67.3	57.5	30.6
All practices	28 (27)	64.2	40.0	19.8	78.1	60.5	30.7
Association R _s		-0.50**	-0.35	-0.42*	-0.24	-0.11	0.21

*Polio and primary immunisation based on 27 practices, distributed as indicated in parentheses. ** $p < 0.05$, * $p < 0.01$, one-tailed test.

TABLE II—Mean performance measures by patient mobility and social index

Mobility index	No. of practices	Performance measures					
		Cervical cytology	Rubella	Polio	Primary immunisation	Blood pressure	Smoking
<13	8	55.1	36.5	17.8	75.9	51.6	30.9
13-19	8	61.9	40.1	23.4	80.1	62.6	31.1
19-25	7 (7)	68.9	42.4	23.1	84.1	63.5	31.2
>25	5	71.0	42.2	24.8	72.2	64.8	31.8
Association R _s		0.59**	0.36	0.27	-0.30	0.07	-0.11
Social index	No. of practices	Performance measures					
		Cervical cytology	Rubella	Polio	Primary immunisation	Blood pressure	Smoking
<30	5	72.6	54.8	20.2	78.2	63.8	31.2
30-39	8	67.7	44.4	23.1	79.0	60.5	31.1
>39	5	58.6	32.6	18.0	60.2	50.5	31.2
Association R _s		-0.44*	-0.38	0.07	-0.19	-0.31	-0.06

*Polio and primary immunisation based on 27 practices, distributed as indicated in parentheses. ** $p < 0.05$, * $p < 0.01$, one-tailed test.

considered whether the good performance by practices with mobile lists was because the sample of patients' records reviewed for cytology was biased towards the youngest 30-39 years of the three decades reviewed, where we know that rates are always higher. An analysis was made, and no such bias was found.

Effect of training practices, characteristics of principals, and ancillary staff employment.—Nineteen of the practices were training practices, in 22 at least half of the principals held a higher qualification, in 14 at least half had vocational training. None of the differences is individually significant, but the overall pattern of results is in favour of the training practices, those with principals with higher qualifications, and those with vocationally trained doctors is pronounced. Analysis of performance measures by the average age of principals produced no significant findings. Only four practices had three or fewer principals. Three of these practices employed ancillary staff for over 65 hours per principal per week, whereas no practice with four or more principals employed staff for more than 60 hours per principal per week. An analysis of performance measures in the 24 larger practices in relation to number of hours that staff were employed (measured per principal and per 100 patients) showed no association.

Effect of screening programmes for cervical cytology and measuring blood pressure.—A screening programme was defined as one in which patients were recruited by direct contact and an opportunistic policy of screening as one in which preventive procedures were carried out when patients consulted for other reasons. The best results were obtained where formal screening programmes existed (table III). In 10 practices an opportunistic policy for measuring blood pressure was reported in the absence of a formal screening programme, and their mean performance was scarcely different from that of the nine practices in which there was neither a screening programme nor a declared opportunistic policy. Comparing the practice results (Mann-Whitney U test)—two-tailed test for both cytology and blood pressure measurement, significantly higher levels of performance were found where a formal screening programme existed, regardless of whether there was a consistent opportunistic policy. Comparing the performance of practices with or without opportunistic screening policies regardless of whether there was formal screening programmes showed no significant difference.

Effect of records organisation.—Comparing the performance of practices with or without each of the five features of records that were reviewed showed no significant differences. In an analysis based on the total number of these features present better performance levels were achieved as the score increased, and these were significant for information on rubella, blood pressure, and smoking (table IV).

Interrelations of performance measures.—There was a highly significant

patients for those with small lists than for those with lists of over 2500 (a cut off point that may be lower in rural than urban practices). The implication is that with a large list a doctor can only respond to need, but with a smaller list the doctor may choose either to provide a service which includes better preventive care or to do other things. We would not claim that reduction in list size necessarily improves preventive care, but we suggest that if a doctor who wishes to improve a preventive service a smaller list size is an enabling factor.

In his review of the benefits of screening in general practice Fowler concludes that "There is no place for screening clinics. If anticipatory care is to be provided detection must be achieved on an opportunistic, case finding basis in patients who have taken the initiative to consult their doctor about some problem."⁷ The findings in our survey demonstrate the need to qualify this view, showing as they do the appreciable success of screening by direct contact, while failing to show any effect of a policy of opportunistic case finding.

The argument in favour of case finding is usually based on low cost and the fact that 90% of patients consult at least once every three years, but it is not difficult to see why it may not be effective. The doctor may not wish to change the direction of an important consultation, may be feeling ill or tired, or may be running late, or the time required to explain the procedure may be too great, especially to the least well informed patients who need it most. We should not conclude that all practices must begin formal screening clinics for preventive procedures, but it is important for doctors to appreciate that opportunistic screening during the consultation is not adequate. We advocate a system based on case finding methods but with procedures to ensure that patients presenting who need a procedure are indeed offered it and that the practice has a system for finding and inviting those who are missed. Such methods have been well described.⁸ Perhaps financial inducements are necessary and appropriate to encourage this kind of preventive care, especially with regard to blood pressure measurement.

100 YEARS AGO

Nowadays the Straits of Dover, like the Falls of Niagara, seem to offer an almost irresistible temptation to every one who hankers after risk or notoriety, and who thinks he can command the elements of air or water. Within the last few years the Channel has been crossed in balloon, in ship's dinghy, in canoe, in an inflated suit of clothes, and by a strong swimmer who subsequently met a premature death in endeavouring to satisfy the morbid public demand for sensationalism. In addition to these exploits, feats, attempts innumerable have been made to reach the coast of France in every but the ordinary, and to most persons preformable, method; and, had the intervening sea been shallow enough, some enterprising pedestrians would doubtless long ere this have endeavoured to walk across. The daily papers recently devoted a considerable portion of what they are sometimes pleased to term their "sport" space to a description of the voyage of eight young Oxonians, who embarked at Dover in a fragile craft built for racing on the placid waters of Thames and Isis, and who arrived at Calais four and a half hours later in various stages of collapse, owing to the severity of their exertions and the violence of the summer sun. The details of the voyage recalled those of the prize-fights of happily bygone days, the chief difference being that the professional pugilists had the excuse of wages or reward, and injured one another as much as possible, while the heroes of the Channel-row punished themselves, like fanatic flagellants, for no tangible profit or noteworthy purpose. A little national pride for the dogged obstinacy which gladdens our own, or such of them as were not utterly prostrated, to their throats until their self-imposed task was accomplished, is perhaps pardonable, but no healthy mind can approve the risk to health and life and the physical wear involved in such obstacles and dangerous enterprises. Sensational performances invariably provoke imitation, and already the example of the gentlemen-adventurers of the week last has been the excuse for some half-dozen less aristocratic and less successful attempts of a similar nature, and at least one narrow escape from drowning. Feats such as these prove nothing and accomplish nothing. They can be of no possible

TABLE V—Association between performance measures

	Rubella	Polio	Primary immunisation	Blood pressure	Smoking
Cervical cytology	0.49**	0.22	0.30	0.29	0.13
Rubella		0.39*	0.31	0.26	0.06
Polio			0.14	0.09	-0.30
Primary immunisation				0.05	0.17
Blood pressure					0.34*

* $p < 0.05$, ** $p < 0.01$, one-tailed test.

reporting associations between smaller list size and duration of consultation and accessibility of the doctor, but otherwise again finding little association between list size and standards. In this survey the standards of performance are based on the services that the doctors' practices offer and not on the outcome. Indeed, Butler stated: "The study is confined to organisational aspects of the structure and processes of care and has nothing to say about clinical behaviour or about the outcome of care." Wilkin and Metcalfe also found relations between a doctor's list and consultation rates, average consultation time, and the total time devoted to each patient in a year: a third of doctors with fewer than 2000 patients spent more than 30 minutes per patient per year, whereas of those with larger lists only 13% spent over 30 minutes.⁹

The results of our study contrast with those in all previous studies in being concerned with 1700 patients. Decreasing rates are shown for all performance measures except smoking as the list size increases. The significantly better performance of practices with small lists for cervical cytology occurs despite all the practices offering cervical smears and family planning. We can only hypothesize why practices with smaller lists should be more effective. Firstly, they may have a greater incentive to increase income by maximising time of service. Secondly, the longer time available for each patient may enable the doctor to use consultation techniques which improve compliance. Thirdly, a smaller list size may free the doctor from providing a service based on demand and enable him or her to plan better preventive care.

It is notable that Wilkin and Metcalfe found much greater variation in the amount of time that doctors spent in contact with

The records organisation score was associated with improved performance. It is easier to search well organised records, especially for items of information such as rubella immune state and smoking, but the findings of this survey show benefits across the range of performance measures, including those less dependent on good organisation of records. Furthermore, the items of records organisation which were scored do not act as direct prompts to doctors in the delivery of preventive care. It is likely that good records organisation and good preventive care reflect well organised practice. This conclusion is supported by the association between most of the preventive measures surveyed. Primary immunisation rates were a notable exception, perhaps because this is an activity that the health visitor carries out more often than the doctor.

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advantage to athletic science, nor will they lessen to weakly stomachs the terrors of the Channel. It is surely the duty of all lovers of healthy exercise to try to cultivate a better taste, and while encouraging and directing into useful channels the pluck and endurance which won Waterloo, and which have made England mistress of the world, to discourage unequivocally the performance of purposeless and foolhardy feats. (*British Medical Journal* 1885;ii:308.)

Multicultural medicine

Eye to eye contact.—There is more to it than meets the eye. In Western culture looking someone in the eye is a good thing, and during a conversation constant eye to eye contact is desired. Lack of eye to eye contact while talking is considered rude as it is supposed to show shyness and an indication to break contact. The Germans will show piercing eye to eye contact that even the English will shy away. The reverse is the case in Eastern culture. To look someone in the eye is rude and after an initial and intermittent eye to eye contact, to look away during a conversation is, in fact, a sign of respect. An ethnic Asian, Chinese, and Afro-Caribbean—whether a doctor or a patient—will look away when talking to an English doctor or patient as a sign of respect. An English patient should not be annoyed if an Asian doctor looks away while listening, and an English doctor should never keep looking in the eye of an Afro-Caribbean or Chinese woman, especially in front of her husband. An English man should not make eye at an Indian woman doctor, especially in her surgery. It could be very embarrassing.—ASHIRI QURESHI, general practitioner, Hounslow, Middlesex.