

# *Sources of Information for Prescribing Doctors in Britain*

The third in a series of  
Office of Health Economics monographs  
dealing with aspects of the  
prescription medicine market in Britain

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## Office of Health Economics

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The previous publications in this series were 'The Canberra Hypothesis; the economics of the prescription medicine market'; price one pound and fifty pence, and 'Brand Names in Prescribing'; price fifty pence.

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The information which pharmaceutical manufacturers provide for prescribing doctors – in the form of sales promotion and advertising – has been the subject of considerable and sometimes acrimonious controversy in Britain since the early 1960s. One result of this has been persistent political pressure to restrict both the content and volume of this information under the National Health Service. In response, the pharmaceutical manufacturers have accepted that in this respect they have to operate in a politically delicate environment. As part of this acceptance, they have in 1977 reached an agreement with the Department of Health and Social Security which takes account of these demands for stricter voluntary and statutory controls on their sales promotion. Both the industry's Code of Practice and the Government's regulations under the 1968 Medicines Act are being considerably tightened in order to impose more rigid standards of clarity and precision in the future.

However, this agreement and these changes do not detract from the importance of the more fundamental issues discussed in this monograph. Indeed, they may serve to highlight the dangers which might ensue if undue restrictions were to stifle the flow of information between the pharmaceutical innovators and the prescribers. The importance of this free flow of information for all concerned must be properly understood if pharmaceutical innovation and therapeutic progress is to prosper. This paper is intended as a contribution to this understanding in the context of prescribing under the National Health Service in Britain.

# Historical background

The international research-based pharmaceutical industry has had a spectacular record of technological achievement and economic growth over the past 30 years. It is hard to remember that in its present form it was virtually non-existent in the 1940s. Up to that time, the manufacturers of medicines were still the lineal descendants of the traditional wholesale chemists and druggists, who had been concerned mainly with the manufacture and sale of galenical medicines derived from naturally occurring animal and vegetable ingredients. Bitter aloes, belladonna, cascara, digitalis, ergot and fennel were still typical raw materials for the tinctures and tablets which were their stock-in-trade. It was only from the late 1940s onwards that the specific active chemical ingredients for a new generation of medicines started to emerge from the industrial pharmaceutical research laboratories.

The emergence of this new industry and its products not only had an immense scientific and technological impact on the practice of medicine. The development of the radically new chemotherapeutic products, which required large-scale production in order to be economic, also called for new pharmaceutical marketing techniques. These were perhaps noticed most dramatically in the case of the broad spectrum antibiotics in the early 1950s. These new potentially life-saving medicines were likely to be widely prescribed even if they were expensive. In turn, their high initial price enabled their manufacturers to provide extensive information and sales promotion material to persuade doctors to prescribe them. This was desirable not only because it spread an awareness of their therapeutic importance more quickly, but also because the ensuing prescriptions led to economies of scale in their manufacture. This resulted in early reductions in price.<sup>1</sup> Nevertheless, the manufacturers of these antibiotics still found it worthwhile to continue advertising their brand names in order to remind doctors of their value and to inform them of new indications for their use.<sup>2</sup> This sort of information and sales promotion effort for the broad spectrum antibiotics, and to a lesser extent for the whole range of other major therapeutic advances, came as a new experience to the medical profession. For the best part of the previous two millennia, pharmacology and therapeutics had been based on the teachings of Galen. There had, of course, been major advances, such as the discovery of digitalis and chloroform, the purification of the alkaloids and the development of vaccination. In addition, from the fifteenth century onwards chemists following the precepts

of Paracelsus had started to think in terms of crude synthetic medicinal chemistry. There had even been a few significant developments in this field such as Aspirin, Salvarsan and, in the 1930s, Prontosil and 'M and B 693'.

However, in the main all that the traditional manufacturing chemists and druggists had had to promote to doctors until the 1940s had been elegant 'ethical' brands of the traditional galenical preparations.<sup>3</sup> These ethicals had been presented to potential prescribers with discretion and diffidence, because the druggists' 'travellers' needed to draw a sharp distinction between their own sales efforts to the medical profession and those of the strident market-place hucksters who were at the same time selling branded 'Patent Medicines' to the impressionable nineteenth and early twentieth century public.

But in the late 1940s the medical profession, which had so far experienced only the restrained commercial atmosphere created by the modest sales promotion activities of the small traditional 'ethical galenical houses', was suddenly subjected to the full force of the professional marketing activities of the new large-scale international pharmaceutical manufacturers. It was soon realised that although these activities were commercially motivated, they were also fulfilling a unique and in many respects essential educational role.

The occasional significant pharmacological developments in earlier decades, such as the isolation of insulin, had been exceptional events which doctors would quickly have learnt about from the scientific literature. For the most part the therapeutics which they had been taught at medical school could have been expected to last them well enough through to their retirement. Fashions in medicine and therapy certainly changed from time to time; but on the whole the available range of 'Materia Medica', as it was then called, had remained virtually unaltered.

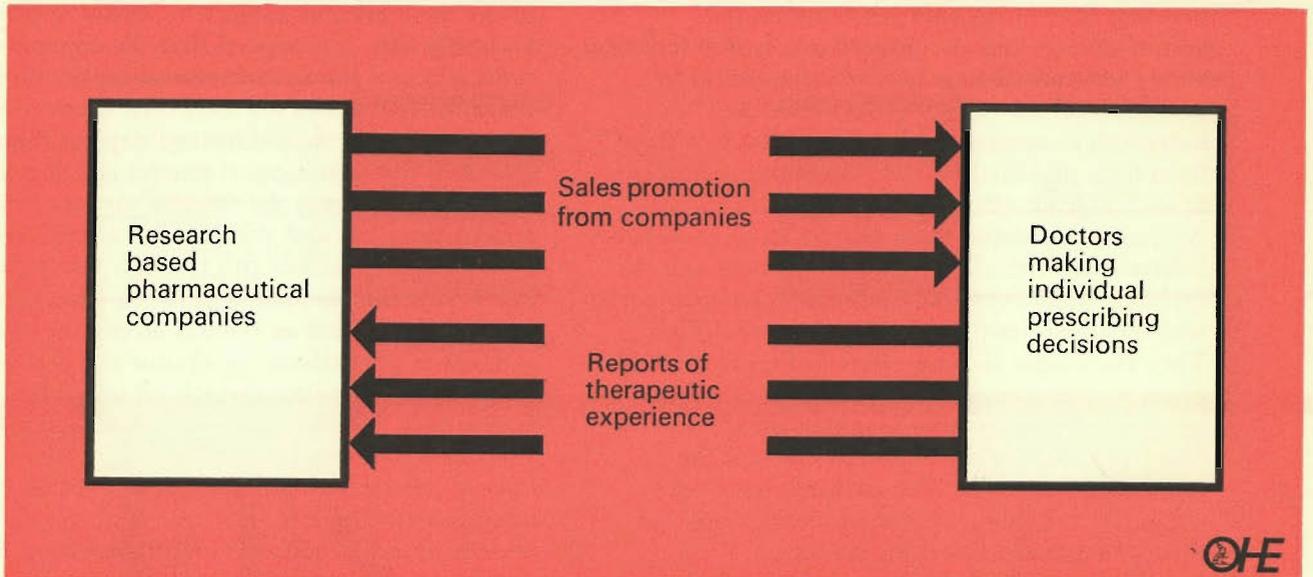
Thus, there had in the past been no need for continuing therapeutic or pharmacological training during a doctor's career in practice; but

<sup>1</sup> These are discussed in *The Canberra Hypothesis*, OHE, 1975.

<sup>2</sup> Reekie has pointed out in his economic analysis of the industry in Britain that the level of sales promotion expenditure on the antibiotics in 1966 was well above the trend set by other therapeutic groups. This was partly because the potential market was continually expanding as new indications for their use were discovered. It was also because the very costly fermentation plant needed for their production made economies of scale especially important for this group of medicines. (Reekie W D (1975). *The Economics of the Pharmaceutical Industry*. MacMillan.)

<sup>3</sup> The much maligned term 'ethical' was used to distinguish branded medicines advertised only to doctors from those advertised and sold directly to the public.

## 1 Prescribing information: typical flow patterns of the 1950s



the new therapeutic explosion of the 1950s created an unprecedented need for such a service. The people who filled this unanticipated need were from the companies which had themselves been responsible for the new therapeutic advances. They had both the necessary knowledge about their own products and the economic incentive to ensure that doctors were made aware of their innovations and were encouraged to prescribe them.

Hence doctors were suddenly faced with the situation illustrated in Figure 1. It had become a necessity for them to have a regular and substantial source of information about significant advances in therapy. This was provided by the sales promotion material from the young research-based pharmaceutical companies, which became established in the 1950s as virtually the only source of information about new medicines on which doctors could base their prescribing decisions. Furthermore, the volume of this promotion was substantial. By the late 1950s general practitioners in the United Kingdom were receiving between five and ten mailed advertisements each day, and could expect to see about two medical representatives each week.<sup>4</sup> This situation at once attracted criticism. The pharmaceutical companies were using professional methods of communication and persuasion, and hence they were accused of promoting their products in the same way as the manufacturers of cornflakes or soap powder. At the same time, the teachers of medicine and therapeutics felt that their position had been usurped. Their role as the

principal purveyors of information on therapeutic progress – however slight in practice it might have been – had suddenly been taken over by industry. This led to their vigorous and in some cases justifiable attacks on the pharmaceutical manufacturers' sales promotion.

There is no doubt that the position as illustrated in Figure 1 was in many ways undesirable. Had it persisted, continued criticisms of the industry's role as exclusive providers of information would be fully justified. However, checks and balances soon came into play. Prescribers, for their part, started to seek non-industry sources of information on the new pharmaceutical developments, so that they could better assess the claims being made by the manufacturers. The university departments of medicine and of therapeutics at the same time realised that they had acquired a substantial new teaching responsibility in respect of clinical pharmacology. They also recognised that they had to cater for the needs of doctors already well established in practice, as well as of those still in training. The medical journals, the government and independent bodies such as the Consumers' Association all started to play an active part in providing pharmacological information and advice to prescribers.

By the early 1970s, the situation illustrated in

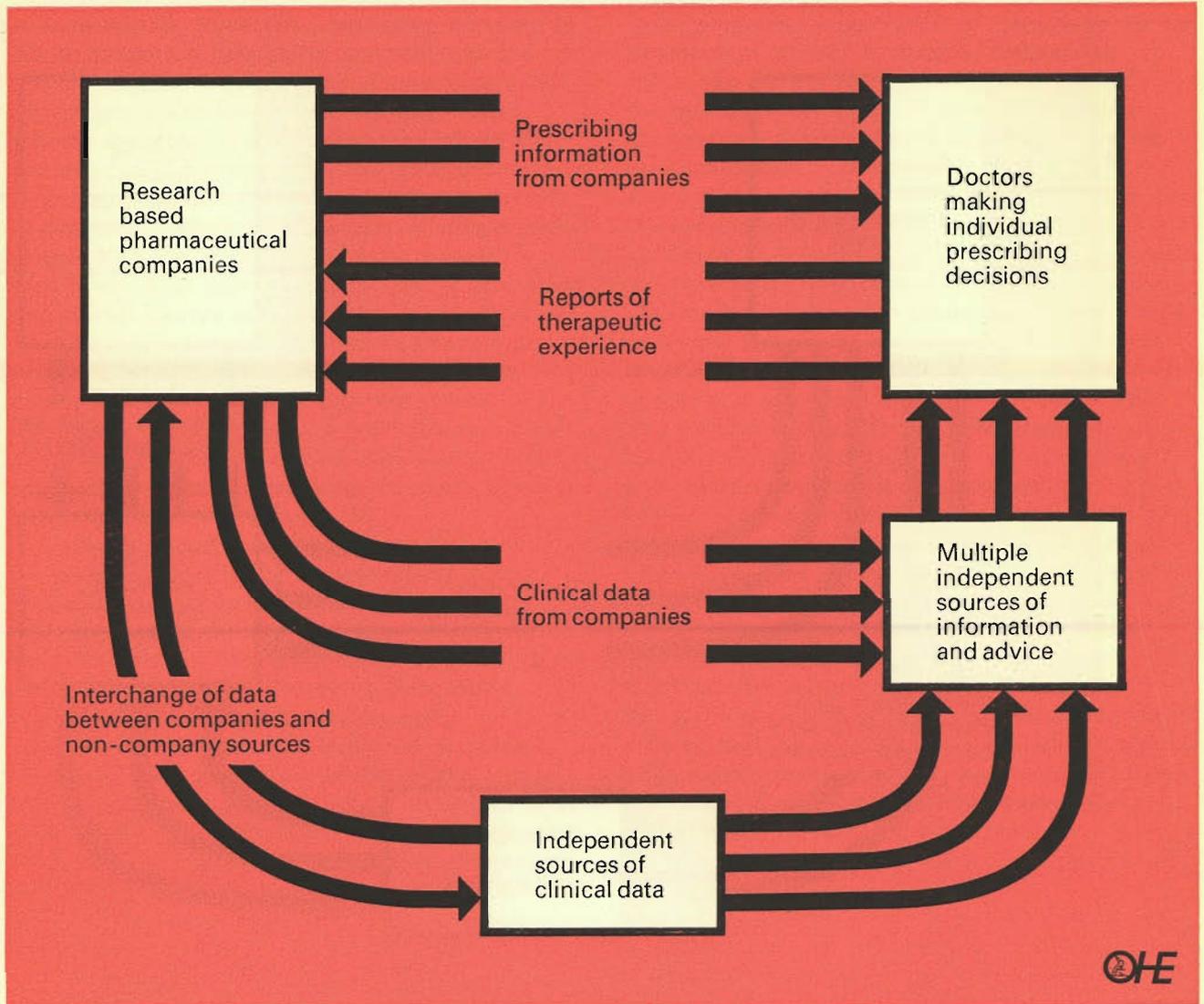
<sup>4</sup> As Figure 1 indicates these representatives not only provided information to doctors, but also collected reports about doctors' experiences with the use of their medicines, which they relayed back to their companies.

Figure 1 had given way to that in Figure 2. This second diagram no longer only shows the direct two-way flow of information between the manufacturers and the prescribers. It also indicates a very substantial new flow of information to prescribers from various government and independent sources. This information is derived from data provided by the companies themselves as well as from other independent clinical sources. As the arrows show, these sources in turn exchange information with the original innovators and this exchange may eventually influence the information which companies provide direct to prescribers. Thus the simple two-way flow in Figure 1 has given way to a complex interchange of information involving the competing manufacturers, a whole range of independent organisations and the potential prescribers. The industry has been relegated to being only one of many sources of prescribing information for doctors.

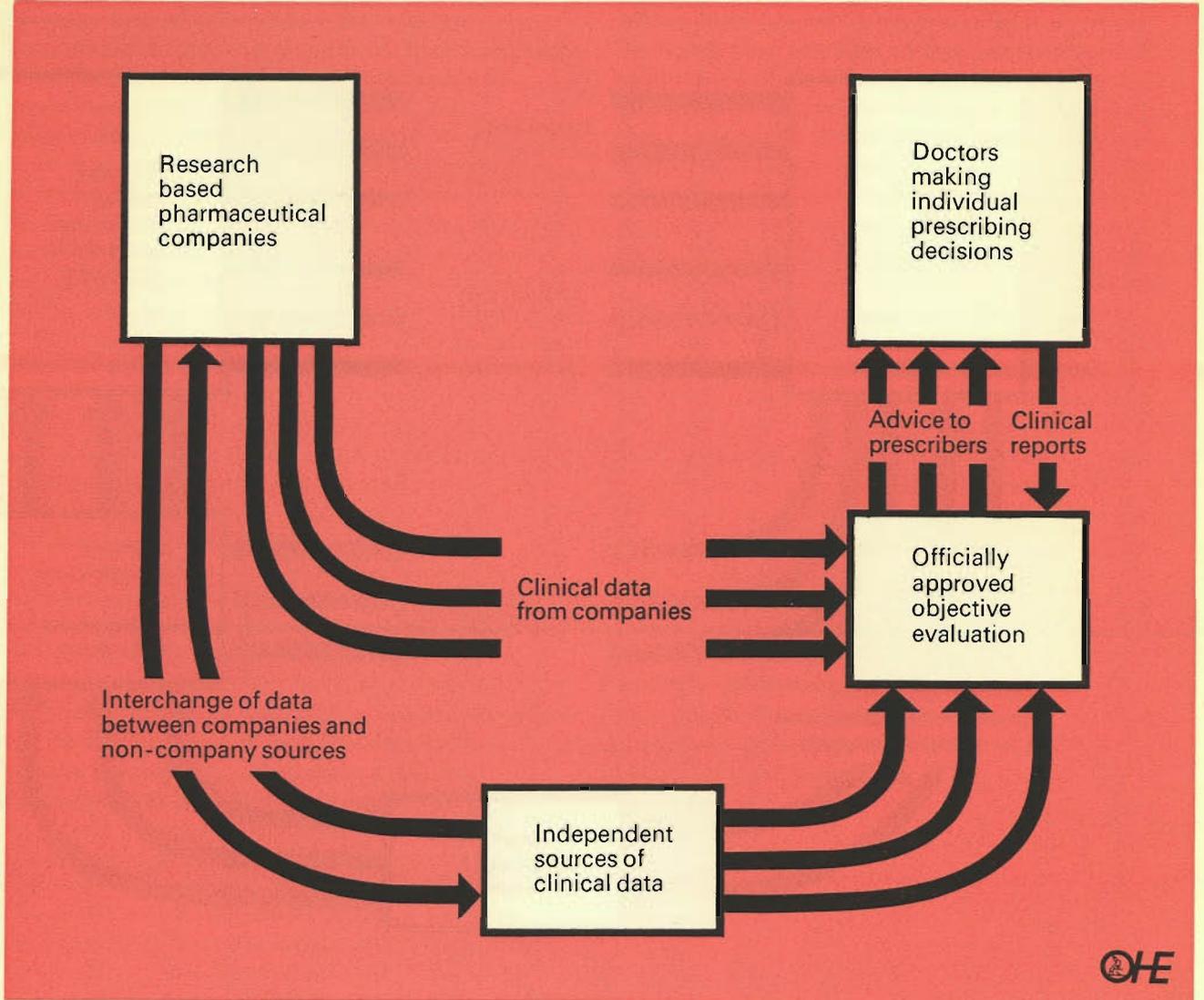
In addition, extensive safeguards have been introduced over the past two decades in order to ensure that information provided by pharmaceutical manufacturers is scientifically accurate. From 1958 onwards the Association of the British Pharmaceutical Industry has had a Code of Practice, which is enforced by a Committee under the chairmanship of an eminent lawyer from outside the industry. Also, since 1968, the Medicines Act has given government the power to control by regulation the style and content of advertisements of all sorts. It also introduced the concept of the product 'Data Sheet'. This is a document which sets out in standard form the necessary prescribing information on the product to which it refers. Companies have a statutory duty to send such a Data Sheet (in respect of any medicine whose sales they intend to promote) to each prescriber at regular intervals. All claims for a medicine, made by the company or its representatives, must conform to the information contained in the Data Sheet. As the Foreword mentioned, these voluntary and statutory controls have been considerably extended during 1977. Nevertheless, the criticisms of the pharmaceutical industry's sales promotion, which had understandably arisen under the situation illustrated in Figure 1, appear to have gained a momentum of their own. There is continuing pressure to restrict still further the role of the industry as a source of information about its products. This in turn has led to demands for a movement away from the situation illustrated in Figure 2 towards that shown in Figure 3. In this, direct communication between the manufacturer

and the prescriber has been eliminated altogether, and the various sources of independent prescribing advice have become subject to official approval. To justify this, it is argued that the commercial motivations of the manufacturers makes them unreliable advocates for their own innovations and that doctors should instead depend more on approved non-commercial sources of information. This paper discusses the relative merits of the present situation and this possible alternative. Two recurrent themes run through the argument. The first is the distinction between what can and should be provided as general advice on overall patterns of prescribing, as against the perhaps very different considerations which an individual doctor must take into account when facing a particular patient. This will highlight the different roles of official and commercial sources of information. The second theme concerns the present plurality of sources of information. Few doctors would accept the idea that they should practice medicine in accordance with some central dogma propagated from a single source. They feel, instead, that their clinical decisions should be based on their own judgement, founded on a sound scientific assessment of the multiplicity of relevant facts available to them. The paper will discuss the extent to which doctors are justified in this view in respect of their prescribing.

## 2 Prescribing information: typical flow patterns of the 1970s



### 3 Prescribing information: flow patterns based on an alternative concept



## Past empirical experience

In considering the whole question of present-day prescribing information, it is useful to look next at some specific historical experiences in the field. Those commonly brought to the public notice usually emphasise the dangers of over-enthusiastic advertisements or inadequate warnings about adverse reactions. It is less often pointed out that hazards can also occur when too much dependence is placed on official prescribing advice as opposed to competitive commercial sources of information. These hazards arise from four main factors.

First, there is an inevitable tendency for centralised and official sources of information to represent an establishment view. Medicine is traditionally a profession based on accepted practice, where dogma has tended to stifle experiment and innovation. Thus attempts to persuade an official committee to advocate the use of a new medicine can become a battle against conservatism which is often lengthy and frequently lost.

A case which illustrates this point arose when the manufacturers of the tetracyclines started to promote their use as prophylactics against acute exacerbations in chronic bronchitics during the winter season. In November 1954, the government-sponsored publication *Prescribers' Notes* stated categorically that oxytetracycline and chlortetracycline were 'not indicated' in chronic chest infections. In the face of this official advice, the manufacturers were severely criticised for their promotion. Thus, if *Prescribers' Notes* – or any other official source – had been the primary channel of prescribing advice to doctors, the tetracyclines would never have been widely used in chronic bronchitis and no one, including the official experts, would ever have had an opportunity to assess whether or not they were of value in such cases in practice. The dogmatic opposition to their use would probably have remained unchallenged. In fact, the companies rode out the criticisms of their advertising and continued to promote their antibiotics for this indication. Prescribers accepted the evidence advanced by the companies; the tetracyclines continued to be prescribed for chronic bronchitis; and as their use became more widespread they were seen to be of considerable value. In the light of this experience, *Prescribers' Journal*, which had by then succeeded the earlier *Prescribers' Notes*, stated in May 1961 that 'probably the largest consumption of tetracyclines in Britain is in patients with chronic bronchitis where the infection is often due to a mixture of bacteria. Here the tetracyclines are undoubtedly valuable.' But even this was not the end of the story. In October 1969 *Prescribers' Journal* stated, just as

categorically as its predecessor had expressed the opposite view 15 years earlier, that the tetracyclines were 'probably the antibiotic of first choice' for the treatment of chronic bronchitis. Neither the antibiotics nor the nature of the infection had changed between 1954 and 1969. All that had changed was the established medical opinion on their usefulness.

There are other similar, if less dramatic, cases. For example, official criticisms of the use of the antifungal compound nystatin in combination with the tetracyclines had subsequently to be retracted. Oral treatments for diabetes in the place of insulin were slow to gain the acceptance of the medical establishment. And the opinion of academic experts that the newer and more expensive iron preparations had no clinical advantages over the traditional ferrous sulphate tablets persisted for years despite evidence to the contrary.

Second, as a related point, reliance on official or 'establishment' sources of prescribing advice and information may tend to perpetuate obsolescent fashions in medical practice. Medicine is still to a large extent regarded as an art and medical practice varies surprisingly between different countries and cultures. The cross-fertilisation of the best ideas and practices from one country to another and the sceptical international criticism of inappropriate local practices, which are effectively fostered by the multinational pharmaceutical industry, can be curtailed by too much reliance on local experts as the only source of opinion and advice on prescribing.

One example of this came from Germany, which tended for many years to mute the influence of foreign-owned multinational pharmaceutical companies and to bolster the strongly authoritarian position of the local medical establishment and the indigenous pharmaceutical industry. Figure 4 shows the comparative levels of prescribing for hypertensive medicines – those intended to raise the blood pressure – in different countries. Epidemiological evidence from Britain and the United States indicates that, on a statistical basis, the higher one's blood pressure the shorter one's expectation of life. Thus the traditional German medical fashion of attempting to raise patients' blood pressure could theoretically have had the effect of shortening their lives unless there were factors which made British and USA experiences irrelevant to Germany in this respect. This sort of doubtful pharmacological practice is much less likely to survive in an atmosphere where vigorous debate is stimulated by international competitive sales promotion than where it is sheltered by the

#### 4 Prescriptions written for hypotension, 1974; per thousand population

UK	0.2
Netherlands	4.1
Belgium	9.3
France	20.9
Spain	39.0
Italy	102.2
Japan	104.4
Germany	154.2

Source: IMS; private communication

dogmatic opinions of the local medical establishment.

Third, reliance on official central sources of advice on prescribing is likely to have the disadvantage that it would tend to favour the first medicine to be introduced with a particular type of pharmacological action, and would tend to discount subsequent 'me-too' innovations having a similar but perhaps markedly superior activity. From an economic point of view this might appear to have advantages because it would stimulate the expeditious introduction of major innovations by enhancing the already demonstrable commercial advantages of being first onto the market in a particular field of therapeutics.<sup>5</sup> However, from the patients' point of view it could have very serious disadvantages. An example here comes from the benzodiazepine minor tranquillisers.

Chlordiazepoxide was the first to be introduced onto the market; the closely related compound diazepam was introduced some time later. Any official body reviewing the situation at the time of the second introduction would probably have taken the view that there was at that stage comparatively little evidence on the superiority of diazepam over chlordiazepoxide. On theoretical grounds, the availability and use of a second compound which appeared so similar to the first might have been thought likely to do no more than cause prescribing confusion.

In addition, and more importantly, the first compound had by then been widely used and its remarkable safety had been well-established. Why should an official body advocate the use of a relatively untried alternative, which despite rigorous testing could conceivably have had disastrous consequences, such as those of thalidomide? Official sources would, in the circumstances, have

been unlikely to endorse, still less recommend, the use of diazepam instead of chlordiazepoxide. With the benefit of subsequent experience, it is now clear that such a policy would have denied many patients the benefits of a tranquilliser which has proved for them to be a significant therapeutic advance. Diazepam is more than twice as widely prescribed in Britain as chlordiazepoxide, presumably because doctors have found it to be superior for the majority of their individual patients. Fourth, returning to one of the central objections in principle to a single set of non-commercial sources of prescribing information, it could form a dangerous step towards official direction of prescribing which might be seen as a logical development from the mere provision of official advice. This would be the ultimate step in shifting the effective prescribing decision from the individual consulting room or ward to some central office or laboratory. In wartime, Britain has already experienced this situation in the armed services. Their Medical Officers had at their disposal a strictly limited range of medicaments, often no more than one for each indication. Anyone who has delivered or received medical care under these circumstances must have misgivings about the risk of returning to a similar arrangement for the community as a whole in peacetime.<sup>6</sup>

5 *The Canberra Hypothesis* discussed the commercial advantage to be derived from early marketing and the commercial disadvantage, other things being equal, of being second, third or later onto the market. Huskisson *et al* (1976) demonstrated that for the latest generation of non-steroidal anti-inflammatory preparations there was a strong statistical correlation between order of entry onto the market and relative volume of sales (for reference, see Footnote 19).

6 Even without introducing that perhaps alarmist note, one can turn to the experience in the Soviet Union to see the dangers of bureaucratic as opposed to competitive dissemination of information on new medicines. The difficulties which arose under the Russian system, and the medical profession's criticisms of the inadequacy of the information which they received, were documented in 1962 by R A Bauer and M G Field ('Ironic contrasts: us and USSR Drug Industries', *Harvard Business Review*). These were not criticisms of the political system but of the difficulties which occurred in medical practice because individual manufacturing laboratories were not able to communicate directly with the prescribers.

# A conceptual model

Against the background of these historical instances, it is possible to construct a conceptual model which underlines the limitations which must exist in respect of any single source of prescribing information. Figure 5 analyses in more detail the components which go to make up the elements of company information shown in Figure 3. The initial factor is, of course, the degree of success which a company's R and D laboratories have achieved. It is very much easier for a company to gain prescribing acceptance for a major breakthrough than for a trivial improvement; studies have clearly demonstrated the positive correlation between assessment of therapeutic significance for a new medicine and its degree of market success.<sup>7</sup> Secondly, to a lesser extent, the efficiency of the production process will also affect the product's merit. This will arise partly from the resulting quality of the medicine, but often also because an economical production process may allow the company to price the product more competitively. Other things being equal, a less expensive medicine is likely to be more widely prescribed than a more expensive one.<sup>8</sup> Thus R and D success, production efficiency and price will each contribute to the 'price and performance' package on which the overall merit of the medicine will be judged by potential prescribers. The information based on this package is conveyed to doctors in the form of sales promotion, and obviously the vigour and volume of this promotion will influence the effectiveness of the company's advocacy and hence the volume of sales. As Figure 3 has already illustrated, each individual element of company information is received by doctors alongside many other competing messages from both commercial and non-commercial sources.

Against this background, it may be tempting to argue that a single objective evaluation of these various competing sources of prescribing advice and information should help the prescriber to reach an optimum decision. However, this argument ignores four essential factors. The first is the inevitably subjective nature of the judgements on which an assessment of therapeutic merit must be based. This factor, in turn, is complicated by the fact that individual doctors' 'styles' of medical practice vary and the terminology which they use to describe disease processes differs considerably. Second, the argument discounts the importance of individual patient variation in disrupting even these subjective assessments of relative therapeutic merit. Third, it would tend to reduce the individual doctor's freedom to balance therapeutic factors against cost in any particular prescribing decision.

Finally, it ignores the subjective nature of communication itself, which can make multiple channels of communication more effective than any one single source.

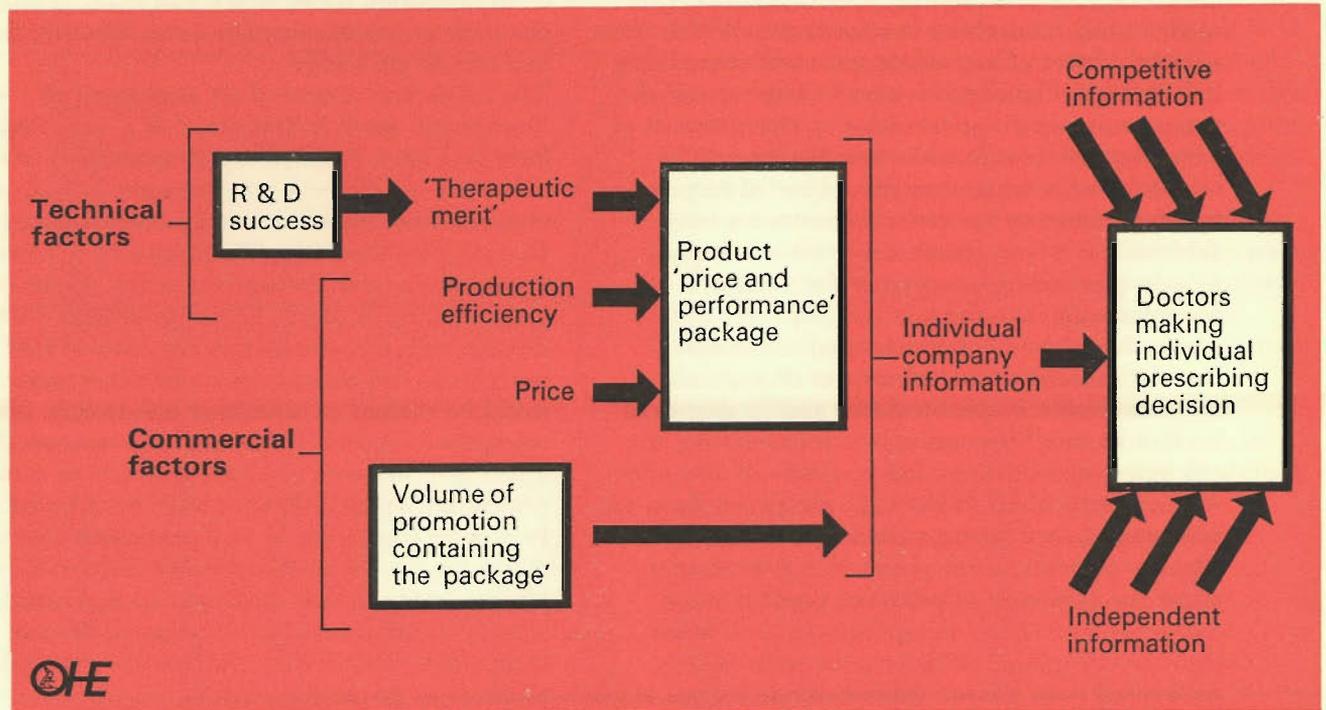
The subjective nature of an assessment of therapeutic merit is illustrated in a very simplified form in Figure 6. Any overall assessment of the value of a medicine must obviously include a rating of its efficacy, its safety and its convenience in use. In each case these must be judged in relative terms against the alternatives which might be prescribed in its place. Figure 6 assumes that these are the only relevant factors for each of four medicines, and that in each case these medicines could be ranked on a scale of one to four (four being the best score). Already this assumes that the differences between the four products in each respect fall on equidistant points on a linear scale. It is more likely that in any particular case there might be, for example, a tenfold difference in efficacy between two medicines as opposed to an almost indistinguishable marginal difference in their safety. This fact would greatly accentuate the problem to be outlined below.

Taking these three factors alone, it is possible to produce the overall assessment of unweighted 'therapeutic merit' shown in the fifth column. This assumes that efficacy, safety and convenience are each of equivalent importance. On this basis Product c appears best, with Product d closely behind it. However, it could be alternatively argued that efficacy should be regarded as having greater significance than either safety or convenience and that in turn safety is more important than mere convenience. Again taking the simplest assumption possible one could rate efficacy as three times as important and safety as twice as important as convenience. Given this weighting, one arrives at the overall assessment of merit shown in the last column. Product d has now become the 'best' choice and the previous favourite Product c has fallen to third place. Thus even on this grossly over-simplified model a change in the assumptions about the relative importance of efficacy, safety and convenience has substantially changed the overall rating of the therapeutic merit for the four products. Such alternative assumptions would clearly represent real choices for different experts. Hence their conclusions could also justifiably differ.

<sup>7</sup> See for example, *Innovative Activity in the Pharmaceutical Industry*. National Economic Development Office, 1973.

<sup>8</sup> *The Canberra Hypothesis*, OHE, 1975; and Reekie W D. *Pricing New Pharmaceutical Products*. Croom Helm, 1977.

## 5 An analysis of the components which make up 'company information'



## 6 Subjective nature of an assessment of 'therapeutic merit'

Product	Ranking for efficacy	Ranking for safety	Ranking for convenience	Unweighted 'therapeutic merit'	Weighted 'therapeutic merit'
A	3	3	1	2.3	2.7
B	2	1	3	2.0	1.8
C	1	4	4	3.0	2.5
D	4	2	2	2.7	3.0
'weighting' for each ranking	(3)	(2)	(1)		

Thus, apart from the importance of leaving the individual prescriber a freedom of choice in practice, it is unrealistic to assume that there is an absolute scale against which the relative therapeutic merit of any particular medicine can be assessed. Therapeutic advice provided by an established authority must in principle have been constructed on the basis of a series of subjective value judgements. Such judgements will be neither more nor less valid if they are decided by a committee of experts rather than a single individual. This was underlined as long ago as 1965 when Sir Walter Perry, then Professor of Pharmacology at the University of Edinburgh, said that the British Pharmacopoeia Commission (of which he was a member) had tried to rank medicines in order of therapeutic merit but had found it impossible. In his words, the Commission 'had found an equal case for all'.<sup>9</sup> The American clinical pharmacologist, Lasagna, has made the same point in a paper titled *Consensus among experts: the Unholy Grail*.<sup>10</sup> It is true that at any one time there may indeed be a generally held 'consensus' view on particular therapeutic practices and policies; but the examples already quoted have indicated the frailty of such apparently unanimous conclusions.<sup>11</sup>

9 *ABPI Action*, No. 73, 1965.

10 Published by the Centre for the Study of Drug Development, 1976.

11 The therapeutic assessment of available medicines undertaken by two separate panels of pharmacologists for the Sainsbury Committee provided an excellent example of such 'consensus' judgement. In that case the concurrence of views between the two panels arose primarily because each of them considered 'combination medicines' to be clinically undesirable and hence both panels gave the majority of those medicines an unfavourable assessment.

12 *Doctors Talking to Patients* by P S Byrne and B E L Long (HMSO, 1976), for example, provides remarkable evidence on the problems of verbal communication which occur in the surgery between doctors and their patients.

13 See *Medicines Which Affect the Mind*, ONE, 1975.

14 The general argument in favour of the greater effectiveness of multiple channels of communication is reinforced when it is remembered that the single channel being discussed in this paper is an essentially bureaucratic one. Leaflets from the Post Office, the Inland Revenue, the Social Services and indeed the National Health Service itself give one little confidence that official prescribing information and advice from government or health service channels would turn out to be masterpieces of lucidity.

Apart from avoiding the dangers inherent in too much reliance on official sources of information which have been described so far, there are also positive advantages in having multiple and genuinely competitive channels of communication available to the prescriber.

It has for a long time been recognised that verbal and written communication is a very much more complex process than is sometimes naïvely assumed.<sup>12</sup> The form of words used, the similes and analogies which are introduced and the cultural, educational and emotional similarities and differences between the communicator and his audience, for example, will enormously influence the degree of success in getting a message across. The more complex the message, the more true this becomes. Thus one person, presenting his case in a way that seems entirely clear and reasonable to himself, may be totally incomprehensible to the recipient; worse still, he may be completely misunderstood. Another person, presenting precisely the same facts in a different way, may appear crystal clear to the same recipient. Thus reliance on a single source of information, either in the spoken or the written word, risks a failure of effective communication. This must frequently occur with advice on prescribing. For example, when the antidepressants were first introduced the whole concept of depressions as clinical entities – and the distinction and inter-relationship between such depressions and the much better understood anxiety neuroses – would have been novel to most prescribers. It is extremely unlikely that the first person to describe these syndromes and their effective pharmacological treatment would have conveyed anything like the complete picture to the potential prescriber. However, over a period of time, having heard the same general proposition described in many different ways and from many different angles, full comprehension would begin to emerge. In this case, however, there were still recent indications that the minor tranquillisers might be being over-prescribed and the antidepressants relatively under-prescribed because the symptoms of depression were not yet being properly recognised.<sup>13, 14</sup> Hence, it is implicit that there could be considerable disadvantages if an individual prescriber had to rely on contact with a single regional prescribing officer for his verbal information on new medicines and prescribing. For one thing, there could be no guarantee that the prescriber would not develop hostility and lack of respect for an official prescribing adviser, as he obviously does for some individual medical representatives.

Apart from these arguments in favour of multiple

and competing sources of prescribing information as they affect the immediate quality of patient care, there is also an important longer-term economic argument to be considered. It has been pointed out that official bias towards the first new compound of a series of similar ones to reach the market could provide a useful incentive for expeditious testing and introduction. However, in more general terms this advantage would be offset by another more fundamental consideration. If pharmaceutical innovators were to be denied the opportunity to promote the use of their new medicines themselves, the whole process of innovation would be discouraged. Companies see research, development, clinical testing, the construction of production facilities and the eventual marketing of a new medicine as an indivisible innovatory process. Without the assurance that a company could promote the sales of its own products, its risk from investment on research and development would be enormously increased. The reasons for this are discussed in more detail later.

Furthermore, the competitive challenge implicit in the present marketing system, but largely excluded under a system of official prescribing information, has been shown over the years to be a very powerful stimulus to therapeutic progress. Conversely, where for one reason or another the competitive drive to promote the use of a new medicine has been undermined, progress has been delayed.

One example relates to the use of local anaesthetic preparations in obstetrics. In Britain in the early 1960s only 10 per cent of domiciliary forceps deliveries were carried out under local anaesthesia; in hospital 40 per cent of such cases were rendered painless by local anaesthesia.<sup>15</sup> The reason almost certainly was that lignocaine, the commonest and safest anaesthetic at the time, had never been effectively promoted by its manufacturers. From the first, it had lacked protection under British patents; hence cut-throat 'common commodity' price competition had prevailed almost from the time of its introduction.<sup>16</sup> Its consequently slender profit margins had provided neither the funds nor the incentive for its manufacturers to do a proper selling job on it.

Competitive sales promotion can also speed up the replacement of older, less safe therapies by newer and more effective ones. For example, in the decade between 1965 and 1974, the previously rising trend in the use of barbiturates was sharply reversed. Had the previous trend continued about 25 million barbiturate prescriptions would have been written in England in 1974.<sup>17</sup> In the event,

the actual number of prescriptions in 1975, at 6.7 million, was little more than a quarter of this number.<sup>18</sup> The greatest part of this drop was probably due to the very extensive competitive promotion for the alternative benzodiazepines as tranquillisers and hypnotics. The government-financed 'CURB' campaign to reduce the use of barbiturates in 1975 was introduced only at a time when the downward trend in their prescribing, which had been largely stimulated by commercial pressure, already indicated that they would be obsolete as routine sedatives and hypnotics within a few years. The ineffectiveness of this government campaign presumably contributed to the reasons for its being quietly discontinued early in 1977. A final argument in favour of competitive commercial sales promotion is that it facilitates the availability of a range of alternative compounds which may not differ much in overall effectiveness but may give a dramatically different therapeutic response from one another for an individual patient. The latest non-steroid anti-inflammatories have already been mentioned as an example. None of the first four compounds put on the market has a decisive therapeutic advantage over the others. However, for a particular patient one compound may prove to be relatively ineffective whilst another will provide significant relief.<sup>19</sup> Unless competitive promotion by the individual manufacturers had been permitted, those patients who benefit only from the third or fourth similar compound onto the market would probably have been denied the relief now available to them.<sup>20</sup>

15 Teeling-Smith G. *The Role of Marketing in Scientific Progress: in Science, Industry and the State*. Pergamon, 1965.

16 For a discussion of the role of 'common commodity' price competition, as opposed to 'price and performance' competition, see *The Canberra Hypothesis*.

17 *Medicines Which Affect the Mind*, OHE, 1975.

18 Health and Personal Social Services Statistics, HMSO, 1976.

19 Huskisson E C *et al* (1976). Four new anti-inflammatory drugs: responses and variations. *British Medical Journal*, 1, 1048.

20 Another case relates to paracetamol. Clinical trials showed that tablets of paracetamol were inferior as an analgesic to Tab. Codeine Co., with which initially they were competitive in price. On this basis 'official sources' would never have recommended their use. It was later established, however, that for about 25 per cent of people paracetamol tablets were noticeably more effective than codeine. As a result paracetamol soon enjoyed a very wide sale. This success has been enhanced by the increased awareness of the potentially harmful effects of aspirin, and by the price reductions made possible by the economies of scale in the manufacture of the now frequently prescribed paracetamol.

# The opinions of doctors

Next it is relevant to consider the attitudes of the prescribers themselves.

## (i) Towards official sources of information

There are relatively few hard data on the attitudes of general practitioners towards the possibility of greater reliance on official sources of prescribing information. However, what indications there are suggest that, apart from some specific criticisms, doctors appear to have a fairly neutral attitude towards existing sources of official prescribing advice. For example, in the early 1970s the Office of Health Economics sponsored a series of surveys amongst general practitioners to assess their reaction to visits from the Department of Health's Regional Medical Officers. These showed that general practitioners more often found the visit to be 'useful' rather than to be 'of no help at all'; that doctors were completely neutral as to whether the officials' prescribing advice was considered to be clinically sound or clinically unsound; and that the Regional Medical Officers more often than not accepted the general practitioners' reasons for their prescribing costs having been above average (the normal reason for the visit in the first place). However, these findings must be judged against the fact that between 1972 and 1974 the frequency of visits from Regional Medical Officers appeared to have been declining and against the fact that the financial sanctions available to the Department to penalise doctors for excessive prescribing had already to all intents and purposes fallen into disuse.<sup>21</sup>

The Sainsbury Report in 1967 also supported the view that official sources of prescribing advice were regarded rather neutrally by doctors. It referred to the fact that government publications such as *Prescribers' Journal* and *Proplis* (which classified medicines as either desirable or, for various reasons, 'undesirable') had 'failed to make the desired impact on the profession, partly from a suspicion of their origin and partly from a far from unfounded dislike of the unattractive, inconvenient and multifarious forms in which many of them are produced'. From a Committee which was essentially hostile to the commercial sales promotion activities of the pharmaceutical manufacturers this was a severe indictment.

Furthermore, not all doctors are merely indifferent or sceptical about publications from the Department of Health. There have also been some specific criticisms. For instance, a letter in the *British Medical Journal* referred to the Department's 'bar-charts' which show the relative cost of alternative medicines.<sup>22</sup> It pointed out that because the charts

were based on the price of a standard number of tablets or quantity of medicine, they ignored variations in the recommended daily dosage. The authors commented that a pharmaceutical company which demonstrated a 'cost-benefit' for its product by comparing the price of eight days' treatment with 50 days' of a competitor (as the Department of Health had done) would be considered unethical. 'Why', the authors asked, 'should the DHSS adhere to any lesser ethical standard?'<sup>23</sup>

Finally, a recent postal survey by Gallup Poll<sup>24</sup> asked general practitioners specifically whether they would prefer pharmaceutical company representatives to be replaced by Department of Health Regional Medical Officers 'as a source of information about listed drugs'. The result was an overwhelming preference for the representatives, who were favoured by 66 per cent of respondents as opposed to the 17 per cent who favoured Regional Medical Officers. As the response rate from general practitioners in this survey was 67 per cent, it confirms the impression that there is relatively little support among doctors themselves for the argument advanced by some politicians that prescribers would prefer official sources of information to the existing commercial ones.

## (ii) Towards commercial sources of information

Because it has been the subject of such very much more general criticism and controversy, there is much more extensively documented information on doctors' attitudes and reaction to the information provided by pharmaceutical companies. The main object of the studies in this field has been to determine whether or not the persistently voiced objections to virtually all forms of competitive promotional activity are representative of the views of the medical profession as a whole, or whether they emanate only from a vociferous minority.

A remarkable feature of the various studies over the years has been the consistency with which they indicate doctors' appreciation of the usefulness and reliability of information provided to them by the industry's representatives. For example the Gallup

<sup>21</sup> The doctors visited by the RMOs would also constitute a biased sample because many of them would have had above-average prescribing costs for their district.

<sup>22</sup> Haslock I and Wright V (1975). Relative Cost of Drugs. *British Medical Journal*, ii, 562.

<sup>23</sup> The bar-charts have subsequently been improved in their presentation to take account of this and other criticisms.

<sup>24</sup> *Doctor*, 1975, 5, 41.

Poll survey already mentioned found that 25 per cent of general practitioners 'welcomed' representatives and 76 per cent found some or all of them to be useful. Only 11 per cent regarded them as a waste of time.<sup>25</sup>

Another recent study by Medical Surveys Ltd<sup>26</sup> found that 81 per cent of general practitioners were opposed to any externally imposed reduction in companies' expenditure on medical representatives. The same survey recorded percentages of 60 per cent or above for those who also opposed any compulsory reduction in most other forms of promotional activity. The sole exception was direct mail literature, for which 66 per cent favoured a reduction.<sup>27</sup>

In addition, there have been two major surveys both of which reveal in considerably greater depth the general practitioners' attitudes to sales promotion. The first was undertaken by the Government Social Survey on behalf of the Sainsbury Committee in 1966. The second was sponsored by OHE in 1975 and undertaken by Market Investigations (P and A) Ltd. Both were interview surveys undertaken on stratified random samples of general practitioners. The first achieved the remarkably high response rate of 88 per cent, probably because of the prestige associated with the Government Social Survey and also because the Chairman of the Committee, Lord Sainsbury, made a personal appeal for the co-operation of the doctors in the sample. The 1975 survey achieved a considerably lower response of 69 per cent. This was no doubt due both to the fact that it was undertaken by a commercial research firm and to the fact that in the intervening years general practitioners as a population had been increasingly exposed to market research surveys. However, various statistical analyses suggest that it is unlikely that there is significant bias in the results of the latter survey as a result of its lower response rate. Figures 7 and 8, both taken from the Sainsbury Report, show in different ways that the general practitioners regarded medical representatives as the best method of 'finding out about the *existence* of new medicines'. Significantly, however, both Figures show that when it comes to 'finding out about the *efficacy* of new medicines' the doctors prefer to rely on articles in journals and on recommendations from consultants rather than on commercial sources of information. This suggests that doctors rely on commercial sources to make them aware that new medicines have become available, but that they do not naïvely accept the company's claims for its products without also referring to impartial sources of advice. Figure 9,

also from the Sainsbury Report, throws further light on this subject. It shows that for the two relatively 'minor' therapies – Ultralanum and Mogadon – the firms' representatives had been more influential than consultants in influencing doctors to prescribe. However, for the more 'serious' therapies – Indocid and Lasix – the opinions of consultants had been overwhelmingly more influential than the firms' representatives. It appears that a family doctor may often decide which relatively safe and simple ointment or sleeping tablet to prescribe on the basis of what the representative has told him; but for an anti-inflammatory or a diuretic the doctor will most often wait for the advice of a consultant.

Figure 10 has been constructed from answers to questions on a similar theme in the 1975 survey. In this case doctors were asked which of various sources of information they considered most important first for new medicines and then for established medicines. The results provide strong indirect corroboration of the earlier findings. Once again doctors reported that they normally relied on representatives to learn about new medicines, and it seems likely that as in the earlier survey they were thinking in this context primarily about discovering the existence of these recent introductions. For established medicines, on the other hand, they mentioned consultants more often than representatives as a source of information.<sup>28</sup> This probably corresponds once again to the conclusions in the Sainsbury survey that general practitioners rely on professional colleagues more than representatives to learn about the efficacy of medicines.

The belief in representatives as a useful source of information was also confirmed by answers to another question. Doctors were asked to rate the usefulness of the information provided by the last representative they had seen on a seven point scale – between extremes of 'very useful' and 'not very useful'. Fifty-eight per cent of doctors gave answers tending towards the 'very useful' end of the scale as against only 17 per cent tending towards the other end. The scores for the two extreme points were 31 per cent and 5 per cent respectively.

25 Answers exceeded 100 per cent because some doctors gave affirmative answers to both 'welcome' and 'useful'.

26 *ABPI News*, No. 15, 1975.

27 Doctors can, of course, have their names removed from any company mailing list if they so request. In practice only a very small proportion of doctors take advantage of this fact.

28 The high score for the Monthly Index of Medical Specialities (MIMS) confirms its widespread role as a reference book for prescribers.

## 7 The proportion of general practitioners considering each source to be either very good or fairly good with respect to getting to know of the efficacy and the existence of new products

<i>Main sources of information (In order of proportion rated either very good or fairly good for getting to know about EFFICACY)</i>	<i>Proportion of general practitioners rating source as either very good or fairly good for getting to know about the EXISTENCE of new products</i>	<i>Proportion of general practitioners rating source as either very good or fairly good for getting to know about the EFFICACY of new products</i>
	<i>Per cent</i>	<i>Per cent</i>
Articles in medical journals	76	83
Recommendations from consultants	71	79
Professional contacts with other doctors	59	68
Refresher courses	61	65
Drug firm representatives	78	61
Local clinical meetings	51	57
MIMS	67	50
Medindex	47	42
Drug firm meetings	37	33
Drug firm literature	52	23
Advertisements in medical journals	53	19

Source: Sainsbury Report (1967), HMSO, Comd 3410

## 8 The proportion of general practitioners selecting each source as the best one for finding out about new products

<i>Source of information</i>	<i>Source considered best for finding out about the EXISTENCE of new products</i>	<i>Source considered best for finding out about the EFFICACY of new products</i>
	<i>Per cent</i>	<i>Per cent</i>
Advertisements in journals	7	1
Articles in journals	19	31
Drug firm literature	10	2
Drug firm representatives	34	12
MIMS	7	3
Medindex	1	1
Recommendations from consultants	14	25
Professional contacts with other doctors	3	13
Local clinical meetings	2	4
Drug firm meetings	—	1
Refresher courses	3	7
	100	100
Not given	—	16*
Total	463	463

\*This group of 16 general practitioners declined to select a source which was best for finding out about efficacy, saying that there was no way to do this other than by personal experience.

Source: Sainsbury Report

## 9 Source of information which most influenced the general practitioner to prescribe the product

<i>Source</i>	Ultralanum	Mogadon	Indocid	Lasix
	<i>Per cent</i>	<i>Per cent</i>	<i>Per cent</i>	<i>Per cent</i>
Advertisements in journals	1	—	2	2
Articles in journals	4	8	20	15
Drug firm literature	14	18	6	4
Drug firm representatives	54	30	20	10
Recommendation from consultants	11	15	33	49
Professional contacts with other doctors	5	12	5	9
Drug firm meetings	—	3	—	—
Other sources	7	12	13	8
Don't know	4	2	1	3
	100	100	100	100
Base	152	263	427	432
All drug firm sources	69	51	28	16
All professional sources	20	35	58	73

Source: Sainsbury Report

## 10 Percentage of doctors considering each communication media to be the most important for new medicines and established medicines respectively: (base 398 doctors)

<i>Communication media</i>	<i>Percentage recording most important for NEW medicines</i>	<i>Percentage recording most important for ESTABLISHED medicines</i>
Medical journal advertisements	5	2
Medical journal articles	17	19
Mailings	4	4
Medical representatives	33	16
MIMS	7	23
ABPI Data Sheet Compendium	1	3
Consultant recommendation	16	12
Other doctors	4	9
Manufacturers' meetings	9	5
Other meetings	3	4
Medical cassette	1	2
Don't know	—	2

Source: MI(PA)L Survey, 1975

Another interesting result emerged when doctors were asked to state which had been the most helpful medium of communication in respect of the last new medicine they had prescribed (provided it had been first used within the last six months).

Whereas the representative was named only approximately twice as frequently as the consultant in Figure 10, this difference widened to a ratio of three to one when doctors were asked to think in terms of a specific product rather than in generalities. This suggests that the replies in Figure 10 may have been affected by the common tendency for respondents to offer 'prestige' rather than honest answers when replying to survey questions.<sup>29</sup>

All the examples discussed above show a remarkable uniformity in the findings of the different surveys. There is, however, one set of subjects on which conflicting pictures emerge from the survey undertaken for the Sainsbury Committee and from that undertaken for OHE. These relate to the competence of the representative and the accuracy with which he presents his information. Figure 11 is taken from the Sainsbury Report and cannot help but give an impression of rather widespread ignorance and irresponsibility among the industry's medical representatives. It was pointed out by market research experts at the time, however, that the questions were worded in such a way as to tend to lead the doctors to offer critical answers.

The same subjects were raised in the 1975 survey in a more neutral fashion. Again a seven-point scale was used and the answers on the three questions most closely related to those in the Sainsbury questionnaire are set out in Figure 12. This shows that 60 per cent of respondents felt that the thoroughness of the information provided fell precisely midway between the extremes of being too much or being insufficient. In respect of accuracy of description, 72 per cent felt it tended towards accuracy, with 41 per cent choosing the extreme point on the scale. By contrast only 4 per cent felt it tended towards distortion with only 1 per cent choosing the extreme point in this direction. In respect of the representatives' knowledge, 85 per cent felt they tended towards being well-informed, with 48 per cent choosing the extreme point on this scale. Again by contrast, only 3 per cent felt they tended not to be well-informed with only 1 per cent taking the extreme view.

From the contrast in the findings between the two surveys one is inevitably forced to the conclusion either that the calibre and training of medical representatives has improved dramatically in the

decade since 1966 or else that the wording in the Sainsbury questionnaire did indeed elicit a misleading conclusion.

Thus it seems clear that, with the exception of medical mailings, the views of hostile critics of the pharmaceutical industry's sales promotion fall wide of the mark in relation to the average general practitioner's views on the subject. Many doctors clearly find that the industry's sales promotion – and medical representatives in particular – provides useful and reliable information, although they are very far from depending exclusively on it. Critics seem to be out of touch with the perceived needs of the average general practitioner in respect of his prescribing information. This would, indeed, not be surprising because many of the criticisms emanate from teaching and research departments. The information requirements of such highly specialised hospital consultants and academics would be very different from the requirements of a busy family doctor.

<sup>29</sup> In the same survey there was another much more marked example of the veracity of a 'prestige' answer being called into question by more specific probing. When asked unprompted how they reported adverse reactions 71 per cent of general practitioners said they used the official Committee on Safety of Medicines (CSM) special report card. Only 25 per cent mentioned representatives. With prompting, however, the mention of representatives increased to 68 per cent, whereas the mention of CSM cards increased by only 2 points to 73 per cent. Finally, when asked the method by which they had actually last reported an adverse reaction, their answers indicated that representatives had been used three times as frequently as the official cards. With prompting, a three to one response in favour of the official method had become three to one against it.

## 11 General practitioners' views on the quality of information from drug firm representatives

<i>Frequency with which the general practitioner thought this happened</i>	<i>Quality of information from drug firm representatives</i>		
	<i>In the last year have you ever felt that a representative had insufficient knowledge to tell you what you wanted to know about a product?</i>	<i>In the last year have you ever felt that a representative made less of the side-effects of a product he was promoting than was clinically justified?</i>	<i>In the last year have you ever felt that a representative claimed more uses for a product than was clinically justified?</i>
	<i>Per cent</i>	<i>Per cent</i>	<i>Per cent</i>
Very often or fairly often	21	31	35
Not very often	30	27	27
Not at all	49	42	38
	100	100	100
Base*	437	437	437

\*These totals exclude doctors who never see representatives

Source: Sainsbury Report

## 12 Attitudes towards three aspects of the medical representative and his behaviour (base for answers: 377 general practitioners) shown in percentages on a seven point scale

<i>Thoroughness of information</i>						
Too much						Insufficient
3	2	10	69	5	2	1
<i>Accuracy of description</i>						
Accurate						Distorted
41	21	10	18	2	1	1
<i>Knowledge of representative well informed</i>						
48	24	13	8	1	1	Not well informed
						1

Source: MI(PA)L Survey, 1975

# The apparent economic dilemma

It has been shown so far that there are good theoretical and empirical arguments in favour of multiple competing sources of prescribing advice for prescribers. It has also been shown that family doctors in Britain appear to strike an intelligent balance in their reliance on commercial and non-commercial sources, although other things being equal they appear to prefer the latter. However, as was the case in examining the use of brand names for prescription medicines, the fundamental issue in sales promotion may in the final analysis be an economic rather than a scientific one. The importance of this issue stems from the fact that pharmaceutical sales promotion represents the interface between a national State service on the one hand and an international free-enterprise market economy on the other.

Looking first at the free-enterprise side, there can be no doubt that the pharmaceutical innovations of the modern research-based international industry have brought enormous benefits over the past 30 years. It is of course true that no economic system can be perfectly efficient. There may be weaknesses in the operation of the market economy type of industrial organisation characterised by the pharmaceutical industry, in the same way as there are certainly weaknesses in the operation of the command economy type of industrial organisation which is characteristic of Eastern Europe and some of the less developed countries. Nevertheless, the fact is that virtually all the important pharmacological and chemotherapeutic innovations of the past 30 years have come from the competitive international free-enterprise pharmaceutical manufacturers.<sup>30</sup> By contrast, virtually none has emerged from those countries which have organised their pharmaceutical production along bureaucratic 'command economy' lines. For pharmaceutical innovation (as opposed merely to production) the free-enterprise companies are the proven source. No one who has seriously studied the problem would suggest that the present research-based pharmaceutical industry should be replaced by some government or inter-governmental bureaucracy.

Similarly, on the other side very few people would advocate dismantling the National Health Service with a consequent shift towards a market economy for the provision of medical care. Again, with obvious imperfections, the health service meets the majority of the needs of the people and provides more or less socially equitable medical care.

The problem at the interface represented by the

provision of information for prescribers can be simply stated as follows. Most sectors of the health service are under the more or less complete control of the administration at least as far as levels of expenditure are concerned. In the hospitals, for example, the National Health Service is the employer; it is the purchaser; and hence it can in theory both allocate resources and fairly closely monitor and control their use. (The fact that a major reorganisation of the NHS had to be undertaken in 1974 in an attempt to enable it to do so more effectively is irrelevant in the present context.) By contrast, however, the same element of control is absent for the pharmaceutical expenditures incurred by the family practitioner services. The total cost is largely the resultant of a multitude of individual clinical decisions made by individual doctors. Hence it is outside the direct control of the administrators. This is not to say that the 6 per cent of total NHS expenditure accounted for by the purchase of the medicines prescribed by family doctors has not given good value for money. In terms of both social and medical benefits and in terms of economic savings for other sectors of the health service, pharmaceuticals have yielded outstanding returns.<sup>31</sup> However, some people apparently feel that it is wrong in principle for the private enterprise pharmaceutical manufacturers to have so much influence over individual prescribing decisions and hence over the total size of the National Health Service's open-ended commitment to meet the cost of the medicines which are prescribed. They feel that academic departments and the health service should assume a greater influence over patterns of prescribing and that the influence of the manufacturers should be correspondingly curtailed. To some extent there might be an element of 'empire building' in this attitude. Yet in general it is probably more a matter of political and economic ideology rather than self-interest – a feeling that it is somehow wrong in principle for private enterprise to be allowed to have so much influence over professional behaviour in one sector of the National Health Service. Nevertheless, although it might seem administratively tidier to draw the interface between the industry

<sup>30</sup> D Schwartzman credits the industry with 91 per cent of all pharmaceutical innovations between 1960 and 1969 (*Innovation and the Pharmaceutical Industry*, Johns Hopkins University, 1976).

<sup>31</sup> The memorandum of evidence from the Association of the British Pharmaceutical Industry to the Royal Commission on the NHS sets out a number of examples of economic benefits arising from the use of the medicines which have resulted from its research investment (ABPI Annual Report 1976-77).

and the health service at a different point, with the latter subsuming responsibility for the bulk of advice on prescribing, it would be catastrophic to do so. Marketing is an essential part of innovation. The innovative process starts with research and development, it includes investment in and design of production facilities, it depends on the protection of the industrial property created by invention, through patents and brand names, and finally it must include the promotion of the innovation to potential users.

It is important here to underline the essential role which sales promotion has to play in the process of all industrial innovation, and in pharmaceutical innovation in particular. It was pointed out in the first part of this paper that when therapeutic progress comes only in the form of infrequent but spectacular and readily accepted advances – such as the discovery of insulin – the scientific literature serves well enough to inform the medical profession about them. However, industrial innovation (and pharmaceutical innovation is no exception in this respect) does not occur in this form. No company, industry or government establishment has proved able to arrange its scientific affairs so that its technological advances have invariably taken the form of a number of infrequent but gigantic strides forward. The pattern of innovation takes the form instead of a succession of small forward steps, each often causally dependent on experience from the use of those which have gone before it. Thus it is each of these small steps which needs to be ‘sold’ to potential users if progress is to be maintained. This paper has indicated that both on theoretical grounds and from practical experience these small steps are likely to be most effectively promoted by the innovators who have been responsible for them rather than by any central and ‘objective’ authority. Indeed, there have been many cases where central authorities have constituted a potential barrier to the acceptance of desirable therapeutic innovations.

Finally, in this section, two other factors need to be considered. The first is whether commercial sales promotion for pharmaceutical products encourages their unnecessary and perhaps inappropriate usage. Although there will no doubt always be discussions on this issue, there is now a substantial body of economic literature which argues persuasively in the opposite direction at least in respect of those countries where there are controls to prevent misleading promotion.<sup>32</sup> Whilst effective communication direct from the innovator to the prescriber appears to be a necessary stimulant to encourage progress from

obsolescent pharmacology to newer medicines, there seems on the other hand to be no evidence that it need stimulate unnecessary or inappropriate demands in the process. Second, it has often been argued that the information provided by pharmaceutical manufacturers in the form of commercial sales promotion constitutes an economic barrier against the entry of new competitors into the market. However, Brozen has pointed out that a recent analysis in the United States has reached the opposite conclusion. High levels of sales promotion expenditure appear to be associated with a high rate of entry into particular pharmaceutical sub-markets rather than the reverse. He concludes that ‘advertising and other types of promotion are used as a means of entry rather than the reverse’.<sup>33</sup> Hence in all respects the ‘economic dilemma’ over the private enterprise provision of information for prescribers appears to be more apparent than real.

<sup>32</sup> Schwartzman op cit.

<sup>33</sup> Yale Brozen was here commenting on work by Professor Lester Telser (in Helms R B Ed, 1975, *Drug Development and Marketing*, American Enterprise Institute).

# Discussion

Provision of information for National Health Service prescribers by the pharmaceutical industry in the form of sales promotion material has been a subject of prolonged and often bitter controversy. This paper has suggested that much of this controversy may be a historical legacy from an admittedly unfortunate situation which arose in the early 1950s, when the newly-emerging international research-based pharmaceutical manufacturers found themselves in the position of being virtually the sole source of education about the therapeutic advances for which they had been responsible. The backlash against the manufacturers for having, in a sense, taken advantage of that situation still persists although the situation itself has now radically changed.

There are two main differences between the present situation and that of 25 years ago. First, the information provided by the manufacturers is now closely controlled both in content and volume by rigorous voluntary and statutory procedures. It is the policy of industry, as well as government, to eliminate even potentially misleading claims. Although the borderline between 'acceptable' and the 'unacceptable' sales promotion will probably always remain a matter of subjective judgement, surveys seem to indicate general satisfaction among prescribers with both the volume and the content of information which they receive from the industry. More importantly, there is now a very substantial amount of prescribing advice provided by government, by the professions and by consumer organisations. However, this is clearly seen by the prescribers as being complementary to the information provided by industry rather than as a replacement for it. There is no suggestion that doctors consider that the industry's role has been superseded by the education and information on new medicines which is now available from other sources. This paper has argued that this is what should be expected. Administrative and academic channels of communication could never satisfactorily take over from those at present controlled by the pharmaceutical innovators themselves. Each has a different role to play, and the prescribers and patients are best served by the present multiplicity of sources of prescribing information.

Nevertheless, the pharmaceutical industry recognises the importance of encouraging these other sources of information to function in parallel with its own. It has emphasised the need to establish closer liaison with the medical and pharmaceutical professions to ensure that commercial and non-commercial sources of advice

for the prescriber can satisfactorily co-exist. In particular, special attention has been paid to the need for mutual understanding between the pharmaceutical industry and university departments of clinical pharmacology. Each is dependent on the other, and each needs to recognise their different and mutually complementary roles. It is unfortunate that prejudices on both sides have sometimes hindered this development.

In addition, a new situation is arising with the emergence of the discipline of 'clinical pharmacy', originally in the United States, but now also in Britain. This represents an attempt to bridge the gap between the traditional role of the pharmacists as the 'experts on medicines' and that of the prescribers and clinical pharmacologists as the 'experts on their use'. The hierarchy of administrative pharmacists in the reorganised NHS could possibly provide a structural basis for such a development. However, it is important, for the reasons already given, to emphasise that if 'clinical pharmacy' does flourish as a specialty it too should grow up alongside the existing direct channels of communication between the pharmaceutical industry and prescribers rather than attempting to supersede them.

Finally, it is important to consider the underlying factors which may be responsible for the frequent preference expressed by doctors for commercial rather than official sources of prescribing information. The pharmaceutical industry offers information and advice which can be freely rejected, like any other form of sales promotion. Official advice on prescribing, on the other hand, may carry an authoritative aura, advocating compliance with some predetermined norm. The attitude that 'big brother knows best' is one which doctors understandably suspect when it comes to reaching a clinical decision about an individual patient who has come to consult them. They prefer instead the satisfaction of being able to rely on their own professional assessment of the information which they have gleaned from manufacturers, colleagues and official sources alike.

Despite this, the debate on the role and the form and volume of the information which the pharmaceutical industry provides for the prescriber will undoubtedly continue in the future. Those who advocate further restrictions on such information must consider not only the opinions of prescribers, but also the long-term economic costs which this might incur through the inhibition of pharmacological and chemotherapeutic progress in the future. In turn, pharmaceutical

manufacturers bear the responsibility of ensuring that the information which they provide to prescribers is seen not simply as a necessity for their economic survival, but also as a continued stimulus to higher standards of prescribing. This involves a continuing effort to extend the industry's already well-developed programmes for the training of representatives and for improving the effectiveness of communications to the prescribers as a whole. However, it would be wrong to expect perfection. Just as it is a chimera to imagine that anyone could develop highly potent medicines which were totally free of side-effects or adverse reactions, there are always bound to be some errors or misjudgements in prescribing information, whether it comes from industrial, government or academic sources. If the present multiplicity of sources of information were to be curtailed, the remaining centralised sources might be responsible for fewer individual errors of judgement, but on the other hand each would have a correspondingly greater potential for causing harm.

In the last resort, the quality of prescribing under the National Health Service must depend primarily on the judgement, and the training and the experience of the individual prescriber. Given the present standards of vocational training and continuing postgraduate education for family doctors in Britain today (which of course includes prescribing information itself), they should be well placed to reach optimum therapeutic decisions on the basis of the information which they receive from both industrial and non-industrial sources.