

practice as being suitable for the less able medical graduates who were unable to climb the ladder of a hospital specialty.

The nature of general practice also presents difficulties for research. In all countries general practice tends to be an activity characterized by rapid decision making about problems which are ill-defined. Defining general practice itself has proved problematic. The Leeuwenhorst definition⁴ has gained most widespread acceptance but describes what general practitioners do, not what general practice is. We owe to Aristotle the academic tradition of seeking to define that which we wish to study. This can be unhelpful for a discipline such as general practice which has no boundaries and which has wide variation as a major characteristic. Traditional reductionist scientific methods have only limited application in general practice, and the almost exclusive emphasis on this type of research in medical education may be another reason for alienating general practitioners from taking an academic approach to their work. In their short existence, university departments of general practice have made a major contribution to research and teaching in spite of their meagre resources. Their position is weakened by their exclusion from postgraduate education. This exaggerates the differences between academic and service practices and undermines the unity of general practice.

Is a strong research culture in general practice necessary? Research is subversive in that it attacks conventional wisdom, but it is also liberating and creative. During the 1960s general practice in the UK survived more intact than in many other countries because of its protected if limited position within the National Health Service. Although general practice was initially protected by political action, recent events have shown how easy it would be for further political action to destroy it. We largely retain the goodwill of our patients but in a society which is increasingly well informed and critical of monopolies, we need to prove our value. Making research an integral part of general practice is the only way in which this can be done.

How can this be achieved? The task is not easy. A major cultural shift needs to take place and long term strategies are therefore required. Introducing appreciation and experience of research into vocational training for general practice is one feasible approach. The membership examination for the College now includes a critical reading paper in which candidates are required to assess a research paper. This is a useful start. Many will feel that the trainee year is already crowded and in the 1990 William

Pickles lecture Styles drew attention to the dangers of 'curriculomegaly' in which medical education becomes overburdened with content. However, the critical questioning required in research is a necessary counterbalance to the present emphasis on acquiring more knowledge. The Syntex awards⁵ have been a useful stimulus for trainees wishing to do a research project but have involved only a minority of trainees. If all trainees are to participate in research, trainers and course organizers will need to be enthusiastic about this aspect of training. We should not seek to replicate the research treadmill experienced by middle grade hospital doctors. A literature review may provide more original insights than data collection. In a discipline such as ours in which uncertainty is the norm, the humanities as well as the sciences provide useful methods of analysis.

Introducing research appreciation into vocational training is just one element. If research is to take root in general practice, then academic departments of general practice need to be strengthened; the division between undergraduate and postgraduate education overcome and protected time created for research by principals in general practice. However, just as the best form of continuing education for an experienced general practitioner is to have a trainee, an expansion in research activity by trainees will affect the whole of general practice.

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Editor of the Journal

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Compliance with medical advice

IT has been estimated that about 40% of patients do not comply with doctors' advice on treatment.^{1,2} At a national level the costs of non-compliance in health and economic terms are considerable. This situation has inspired investigation into the circumstances under which patients are most likely to cooperate with medical advice and several reviews of this research have been published.¹⁻⁴ The bulk of this work has been conducted over the past 20 years⁵ but concern with the problem of non-compliance has a lengthy history. In 200 BC Hippocrates advised physicians to consider non-compliance as a possible explanation for a patient's failure to recover when a typically effective treatment had been used.⁶ The implications of the research findings for clinical practice are presented here as a series of guidelines for improving patient compliance.

Develop an appointment system which ensures minimum patient waiting time. Patients who are seen promptly have been found to comply better with treatment regimens than those who are

kept waiting for long periods. If patients cannot be seen promptly, they should be given reasons for the delay and told how long it is likely to be before they are seen. Geersten and colleagues⁷ found that 67% of patients who had waited 30 minutes or less to see the doctor at an arthritis clinic were compliant compared with only 48% of those who waited 31-59 minutes and 31% of those who had to wait an hour or more.

Adopt a friendly and informal conversational style which encourages patients to provide information. Patients are more likely to give a spontaneous account of their complaints and their beliefs about these if the doctor seems friendly. Korsch⁸ and colleagues in a study of 800 consultations at a paediatric clinic noted that patient satisfaction was associated with five aspects of doctors' behaviour, chief among which was the doctor being friendly rather than businesslike. The other four factors were: the doctor being seen as understanding of the patient's concern; the patient's expectations about treatment being met;

the doctor being perceived as a good communicator; and the provision of information.

Assess patients' beliefs about the aetiology of their complaints and their expectations concerning treatment. Patients are more likely to comply with medical advice if they share a common understanding of their condition with their doctor.^{1,8} The first step towards developing such a shared understanding is to evaluate patients' current understanding of their illness.

It is particularly important to assess patients' beliefs about the seriousness of their illness, their vulnerability to illness given the risk factors present in their situation, the effectiveness of various treatment strategies and the obstacles to implementing appropriate treatment. A review of over 100 patient characteristics, 13 disease characteristics, 13 regimen attributes and 49 doctor-patient interaction characteristics¹ noted that patients' beliefs about their vulnerability to illness, the seriousness of their illness and the efficacy of appropriate medical treatment were the three most frequent correlates of patient compliance. A series of studies has shown that these variables, which constitute the health belief model, not only correlate with current compliance but also predict future compliance.^{3,9-12}

Clarify how much information patients would like about their condition. Some patients become dissatisfied and non-compliant unless they are given detailed information about their illness while others prefer to be given a more cursory explanation. It is important to assess patients' expectations in this respect so that the amount of information given can be tailored to match patients' preferences. This guideline is based on two lines of research: Miller¹³ has demonstrated that information seeking and information avoidance are two distinct styles of coping with illness while Haynes and colleagues¹ have shown that when patients' expectations in general are met, compliance with medical advice is improved.

Offer an explanation of the patient's condition and the rationale for treatment. In offering this explanation and rationale it is necessary to make a point of correcting any erroneous beliefs patients may have about their condition. Ley,² in a review of 11 studies, found a mean correlation of 0.36 between patients' understanding of their condition and the rationale for treatment on the one hand and their compliance with treatment on the other. In the same review a mean correlation of 0.58 between patients' understanding of their condition and satisfaction with the medical treatment offered was obtained.

Present the treatment regimen and the rationale upon which it is based in language that patients can understand and which allows them to remember what has been said. Medical terms should be explained and where possible jargon avoided. Numerous studies attest to the layman's ignorance of the meaning of medical terms. For example, Boyle¹⁴ assessed patients' understanding of the terms arthritis, heartburn, jaundice, palpitation, bronchitis, piles and flatulence using a multiple choice test. The percentages of patients giving the correct definitions were 86%, 85%, 77%, 52%, 80%, 74% and 43%, respectively.

Short words and short sentences should be used to explain the treatment regimen and the rationale upon which it is based. Bradshaw and colleagues¹⁵ found that when dietary advice was simplified in this way, the average amount of information recalled by patients increased from 27% to 40%.

The rationale and treatment regimen should be presented fairly briefly. Both clinical and analogue studies affirm that the more information patients are given, the greater the percentage of the total message is forgotten.¹⁶⁻¹⁸ The information should be

simplified and categorized. For example, 'There are three things that I am advising you to do this week. First ..., second ... and third ...'. In a study of 40 new attenders at a general practice, mean recall for presented information was raised from 50% to 64% when explicit characterization was used.¹⁹ Patients should be given specific rather than vague instructions concerning their treatment and they are more likely to remember what they have been told if it is repeated.²⁰ The most important aspect of the treatment regimen should be stated first and its importance should be stressed and emphasized.²¹⁻²³

Patients should be encouraged to repeat the rationale of the treatment regimen in their own words. In a study of two separate series of 50 patients Bertakis²⁴ found that patients who had repeated the doctor's advice in their own words remembered 83% of the information presented, while those who had not remembered only 62%.

Doctors should provide a simple set of written instructions if patients have to follow complex treatment regimens. Taken together, the three major literature reviews in this field²⁵⁻²⁷ indicate that in more than 90% of studies written information led to an increase in the patients' knowledge about their illness, in 60% of studies it led to improved compliance and in 57% it led to substantial improvement in overall outcome. Written information should be simply presented using short words and short sentences. In a study of a series of psychiatric patients' compliance with anti-depressant and tranquilizing medication, it was found that the readability of the leaflets provided was directly related to patient compliance with the medication regimen.²⁸

Help the patient appreciate the costs and benefits of compliance and non-compliance. Where patients are aware of the negative consequences of non-compliance and where these consequences are severe they are more likely to follow the doctor's orders. Giving a two sided message which includes both the pros and cons of following the doctor's orders provides patients with a cognitive framework in which to accommodate conflicting information about compliance with doctor's orders while allowing them to continue to regard the doctor as competent. When difficulties associated with following treatment are not outlined by the doctor, and patients subsequently come across such information from another source, patients are more likely to view the doctor as incompetent and fail to comply with his advice. A series of studies by Lee and colleagues²⁹⁻³¹ showed that a greater level of compliance is demonstrated by obese women attending a slimming programme where both cost and benefits of compliance with the programme were outlined rather than just the benefits.

Enlist the aid of the patient's family or friends in helping the patient comply with medical advice. Patients are more likely to remember medical advice and comply with this if members of their social network are aware of their treatment regimen and of the pros and cons of compliance and non-compliance. In Haynes and colleagues¹ review of more than 150 correlates of compliance with medical advice, the participation of the patient's family and friends in the treatment regimen was the next most important correlate after patients' illness related beliefs. In Alderman's work site studies, encouragement provided by colleagues, friends and family was found to be crucial in helping hypertensive patients achieve blood pressure control.^{32,33}

Review compliance at each follow-up consultation. Patients who are offered a high level of medical supervision and frequent follow-up appointments are more likely to comply with medical advice, particularly if compliance is explicitly assessed in these interviews.³⁴⁻³⁹ The more formally structured this process is, the more likely it is that patients will follow the doctor's orders.

Ideally, patients should keep a diary of their symptoms and of their compliance with treatment regimens and should complete the diary at set times each day. The diary may be reviewed by the doctor at each appointment. Future compliance is improved by praising patients for past compliance with medical advice.

When patients fail to comply with medical advice both health and economic costs are incurred. Following the guidelines set out here may go some way towards reducing these costs.

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Appointments



EDITOR

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PRACTICE

Dr Graham Buckley, Editor of the *British Journal of General Practice* for the past eight years, had indicated his wish to retire from the post early in 1991. The *Journal* is now one of the most important journals of academic record in general practice in the world and the College Council is seeking applications from suitably qualified and experienced members of the College to develop further the high standards that have been established.

The College's Editorial Office is in Edinburgh, but modern technology and a very experienced support team mean that geography is not a bar to application. The post is remunerated for three sessions per week at a rate of up to £50 000 p.a. pro rata.

The Chairman of Council, Professor Denis Pereira Gray, is happy to speak to all potential candidates about the post (Tel: 071-581 3232 ext. 246). A more detailed job description is available on request from the General Administrator (Ref SMF/FZ), RCGP, 14 Princes Gate, Hyde Park, London SW7 1PU, to whom all applications should be sent by 20 October 1990.