

Ways of influencing the behaviour of general practitioners

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SUMMARY. *What evidence is there for the success or failure of the different methods used to influence the behaviour of general practitioners, whether in their work with patients, or in the organization of a practice?*

This preliminary exploration of the literature suggests that, although change is always occurring, its deliberate inducement is usually slow and laborious. Doubt is cast on the efficacy of existing financial incentives, and of unsolicited feedback about performance. There is little evidence for the influence of audit on behaviour but personal contact with doctors, nurses and other colleagues, and to a lesser extent with patients, is relatively effective, both in influencing the teamwork of a practice and in more formal education. However, it is combinations of different methods which most successfully influence general practitioners.

Introduction

'Patient no. 1 Lev Nikolayevitch Tolstoy. Sanguine temperament. His delusion is that he can change others' lives with words'.¹

A VARIETY of individuals and organizations spend considerable time and effort trying to change the attitudes and practices of general practitioners. Pharmaceutical companies attempt to change doctors' prescribing habits; postgraduate medical centres try to keep general practitioners up to date; and leaders in the specialty try to establish what is good practice and provide the means to promote it. These groups and many others expend a great deal of energy and use a range of methods to put their message across and to influence behaviour. It is therefore important to establish what is known about changing the behaviour of doctors, in order to determine whether it is possible to generalize about the methods which are most successful.

This review is by no means exhaustive but should be seen as a preliminary exploration of the range of approaches.

Individuals generally go through a number of stages in changing their behaviour including awareness of the new idea, interest, appraisal, trial and finally adoption. Methods used to change behaviour may focus on different stages.

The decision to adopt a new idea depends on a personal calculation of costs and benefits by the doctor, but when the diffusion of new ideas through a group of people is studied, a pattern can be traced which is similar in a variety of different

groups, including doctors.^{2,3} The idea is initially taken up by a few innovators who are venturesome people and it then spreads, slowly at first, to include early adopters who are respected by the group. The rate then increases more rapidly as the majority take up the idea and finally slows again to include the laggards who hold traditional values.

Different people therefore may have underlying psychological, social and economic characteristics which cause them to take up new ideas at different rates. But the type of change to be brought about is also important. An idea might be perceived as advantageous in one setting but disadvantageous in another. The particular type of change is therefore likely to be an important factor in deciding whether the methods used to persuade general practitioners are successful. For example, it may be relatively easy to persuade doctors to change their prescribing of a particular drug since this is a decision which can be made by each doctor independently, but to bring a computer into a practice requires one general practitioner to persuade his partners and staff of the benefits.

We have to take into account, therefore, not only the range of methods and the status of the people promoting the ideas, but also that doctors are a varied group of people with different attitudes and circumstances, and that the type of change being promoted will influence which method is likely to succeed.

In this review it is not possible to analyse each method according to the characteristics of the general practitioner being influenced or according to the type of change envisaged. In addition, no attempt is made to define what is good practice or to determine whether the ideas being promoted are 'good' ones, even though this will have an important bearing on whether they are likely to be taken up.

From a large range of methods five broad groups in common use were chosen — financial incentives; personal contact; review of performance and unsolicited feedback; literature on prescribing; and vocational and continuing postgraduate education. It was felt they offered the best hope of finding objective evidence. They are not all mutually exclusive.

Financial incentives

The aim of financial incentives, such as special payments for particular services, is usually to encourage adoption of a definite treatment.

Since 1975 general practitioners have been paid for providing family planning services. Payment was originally on an item of service basis, but since 1978 this has only applied to the fitting of intrauterine devices; a capitation fee for undertaking to give services has become more important.

There was early scepticism about the possible effect of the special payment for providing family planning services.^{4,5} A study of contraceptive workload in the Trent region from 1973 to 1976 concluded that there had been little change for many practitioners.⁴ However, a national study in 1981 found an enormous change in the previous few years in the involvement of general practitioners in family planning.⁶ But it is not possible to make a firm causal connection between the expansion which has occurred since the early 1970s and the introduction of family planning payments. Increased patient demand and other factors such as vocational training must have had an important influence.

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There has been considerable expansion in the number of examinations for cervical cancer carried out by general practitioners — in 1966 they carried out 9% of the small total number of tests but by 1980 this had increased to 43% of a much larger number. In this instance it is even clearer that the existence of the payment has been only one among several influences. General practitioners are paid only for testing women who are over 35 years of age or have had three or more children. In 1980, about 45% of the tests carried out by general practitioners were to women outside these groups. Changes in patient demand and in medical attitudes may have been just as important as payment.⁷

There are also special payments for immunization. Some immunizations were established well before these payments were introduced in 1965 but changes in immunization rates seem mainly to have reflected changing public anxieties, for example about pertussis immunization. Certainly there has been no significant general increase in rates of uptake since the mid-1960s.

On the other hand, the existence of fees for obstetric care has not prevented a major reduction in the number of general practitioners who provide a full obstetric service — about 45% did so in the mid-1960s, compared with 15% in 1983.⁸ In this case the fee (at present £109) does not appear to have been enough to compensate doctors for the work involved. Major changes in obstetric care were the dominating influence in this case.

Another form of financial incentive is assistance with investment in new premises and equipment. Here the evidence suggests that incentives have been effective.⁹ The General Practice Finance Corporation's cost rent scheme has been widely taken up, while the computer scheme of the Department of Industry has attracted 140 volunteer practices (many others applied), which have met a high proportion of the costs themselves.

At present the evidence does not allow many firm conclusions about the effect of financial incentives.

Personal contact

The lives of general practitioners are full of personal contacts: with medical colleagues, patients, other professionals and visitors to their practices.

Colleagues in general practice

Historically general practitioners have worked in isolation. Partnerships, group practices and teamwork have helped to change this, although it is still common to find doctors working in one building but holding no regular meetings together. Although one study in East Anglia concluded that '36% of East Anglian region doctors were meeting regularly for educational purposes at 74 separate group meetings', this rate of attendance is likely to be unusually high.¹⁰ However, the number of small discussion groups has increased in recent years.

A new development is that of one practice paying visits to another. The visits take place by invitation and are based on agreed criteria and specific methods.¹¹ Visits using these criteria have taken place in Kent, Lancashire and Oxfordshire. So far information on process has been published, but none on outcome; this may become available later through return visits.¹²

Dowie's study¹³ provides some evidence of the importance of personal contact within practices — older doctors said that they learnt a great deal from their younger partners about new techniques. Taylor claimed success in changing attitudes to prescribing through group discussion of prescribing for fictitious patients.¹⁴

Patients

Cartwright¹⁵ and Jefferys and Sachs¹⁶ agree that generally patients like what they know and most are reluctant to complain. Pressure for change in practice organization is therefore unlikely to come from patients. Practices with a greater proportion of

middle-class or younger patients are the most likely to change.¹⁶

Patient participation groups provide a direct method by which patients can change practice organization. A study of these groups is under way at the Policy Studies Institute (Richardson A. Personal communication) and there is already some evidence that they can lead to changes, for instance in appointment and communication systems.

Other professional staff

Teamwork within a practice can change the balance of activities. Cartwright^{15,17} showed that the proportion of doctors who had a nurse working in the practice increased from 12% in 1964 to 84% in 1977 and argued that this change had altered the range of tasks which these doctors were undertaking. Doctors were more likely to undertake procedures such as fitting intrauterine devices, excising cysts, taking blood or stitching cuts if there was a nurse in the practice. The strongest correlation was with nurses who were employed by the practice rather than attached. However, it may be questioned whether this relationship is one of cause and effect. There may be other factors at work, such as the changing age or outlook of doctors, which lead them to employ nurses and to undertake more activities. It is, however, a considerable change which has to be accounted for. Seventy per cent reimbursement for employed staff, introduced in 1966, is likely to have been an important factor.

Other professionals, such as social workers and community nurses, are also attached to practices. Local case studies suggest that such attachments lead to increased referral to these workers and to changes in attitude.¹⁸⁻²² It is not clear whether these effects would continue if attachments went beyond a self-selected group of enthusiasts but the evidence from these studies is of considerable change. Nine doctors in a south London group practice, with a four-year history of social work attachments, were asked how these attachments had affected their work.¹⁸ All considered that the attachments had been 'very helpful' and agreed that the social workers had influenced their management and awareness of patients' psychosocial problems. They stressed the importance of face-to-face contact and the lack of formality in the referral procedure.

An evaluation of a one-year attachment of three community psychiatric nurses to three group practices in Oxford found a redistribution of the doctors' workloads.¹⁹ The 'level of involvement' of each doctor with patients referred to the nurse was scored before and after the referral and found to drop by 50%.

Ten large practice teams in southern England were studied by Law²⁰ using a questionnaire and interview. Health visitors were found to be attached to all practices and were reported by all the practitioners to have 'initiated new ideas' and 'enriched the practice work', by running infant welfare, antenatal, geriatric and dietetic clinics.

The study by Lyall²¹ of nine practices in north-west London working with marriage guidance counsellors showed that a counsellor can reduce consultations by a third, all prescribing by nearly half and prescribing of psychotropic drugs by a third.

Similar results were found in a controlled study of the attachment of a clinical psychologist to a group of six general practitioners.²² Apart from benefit to patients there was a clear reduction in the number of consultations and in prescription costs for psychotropic drugs in the subject group compared with the control group.

Visitors

General practitioners receive visits from a variety of people. These include regional medical officers who have traditionally been concerned with prescribing habits, but often take a broader

view of their role; representatives from family practitioner committees; and recently 'general practice facilitators'.

No evidence could be found of the effect of visits by regional medical officers on changes in behaviour. One article²³ suggests that some family practitioner committees may be using visits not only to ensure that minimum standards for premises are met but also to help general practitioners to make improvements.

There is one recorded experiment of an experienced general practitioner visiting other doctors in an inner city area to discuss, in particular, improvements in premises.²⁴ This 'general practice facilitator' was successful in making contact and in promoting some changes, although no measure of lasting effect is available.

The work of Courtenay and colleagues in the St Thomas' district deserves special mention.²⁵ They visited 60% of all the practitioners in the district and invited them to work in the Department of General Practice on a project which would improve their practices. Six doctors were admitted to the subsequent fellowship course. The changes in these doctors and their practices at the end of the course were measured and described. (Sixteen more doctors have since been admitted. Personal communication, 1985.)

The evidence suggests that personal contact has a considerable effect on the behaviour of general practitioners.

Audit and feedback

Voluntary self-audit might be thought to lie outside the subject of this article. In reality, for most general practitioners this is a new task which is encouraged from outside and which asks for a willingness to face failures, to discard illusions and to make honest comparisons with the work of other doctors. Moreover, it is not always voluntary, for example, in the selection of trainers. If it proved to be a successful method of inducing change, its obligatory use might increase.

Unsolicited feedback is a form of audit or performance review which is not done by the doctor or at his request.

Self-audit

In the study of Walters and colleagues²⁶ 129 general practitioners in the Doncaster area were asked by their local medical committee to conduct a 14-day analysis of their prescribing of psychotropic drugs. They were also asked about their attitude to self-audit. Thirty-six (28%) of the doctors returned completed sheets and the authors concluded that the outlook for this type of review is bleak. Reilly and Patten²⁷ reached a similar conclusion, when they attempted to change prescribing habits by the use of a similar request to doctors to review their own behaviour. However, these two studies do not go on to describe the effect of audit on practice.

In contrast, Fleming and Lawrence^{28,29} studied the effect of audit on preventive measures in the Oxford region. This study, which involved doctors from 29 practices, who had volunteered for a local postgraduate course, was repeated after two and a half years. A total of 6500 records were examined on each occasion and substantial improvements were found. The change in the mean recorded rate for cervical cytology was from 56% to 64%; for rubella immunity 28% to 40%; for poliomyelitis immunity in adults 15% to 21%; for completed primary immunization 68% to 78%; for recorded blood pressure 53% to 61%; and for recorded information about smoking habits 22% to 30%. Although it seems probable that by concentrating attention on these areas the audit was responsible for the changes observed, there was no control group; so the contribution of other influences could not be assessed.

Another successful example of behaviour change is described by Sheldon.³⁰ Dissatisfied with their treatment of fungal

skin infections, his partners examined their prescribing for these conditions. Having changed to more effective prescriptions as a result, they reviewed the situation two years later and recorded that, for the same number of episodes of illness there had been a decrease in the total number of items prescribed, their cost and the number of consultations required.

Wilks³¹ recorded a dramatic fall in his prescribing of psychotropic drugs after a review. The fall was sustained five years later although the national average had risen.

It cannot always be assumed that where an audit does induce change, the change persists. Harris and colleagues³² studied the extent to which general practitioners changed their prescribing habits when they were given analyses of their prescriptions every six months and then brought together in small groups to discuss their reactions to the information. The reduction in prescribing rate was not statistically significant compared with a control group, but there was significant change in the cost per item and in the doctors' rate of prescribing by generic name. However, when the study was repeated two years later only the change in prescribing by generic name had survived.³³

Unsolicited feedback

There have been attempts to change behaviour by the circulation of comparisons of performance between individual practitioners and between practices. The Prescription Pricing Authority's circulation of prescribing rates is the best established scheme of this kind, but there have been other attempts to circulate immunization rates and similar data. There is no evidence of their effectiveness. Meanwhile evidence from the USA suggests that such methods are effective only when combined with other educational methods, involving personal contact and personal judgements.³⁴⁻³⁶

It is too early to assess the success of audit or feedback at changing behaviour or improving quality.

Literature about prescribing

The consideration of the effect of literature is confined to an area where a particularly persistent effort has been made to influence the behaviour of general practitioners: the adoption of new drugs.

Three studies, undertaken between 1966 and 1980, have asked doctors for their view of the relative usefulness of different sources of information about drugs.³⁷⁻³⁹ It was found that written sources of information (particularly those from the pharmaceutical industry) were regarded as second in usefulness after visits from drug firm representatives in getting to know about a new drug. In evaluating the efficacy of a new drug, journal articles were felt to be most useful, followed by consultant recommendations. These findings are confirmed by the detailed study of the introduction of a particular drug in the USA.³ Two stages — information or 'first news', followed by confirmation of efficacy — are generally required by doctors, whether they are early or late adopters of new ideas.

In 1977 Slatter⁴⁰ estimated that, while all doctors do not read the material sent to them by pharmaceutical companies, 'as many as 70% might glance briefly at what they receive'.

Marked changes in the rate at which different groups of drugs were prescribed have been recorded between 1975 and 1982⁴¹ and Mapes and Williams found similar evidence for 1970-75.⁴² But what evidence is there to suggest that prescribing is influenced by the written word more than by other sources of information?

The Mersey Regional Drug Information Service circulates a drug information letter,⁴³ and a related analysis of regional prescribing trends in general practice for 17 categories of drugs showed sustained changes which correlated well with the recom-

mentations in the letter. Changes of 2–14% were maintained for periods of between one and five years. The authors conclude that this indicates that changes in prescribing may be affected by non-commercial sources of information.

Dadja⁴⁴ throws some light on the question of whether reading advertisements causes doctors to change their behaviour. He related the number of advertisements for drugs in 84 therapeutic groups sent to the doctors in three group practices in Swansea to the number of items in each therapeutic group prescribed by these doctors. The strong correlation (0.80) suggests that more advertising of drugs in particular therapeutic groups resulted in more prescriptions for those drugs. But high prescribing of an already successful drug may stimulate additional advertising in order to maintain the drug's success. So proof of the effectiveness of advertising is not conclusive.

The effect of disseminating information from controlled clinical trials of two drugs was studied by Finkelstein and colleagues.⁴⁵ Both drugs were in common use in the USA but clinical trials had demonstrated their ineffectiveness and risks. The authors concluded: 'It is possible to change the behaviour of health practitioners as a result of negative clinical trials of treatments for mental disorders, even when there is no suitable or convenient alternative treatment. The decline in the use of these drugs could be traced at least in part to the increase of communication of the trial results in the published media. New clinical trials were suppressed. Expert opinion seemed to accept the findings from the trials. Established practices were abandoned. Fear of malpractice suits may play a part in this American finding, but does not invalidate it.'

Clearly the written word is an important source of information and the description of clinical trials requires such detail that the written word is likely to be the best means of communication. However, its influence cannot be isolated from other influences, notably personal contact, discussion and advice and general practitioners read less than other doctors and prefer review articles.⁴⁶

Vocational and continuing education

Most people assume that education changes behaviour, but it is not easy to find convincing evidence that vocational or continuing training changes the behaviour of future general practitioners or those in post.

McGuire⁴⁷ distinguished three recognized methods of evaluating continuing medical education programmes: the course participants' view of the programme; the soundness of the programme in terms of educational principles; and the educational efficacy of the programme, that is its outcomes, such as induced change in a doctor's practice. Participants state, not infrequently, that their behaviour changed as a result of the course and, if their views are sought at intervals after the event, they even report lasting change. But the results from the third form of evaluation are more convincing since they are not biased by the wishful thinking of the participants. McGuire and colleagues⁴⁸ referred to a continuing medical education programme on auscultatory skills: 'Participants reported that a pilot programme of intensive instruction in cardiac auscultation had been extremely interesting and valuable to them . . . Participants' scores on a post-test of heart sounds showed statistically significant gains over pre-test scores; however, scores on six-month follow-up were not significantly different from pre-test scores. Chart review revealed no influence of instruction on the quality of the cardiovascular examination, as recorded in hospital charts, either immediately following instruction or at the six-month follow-up point.'

It is particularly difficult to make comparisons with a suitable control group of doctors in this field of study. Evered and Williams⁴⁹ reviewed the systems of continuing medical education described in all 51 papers published in English between 1960 and 1979 listed in the *Index Medicus* under 'continuing medical

education', if their titles suggested methodological examination. Only 11 proved to contain any objective data and only four of these included adequate control data. Evered and Williams did, however, conclude that objective gains in knowledge may be achieved by postgraduate courses and lectures, but that this information is likely to be retained only if subjected to periodic reinforcement.

So, valid and convincing evidence of the efficacy of vocational and continuing education is not plentiful. The first attempt at an objective study was carried out by Youmans in 1935.⁵⁰ He evaluated a four-month course by subsequent observation of all the participating general practitioners individually in their offices. He concluded that practical work, or working with patients under supervision, was the most valuable learning experience.

Byrne and Freeman⁵¹ provided an important example of gains in knowledge and problem-solving skills in their study of vocational trainees. To assess factual recall and problem-solving skills among others, they administered a battery of assessment measures to the trainee intake of a number of postgraduate training courses for general practice, on a pre-course/post-course basis. The tests were administered in parallel to a similar number of registered general practitioners. The results showed a significant improvement in post-test scores, particularly among the poorer students and in problem-solving skills. The study, therefore, demonstrated change attributable to a training course, but not change in the subsequent clinical practice of trainees; nor, without follow-up, could it demonstrate whether change was lasting.

In the UK Cartwright and Anderson¹⁷ have provided the only evidence so far of the effect on patients of vocational training programmes for general practice — the ultimate object of influencing doctors to change behaviour. They compared the answers to questions given by the patients of doctors who had been through a three-year training with those given by patients of doctors who had not. The overall difference was not striking. As with other attempts to evaluate vocational training (which were abandoned), it is uncertain whether the control group in fact differed significantly in training from those who experienced the three-year programmes available at the time.

In summary, belief in education as a method of influencing general practitioners is confirmed. But gains in knowledge and skill and changes in behaviour seem harder to achieve with general practitioners than with undergraduates. The difficulties increase with the age of the practitioners and are likely to compete with deterioration from the age of 40 years.⁵² Deficiencies are far more likely to be in performance than in knowledge.⁵³

Studies show that reinforcement of new learning is essential and that active involvement of the learner (through self-instruction or seminar teaching) is more successful than listening to the instruction of others. Personal contact with a prestigious and committed teacher is important, but, if behaviour is to be changed, the learner must be convinced about the reason why change is needed (Eisenberg JM. Physician utilisation: the state of research about physicians' practice patterns. Paper presented at the conference at the National Center for Health Services Research, Savannah, Georgia, USA, October 1984).

Conclusion

Not all change is necessarily good and if general practitioners resist changing their behaviour this may be for valid reasons.

This paper has been concerned with certain methods which deliberately aim to influence behaviour. On beginning to search the literature it was thought that it would not be possible to draw any clear conclusions. However, the evidence did support some tentative conclusions, the main one being the effectiveness of teamwork in changing patterns of activity, through relationships between general practitioners and nursing staff and between general practitioners and other professionals. There is also

evidence that other forms of personal contact and peer group contact can be effective. But there is little evidence of the effectiveness of unsolicited feedback or of written material used alone. The evidence on the effects of existing financial incentives is mixed; these incentives seem to have encouraged more activity in some areas but not in others.

One method of changing behaviour which was not investigated was change by fiat, through government regulations, for example the recent restrictions on the drugs which doctors are able to prescribe on the NHS. There is no doubt that regulations must change behaviour, but the problem is that ways around the regulations are found so that the intentions are subverted even if the letter of the law is followed.

Individual methods aimed at influencing behaviour have been examined, but the literature on the diffusion of innovations suggests that a combination of methods is more successful in bringing about change. Individuals or professional bodies may need to use a variety of methods, including administrative and legislative approaches, to make significant changes in general practice. Given the interest in reaching and convincing the widely dispersed and varied body of general practitioners, it is surprising that so little work has been done in this area. Considerable time and money is spent in attempting to bring about change and some effort in evaluating which approaches are successful would seem to be a wise investment.

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