The general practice formulary — its role in rational therapeutics

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SUMMARY. This paper describes a project in which a voluntary preferred prescribing list (general practice formulary), analogous to those already in use in some hospitals, was created, implemented and monitored. Cooperation between a pharmacist with knowledge of drug information, access to specialist advice and back-up in the form of evaluated information from drug information centres and a group of five general practitioners and their trainees was necessary.

The formulary was well accepted with between 68.2% and 89.6% compliance in therapeutic classes corresponding to the recent National Health Service restricted groups. This method enhances the critical appraisal of prescribing rationale, takes into account the needs of doctors and patients, and reduces costs. Such work highlights the value and scope of interdisciplinary liaison between pharmacists, general practitioners and clinical pharmacologists and it could prove beneficial on a national scale.

Introduction

THE Department of Health and Social Security (DHSS) cannot ignore drug costs, and many approaches have been suggested which would influence prescribing and contain and control drug usage. A significant change in Government policy took effect in April 1985 with the introduction of selected list prescribing.

The preferred list (formulary), as distinct from the selected list, should assist rational drug management as it encourages doctors to think more carefully about reasons for prescribing particular therapeutic agents. While selected lists and local formularies are not mutually exclusive, the imposition of such lists might influence formulary development and usage. The National Health Service (NHS) regulations[1] previously allowed doctors providing general medical services to prescribe any drugs that they considered were necessary for the patient's treatment, and interference with this is thought by some to encroach on clinical freedom.

In recent years, it has become clear that the problems of rational drug prescribing are growing steadily, with serious social and financial implications. While many of the principles of medicine, surgery and obstetrics learnt by doctors at medical school are still valid 10 or 15 years later, the same cannot be said of therapeutics,[2] where there is a need for continuing information and education. General practitioners prescribe over 80% of the drugs used in the NHS, and independent attempts to influence drug usage in the community sector have been limited, although several drug information centres do produce and circulate drug information letters and bulletins to increase current awareness. Surveys of prescribing practice indicate that apparently irrational drug choices are not infrequent.[3]

The licensing authority is required by the Medicines Act to license any product that is efficacious and reasonably safe. However, the licensing authority does not question whether medicinal products of another description would be equally or more efficacious.[4] Selected prescribing lists alone will not remove the problems, but could form the basis for more rational drug use.

By far the largest source of information concerning drugs is the pharmaceutical industry, and it is difficult for doctors to obtain information from sources which are not linked to the incentive to increase the sales of any particular product.[5] The DHSS has allowed much of the initiative of postgraduate education and drug information to pass to the pharmaceutical industry. A major portion of the cost of both has been shouldered by industry. Most of the information about drugs which doctors now receive is from drug company representatives skilled in all aspects of marketing and selling.

Looking more closely at the causes for the present inadequacies could well generate great benefit and cost savings in the long term. The recent report by Greenfield recommended extending the use of local formularies produced with educational input.[6] Furthermore, critical review of one's prescribing habits and comparison with those of one's peers is a way of avoiding both therapeutic inertia and unnecessary change.[7]

The drug 'bill' for the NHS in England is now £1400 million per year. Although the cost in itself is not necessarily the most important consideration in assessing prescribing, it is sensible to ensure that funds, which could perhaps be used in educational and preventive schemes, are not wasted. At present neither doctors nor patients have any particular incentive to consider the relative costs of drugs.[8] Current strategies, such as the selected list, will concentrate attention on how savings may be achieved.

The study

In 1979 an informal general practice therapeutics group was formed, consisting of general practitioners, clinical pharmacologists, pharmacists and other members of the primary care team at the Hallwood Health Centre, Runcorn. The aim of this group was to review clinical management, exchange ideas, pool resources and to develop a more logical approach to prescribing.

In 1981 a research project, funded by the Mersey Regional Research Committee, was carried out by a research pharmacist in order to develop and construct a general practice formulary. It was considered that the adoption of a local formulary would promote rational and economic prescribing and also serve an educational role.

Method

Detailed prescription data (PD8 analysis) was obtained from the Prescription Pricing Authority. This data consisted of a list of every product dispensed against prescriptions raised by each practitioner participating in the study. The number of times the product had been prescribed and the quantity prescribed during one month of data collection was included. This information was lengthy and difficult to interpret by the individual prescriber. The researcher scrutinized the data for each practitioner and presented it to him or her graphically. The figures for percentage use in one or two therapeutic categories at a time were also studied.

The classification system of the *British national formulary* was chosen as it is rational and agrees with current medical prac-

tice. When dealt with in this manner the prescribing habits of each doctor and of the group practice as a whole, gave 'prescribing profiles' which could be clearly understood and examined. The literature on the class of drugs under enquiry was searched and use was made of the resources of the Mersey Regional Drug Information Centre. In some cases, expert advice was sought from consultants and clinical pharmacologists.

The formulary was built up in sections of one or two therapeutic classes at a time from the *British national formulary* over a period of one year. This was partly due to the work involved in preparing the background information and it was felt that the prescribers would be better able to cope with changes in their prescribing in small coherent steps. In all, 35 categories from the *British national formulary* were covered — the aim was to cover between 80% and 90% of the conditions commonly presented to a general practitioner and to provide a simple treatment choice for between 70% and 80% of these cases. As each section of the formulary was produced, the rationale and appropriateness of prescribing against the acumulated research and prescribing profiles were debated.

The results given here are from those therapeutic classes to which prescribing restrictions now apply. By examining the proportion of formulary and non-formulary drugs used (percentage figures) in any given month and in different months, trends and changes in the practice prescribing profile for each therapeutic class can be compared. Similarly, by the application of a chi-square test (with Yates' correction) to the numerical data for these sample months, the statistical significance of these changes can be ascertained.

As results became available meetings were held to enable the participants in the project to assess the effects of using the formulary and to discuss the problems and benefits of adopting this approach with respect to different drug categories.

The formulary itself took the form of loose-leaved indexed cards in a compact A5 ring binder and included comments on the choices. The main formulary choices for the groups discussed in this paper are summarized in Figure 1.

Antacids

Magnesium trisilicate mixture, aluminium hydroxide mixture, 'Antasil' liquid (Stuart), 'Antasil' tablets (Stuart), 'Gelusil' tablets (Warner)

Laxatives

'Fybogel Orange' (Reckitt and Colman), senna tablets, syrup and granules, lactulose syrup, glycerol suppositories, bisacodyl suppositories

Cough preparations

Simple linctus, simple linctus paediatric, ammonia and ipecacuanha mixture, pholcodine linctus, 'Pholcomed Diabetic' (Medo), 'Triocos' (Dorsey)

Hypnotics and sedatives

Diazepam, nitrazepam, triazolam, temazepam, oxazepam, lorazepam, chloral hydrate, promethazine

Analgesics

Soluble asprin tablets or 'Codis' (Reckitt and Colman), 'Ponstan Forte' (Parke-Davis), paracetamol tablets and syrup or 'Paracodol' (Fisons), dihydrocodeine, 'Norgesic' (Riker), 'Paramax' (Beecham)

Figure 1. *Drugs listed in this formulary for the therapeutic groups discussed.*

Results and discussion

In all of the therapeutic groups discussed here change has occurred in line with formulary recommendations. In four of the five classes the greatest changes in prescribing took place when the formulary was adopted and while there was an input of information about the drugs concerned.

The results presented in Figure 2 are intended to show the situation prior to intervention, soon after intervention and later. Simple statistics indicate that the changes are significant and continued monitoring suggests that the changes have persisted. The latest figures for compliance with the formulary range from 68.2% for antacids (Figure 2a) to 89.6% for hypnotics and sedatives (Figure 2b).

It is interesting to observe the differing rates of acceptance of formulary drugs for different therapeutic groups. An awareness of the ways in which these groups of drugs are prescribed in general practice, and in this partnership in particular, allows some interpretation of the results.

The swift acceptance of many formulary drugs is evident when, for example, observing antacid prescribing (Figure 2a) — the formulary was introduced in May/June 1982 and the proportion of formulary antacids used almost doubled between December 1981 and June 1982. For laxative prescribing the change was more gradual (Figure 2c) and establishing a causal relationship with the formulary is more uncertain, although there is a steady movement towards formulary choices. The change for this group was probably slow because the majority of patients prescribed laxatives receive repeat prescriptions.

Repeat prescriptions have been discussed by the doctors participating in the study. In many cases it was thought better to wait for a convenient time to alter a patient's treatment, usually during a consultation. Where a change was simply to use a generic drug this waiting period was often felt to be less necessary. The results for hypnotics and sedatives (Figure 2b) illustrate this point. There is a highly significant change ($P<0.01$) between June and September 1982 when most new prescriptions were for formulary choices and a highly significant change ($P<0.001$) between September and December 1982 by which time most of the repeat prescriptions had been changed to generic equivalents without the patients necessarily being seen. There has been little change in the prescribing pattern since then.

The results for cough preparations (Figure 2d) show highly significant changes ($P<0.001$) between March and September 1982, September and December 1982 and December 1982 and September 1983. During the period March 1982 to September 1983 drug selection has changed by more than 70%. In this case repeat prescriptions had little effect on the change as most coughs represent acute events. The acceptance of the formulary choices grew as it became clear to the general practitioners that they could use these products to the same effect as the drugs that they would have selected previously.

In the controversial area of analgesics (Figure 2e) the results are especially pleasing with over 70% compliance with the formulary choice. The largest changes again occurred during the period in which the formulary was introduced probably because pain killers are frequently prescribed to treat acute conditions. There followed a slow change, as opportunities arose to wean patients off less desirable drugs.

The participating doctors have experienced less patient resistance than they feared. It has been calculated that prescribing costs for the therapeutic groups have been reduced by amounts ranging from 7.7% to 56.3%. This amounts to an overall saving of £3480 (18.1%). The actual cost decreasing from £19 233 per year to £15 753 per year (September 1984 prices).

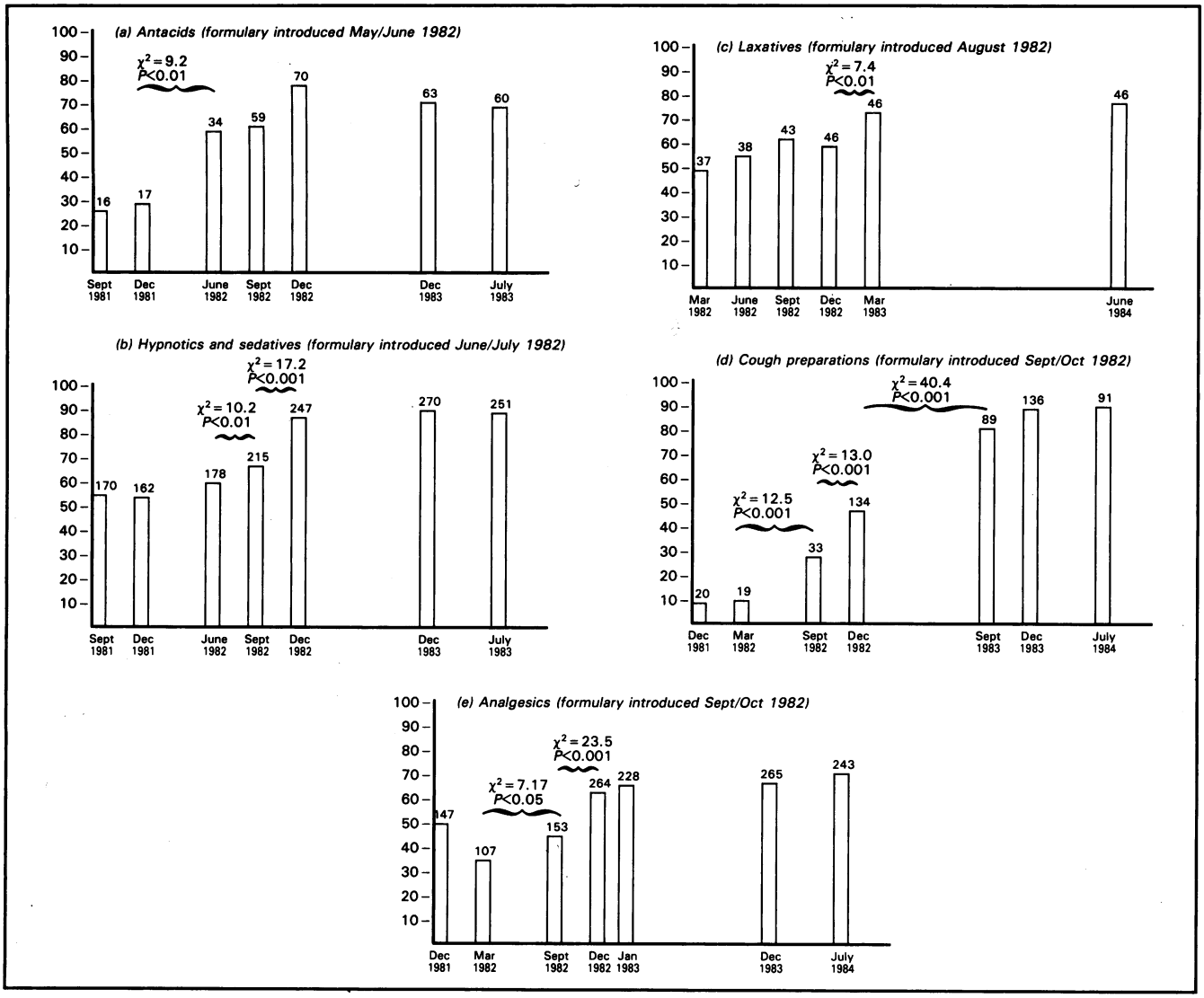

Figure 2. *Percentage of the total drugs prescribed which were from the formulary for each of the five therapeutic classes studied. The number of prescriptions for the month is indicated at the top of the bar.*

Conclusion

The weight of evidence will clearly change with time and far from leaving the general practitioner with an outdated therapeutic armoury, the formulary approach enables the prescriber to update prescribing policies in the light of new evidence.

It is easy but perhaps unwise to comment on the value of drugs in complete isolation from the needs of the prescriber and patient. The method described here is flexible enough to tailor information to the needs of the prescriber. The medical and pharmaceutical professions and the pharmaceutical industry should not see this as a threat and the DHSS might do well to consider it as a way forward. Products and data must be produced that will stand up to scrutiny and the need to sell or prescribe drugs on anything other than relative merit is reduced.

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