Social Science & Medicine 70 (2010) 934–941

Contents lists available at ScienceDirect

Social Science & Medicine

journal homepage: www.elsevier.com/locate/socscimed

'A pill for every ill': Explaining the expansion in medicine use

Joan Busfield

University of Essex, Department of Sociology, Wivenhoe Park, Colchester CO4 3SQ, United Kingdom

ARTICLE INFO

Article history:
Available online 22 January 2010

Keywords:
Pharmaceutical industry
Medicines
Medical profession
Medicalisation
Risk assessment
Consumerism
UK

ABSTRACT

This paper explores the major factors underpinning the expansion in medicine use over recent decades, using England as an example. It begins by constructing a 'progressive' model of the expansion and considers its limitations; it then uses a framework of countervailing powers to examine the contribution of key actors in the field. It examines the commercial orientation of the pharmaceutical industry and the strategies companies deploy to generate demand for their products. It explores the part played by doctors as researchers and gatekeepers to medicines, considering how features of medical knowledge and practice contribute to, rather than curtail, the expansion. It considers the role of the public as consumers of medicines, and the role of governments and insurance companies in both facilitating and controlling medicine use.

Introduction

The use of medicines has expanded considerably over recent decades both in England and more widely. The evidence for this is of two main types. First, expenditure on pharmaceutical preparations has increased significantly. In England in 2006, the National Health Service was spending about £22 million per day on prescription drugs, a 60 percent increase in real terms over the decade (National Audit Office, 2007). Globally sales by value of pharmaceuticals in 2007 were around $700 billion, whereas the figure in 2000 was about $350 billion (IMS Canada, 2008) – a doubling in seven years in real terms, although annual growth rates have been declining somewhat (the growth rate in 2000 was 11.5 percent; in 2007 it was 6.4 percent). The reduction is partly due to the replacement of patented by generic drugs as patents end and funders encourage a shift to cheaper generics. Spending on pharmaceuticals is particularly concentrated in western societies, with the US accounting for nearly half of world sales by value, though, not surprisingly since the starting base was lower, sales in middle-income countries like China, Brazil and India are now expanding more rapidly than in the west. The US per capita spending on prescribed and hospital medicines was £447 in 2007; within Europe the highest spending was in France at £322, with the UK the third lowest (of 11) at £195 (ABPI, 2008), suggesting some western countries resort to the use of medicines far more than others (see Bradley, Hanse, & Kooiker, 2004). However, pharmaceutical expenditure depends not only on sales volumes but also on prices, with inexpensive preparations like aspirin contributing relatively little to global sales by value. Patented preparations are typically more expensive than their generic equivalents and the use of generic medicines varies between countries (for instance, it is relatively low in France). Prices charged for the same medicines also differ – for instance, US prices are around 30% higher than the OECD average (OECD, 2008). Hence data on expenditures give only a rough measure of the expansion in use.

Arguably a better measure of the expansion in western societies is provided by the growth in prescriptions dispensed, though whether a medicine requires a prescription can vary. Here the evidence is clear cut. In England, the number of prescribed medicines dispensed increased from an average of 8 per person in 1989 (Department of Health, 2001) to 16.4 in 2008 (NHS Information Centre, 2009) – a doubling over twenty years, with annual increases now running at around 4–5 percent. Spread evenly, this is well over one prescription per month for every year of a person's life, and does not take account of the enormous range of over-the-counter medications like pain-killers not requiring a prescription. Some types of pills have seen especially large increases. For instance, the use of statins to reduce cholesterol has been expanding rapidly, from 29.4 million prescriptions dispensed in England in 2004 to 52.4 million in 2008, at a cost of £594 million (NHS Information Centre, 2006, 2009). In the US, the number of visits to doctors and hospital outpatients involving a recommendation for some drug (prescription or non-prescription) increased by 79 percent between 1995–1996 and 2004–2005, again with growth particularly high for some types such as antidepressants, drugs for hypertension, to reduce cholesterol, and for asthma (National Center for Health Statistics, 2007).

E-mail address: busfj@essex.ac.uk

0277-9536/$ – see front matter © 2009 Published by Elsevier Ltd.
doi:10.1016/j.socscimed.2009.10.068

Taken together, the evidence indicates that prescribing medicines has become a dominant, if not the dominant, form of health care in western societies and its role in middle-income countries is growing rapidly. How do we account for the expansion in medicine use? In an earlier paper (Busfield, 2006) I explored one factor – the pharmaceutical industry's control over the science underpinning drug development and testing. In this paper I put the expansion into a broader context and explore a range of contributory factors, taking England as an example. I start by constructing a simple, 'progressive' model of the expansion and outline its inadequacies. I then employ a model of countervailing powers, whose balance changes over time and varies between countries, to explore features of the activities of a range of actors, and the pressures they exert, or fail to exert, on one another, that together have led to an increase in medicine use. This offers a more fruitful framework for understanding the expansion.

The 'progressive' model

The 'progressive' model of medicine use I have constructed reflects the concepts and ideas of many medical professionals and the pharmaceutical industry when they talk, for example, of *advances* in pharmacology, of scientific *progress*, and of the *benefits* to patients of new drugs. Here the expansion in use over recent decades is seen as resulting from the successes of medical science and pharmacology in identifying new ways of treating illness. Such advances depend on having the resources to invest in the development of new, unprecedented technologies for controlling illness. Hence the increasing affluence of developed societies is crucial: it not only permits this investment, but also expenditure on its fruits – the new, more effective medicines that result, with affluence typically giving individuals greater access to medicines through improved health services.

Assumptions about health and medical need are central to this 'progressive' model. The scientific innovation that underpins the development of pharmaceutical preparations is seen as a response to established health needs – pills are the tools of medicine developed to meet health needs, and the industry's role is to support medicine and serve the interests of the sick by providing treatments that reduce symptoms and help to cure illness (for a discussion of the concept of need see Doyal and Gough (1991)). The model is also consistent with the observation that since illness is age-related, medicine-taking increases markedly with age. In England in 2007, those aged 60 and over had on average more than four times as many items dispensed as those aged 16–59 – 42.4 compared with 9.5 for the 16–59 group (NHS Information Centre, 2008: 8). There are also marked age gradients in use in the US (National Center for Health Statistics, 2007). The counter-observation that medicine-taking is higher in richer countries where, for various reasons including nutrition, health is typically better, and lower in poorer countries where standards of living are low and health typically worse is then explained by the fact that such medicines are often beyond the resources of many in poorer countries (it cannot be adequately explained by differences in age distribution).

The 'progressive' model can also incorporate the expansion in the preventive use of medicines now a feature of developed societies, with the argument that greater understanding of the biochemistry of the human body has improved knowledge of the bodily processes that can be precursors of illness, such as high blood pressure, which if regulated by drugs, may prevent illness developing. The model is set out in Table 1.

This model is powerful and its positive view of medicines and the reasons for increasing use is supported by some of the evidence. Drugs undoubtedly make a significant contribution to the control of many illnesses – antibiotics are one example. Similarly preparations like aspirin frequently help to reduce pain. And many newer medicines, such as anti-retroviral drugs for AIDs, have clear health benefits. However, the model, with its assumption that medicines are developed by pharmaceutical companies primarily to meet identifiable health needs, presents an idealised, over-simple picture of the expansion. It ignores the complex processes that underpin the development and acceptance of scientific innovations (eg Howell, 1995). Further, the lack of attention to other factors that lead to expanding use beyond the meeting of health needs is problematic. We need therefore to consider other ways of understanding the expansion. In this paper I adopt a more critical, less idealised stance using the framework provided by Light's (1995, 1997) model of countervailing powers. This identifies key actors in the field whose activities and practices influence medicine use – the pharmaceutical industry, doctors, the public, and governments and medical insurance companies. I start with the pharmaceutical industry since it explicitly seeks to expand medicine use.

Table 1
The 'progressive' model of the expansion.

Dimension	The progressive view
View of medicines	Medical technology based on science
Role of medicine-taking	Meets fundamental health needs
Impact of medicine-taking	Reduces or prevents sickness
Place and standing of science	Value-free tool of medicine
Position of doctors	Dominant
Interests being served	Patients
Explanation of expansion	Advances in medical science

The pharmaceutical industry

A number of analysts have argued that the industry, which plays a key role in developing and producing medicines, has a clear interest in maximising medicine use and actively encourages this well beyond the meeting of health needs (eg Moynihan & Cassels, 2005). Such writers note that pharmaceutical companies are capitalist enterprises seeking to make profits in the market and so engage in the *generation* of wants (see Galbraith, 1956). Consequently they contend that the main reason for the increase in medicine use is companies' success in expanding their markets and encouraging more extensive use of their products. This requires the support of doctors because of their prescribing role, and the industry has been very active in securing this support. It has also put considerable effort into ensuring that government regulation and control is limited (see below). The major companies, all multinationals, are large and powerful, and seek to expand markets and increase demand in order to increase profits (Angell, 2005). The ten largest in 2007 had about 45 percent of the global market in terms of sales value (ABPI, 2008).

One way pharmaceutical companies can increase profits is by developing drugs that can be patented. A patent gives a company a 20-year monopoly, though the period between drug approval and patent expiry is shorter. However, companies use various strategies to extend patents, including filing additional patents for the same medicine, and engaging in patent disputes and litigation (European Commission, 2009). Medicines that need to be taken for long periods of time are particularly profitable for companies and provide them with their 'blockbusters'. Long-term use is often considered necessary for drugs prescribed for preventive purposes and is one reason they are attractive to companies. For example, the statin, Lipitor, produced by Pfizer, the largest pharmaceutical company in the world, was in the year to May 2008 the best-selling drug by value worldwide (IMS Health, 2008). Competition in such

markets is fierce, with many top companies producing relatively similar drugs (so-called 'me toos'). Since developing products with high commercial potential is not easy and the major companies have identified rather few genuinely innovative products in recent decades (Angell, 2005), they are increasingly collaborating with, or taking over, smaller companies, including biotechnology companies, that are generating new, potentially profitable, drugs (Busfield, 2003; European Commission, 2009).

Other evidence also indicates that profit more than health need is the guiding principle in the development and marketing of pills. Companies show far less interest in treatments for rare conditions, or those more common in third than first world countries – usually termed 'neglected' diseases – where the profits will be small since most people in these countries cannot afford the cost of patented drugs. Companies have to be given special incentives to develop treatments for neglected disorders (Pharmaceutical R&D Policy Project, 2005), and it may take charitable funding to support new research into treatments for third world illnesses, as with the Gates Foundation and malaria (however GSK has announced it will make malaria drugs available more cheaply).

Companies use a variety of strategies to generate demand for their products. The first and most obvious is marketing and promotion, including the intensive publicising of patented medicines using their brand names. A study by Gagnon and Lexchin (2008) drawing on various sources found spending on promotional expenditure in the US at 24.4% of sales value whilst spending on R&D was 13.4%. An EC survey (European Commission, 2009) found pharmaceutical companies spending 23% on promotion and marketing against 17% on R&D. In England, unlike the US and New Zealand, direct to consumer (DTC) advertising of prescribed drugs is not permitted. However, companies readily find alternative forms of publicity. They have long used press releases to make brands better known (especially successful in the case of Viagra), writing copy for journalists and medical publications. And they now use TV commercials that, whilst not mentioning specific products, give the name of the company funding the advertisement, and refer to particular problems, such as sexual difficulties, suggesting that doctors can provide help for them (Financial Times, 29.7.2008). The gap between this and direct advertisements to the public is not large and the aim of expanding demand is the same. And the evidence indicates that patients are influenced by such promotional activities (Mintzes et al., 2002).

Moreover, companies are free to promote branded products to doctors, their key audience, using familiar incentives such as providing pens, mugs and post-its, and sponsoring conferences, their efforts reflecting the importance of doctors in facilitating increased medicine use. They also send company representatives on frequent surgery visits with information about new products and samples (Wazana, 2000). Companies claim such promotional activity is designed to inform practitioners about new, more effective products, and practitioners themselves, whilst recognising the blandishments of the industry, usually argue that their prescribing is not influenced by the industry's endeavours (Prosser & Walley, 2003). However the evidence indicates it is (Prosser, Almond, & Walley, 2003; Wazana, 2000) and that even small gifts can influence behaviour (Katz, Caplan, & Merz, 2003).

A second strategy deployed by the companies relates to their control over the science that underpins the development and testing of new medicines to determine that a drug is safe and effective – assessments necessary if a drug is to be licensed. I argued elsewhere (Busfield, 2006) that the industry's control over this science encourages an uncritical acceptance of its products by doctors and patients, and so contributes to their expanding use. Doctors cannot hope fully to examine the science that underpins the claims as to a product's efficacy since it is difficult to keep up with the large and increasing number of products on the market. Yet licensing serves as a warrant to use a product relatively freely, often well beyond the limits of the testing that has been carried out – so-called off-license prescribing.

One aspect of this control over science is that industry researchers frequently carry out research and then ghost write papers, successfully persuading medical researchers, because of the value of increasing their publications, to put their names to them – evidence indicates that this practice is extensive (House of Commons Health Committee, 2005; Sismondo, 2007). Such papers help to promote new products to doctors. There is also evidence of commercial influence on journal editors (Lexchin & Light, 2006). Further, the industry pays doctors to find patients to participate in pre-approval trials of new drugs and for trials of newly licensed medicines, which may encourage them to use these products, data showing that participating doctors are more likely subsequently to prescribe the trial sponsor's drugs (Andersen & Sondergaard, 2006).

We can include under this heading the use of 'scientific', 'educational' data to generate sales through raising doctors' and the public's 'disease awareness' by means of leaflets in surgeries and chemists, and through journal, newspaper and magazine articles (Angell, 2005; Moynihan & Henry, 2006). The use of epidemiological data to claim an illness is more common than generally thought is usually justified on the grounds that it is undesirable for illness to go undetected and untreated. However, the figures provided often have little sound empirical foundation since good epidemiological data are hard to obtain, and the claims cannot be readily and carefully examined by either the harassed practitioner or patient, nor do they have to be scrutinised by licensing agencies. Nonetheless disease awareness campaigns can change the boundaries of an illness and increase the number of prescriptions issued.

The third strategy to encourage medicine use is to construct new medical conditions or extend the boundaries of existing ones considered to require pharmaceutical treatment, which the industry heavily promotes. Various authors have explored such activity. Moynihan and Cassels (2005) use Payer's (1992) term 'disease mongering' to describe the way in which companies help to construct new disease categories to facilitate the creation and expansion of markets for medicines, a process in which they secure the support of doctors. They list a wide variety of these new conditions including high cholesterol, osteoporosis, sexual dysfunctions and attention deficit hyperactivity disorder. This type of territorial expansion is crucial to the expansion in pharmaceutical use since it extends the range of conditions judged to require medical intervention.

The industry's activities have been especially visible in relation to mental disorder. Healy (1987, 2004), for one, has explored the way the desire to increase the market for drugs such as Prozac helped to expand the boundaries of depression. In a similar vein, the historian Edward Shorter (1997) argued that: 'The ultimate force behind the discovery and adoption of new drugs such as chlorpromazine was not academic scientists such as Laborit and Delay but the drug companies' (1997:250). He further contended that in their advocacy of new drugs psychiatric diagnosis 'was increasingly manipulated by pharmaceutical companies' (1997:32), pointing to the companies' role in constructing specific conditions such as phobic disorders. Consequently, whilst some psychotropic medicines were introduced to treat well-established, severe mental illnesses, and helped to control symptoms and make patients' behaviour more acceptable, companies also actively sought to add new conditions, broadening the boundaries of disorder and creating new markets for their products.

Identifying conditions held to require long-term treatment is particularly valuable to companies and the shift from using medicines to treat illness to using them to try to prevent it, or to enhance

well-being, as with Prozac, is crucial. We can describe this as disease mongering, or as part of medicalisation – the extension of medicine into new territories – but need to recognise the part drug companies play as active drivers (Conrad, 2005). Such activities suggest we should modify Illich's dictum 'that doctors gain legal power to create the need that, by law, they alone can satisfy' (1977:16), and say that 'pharmaceutical companies create health needs that they alone can satisfy'.

The 'progressive' model views the pharmaceutical industry as *supporting* medicine's therapeutic endeavours. However, the evidence indicates that the industry plays an active role in *shaping* those endeavours. How far, then do doctors seek to resist the pressures exerted by the industry?

Doctors

Doctors have two main roles in relation to medicines. First, they sometimes play an important role in developing new medicines, often in alliance with the industry. This is particularly true of medical researchers working in academia, clinical contexts, or within the industry. Such doctors may be keen to contribute to the development of new drug technologies, whether for altruistic purposes as the 'progressive' model assumes, or perhaps more often for a wider range of motivations – concern for patients, and to enhance their status, career and reputation.

Second, since doctors are the major prescribers of medicines, they have a crucial role as gatekeepers, officially regulating access to medicines in clinical contexts, determining which to prescribe, or whether any medicine is necessary. This role has become increasingly important as the number of available drugs has grown and prescribing has become such a central part of medical practice. Doctors have the most extensive powers of prescribing amongst health practitioners, and may also recommend over-the-counter medicines. As sociologists have often noted, it is doctors who have control over the label of illness (Freidson, 1970), officially identifying whether a person is ill and whether a particular medication is needed – these are considered matters for expert clinical judgement. The introduction of nurse and pharmacist prescribing has so far done little to modify this power since their prescribing powers are more restricted; in 2006, doctors wrote 98 percent of prescriptions (National Audit Office, 2007), though the proportion of nurse and pharmacist prescribing is expanding.

Bearing in mind these two roles, do doctors themselves contribute to the expansion in medicine use? Is it simply that with more medicines being developed they have more to offer patients to meet their health needs, or are other processes at work? As gatekeepers to medicines do they seek to curtail the expansionary pressures coming from the industry or are there features of medical knowledge and practice that make their gate-keeping relatively ineffective? Do they play a significant role in challenging the power of the pharmaceutical industry? I argue that four features of medical knowledge and practice encourage prescribing and help to ensure that doctors play a relatively minor role in challenging the expansionary pressures of the industry. The first three relate to doctors' clinical work: their interventionism, the imbalances in their risk assessments, and their limited knowledge of drug technologies. Finally, both medical researchers and clinicians sometimes directly contribute to the process of medicalisation.

Medicine's interventionism was aptly described by Freidson: 'the aim of the practitioner is not knowledge but *action*. Successful action is preferred, but action with very little chance of success is to be preferred over no action at all' (1970:168, his italics). This tendency, founded in altruism, but also necessary in order to retain patients who want something done for them (see below), encourages prescribing with a significant proportion of medical encounters ending with a prescription. One English survey showed that just over half of consultations led to a prescription (National Audit Office, 2007), a situation frequently exacerbated by the time pressures doctors face (GP consultations average only 13 min (Audit Commission, 2004)). A prescription symbolises that the doctor has something to offer and can help the patient, even if it is unlikely to make a real difference to their condition (Butler, Rollnick, Pill, Maggs-Rapport, & Stott, 1998); it also provides a relatively speedy way of ending the medical encounter. This interventionism is not new; however, as more medicines come onto the market and doctors also face the industry's intensive promotional activities, the opportunities for 'doing something' are extended with expansionary implications for medicine use beyond the meeting of health needs.

Doctors often report they are under pressure from patients to prescribe, but the pressure may be more in terms of their perceptions than actual patient requests (Britten & Ukoumunne, 1997). Certainly patients as active consumers are more demanding than in the past (see below), with three-quarters of English doctors surveyed reporting patients' demands had increased over the previous three years (National Audit Office, 2007). However, this does not absolve doctors from the responsibility of deciding whether a drug is necessary or not. The pressure on doctors to prescribe partly reflects the fact that many medicines require a prescription. It also arises from their emphasis on their capacity to help, past willingness to prescribe, and pharmaceutical companies' active marketing. Together these have contributed to a culture in which pills are seen as a solution to a wide range of problems. Consequently, although doctors are the formal gatekeepers to prescribed medicines, their interventionist tendencies militate against tight gate-keeping.

The second feature of medical work that prevents tight gatekeeping relates to risk assessment in the face of uncertainty in clinical practice. In a classic paper Scheff (1963) argued that doctors have to weigh up two types of error when uncertain whether a patient is ill. The risk of treating a person who is not ill with a treatment they do not need, and the risk of not treating a person who is actually ill, who could become worse if not treated. Faced with this uncertainty, doctors usually err on the side of treating the patient, judging it to be more dangerous not to treat someone who may prove to be ill than to treat them when actually there is no need to do so, an assessment imbalance exacerbated by their interventionist tendencies. This also applies to judgements of severity, so encouraging the use of medicines where illness is not severe and the individual would almost certainly recover without treatment. In addition, the fear that an illness could return may lead a doctor to recommend that treatment continue for a long period, even though the risks of long-term use have often been poorly assessed when the drug was licensed and may only emerge over time (testing prior to approval usually lasts for no more than a year and frequently much less). The same assessment imbalance applies to the preventive use of medicines, with greater emphasis given to the risk of an individual becoming ill, even if that is low, than to the risks to health of long-term medication. Of course the judgement of risks changes according to the possible illness and type of treatment. The more severe the illness the more likely the doctor is to take treatment risks and the greater the known risks of a particular treatment the more certain a doctor will want to be that it is needed. Overall, however, the imbalance in their risk assessments sustains and encourages medical interventionism and reduces resistance to the industry's pressures.

One aspect of this imbalance is the tendency for the risks associated with medicines to be downplayed, making doctors less cautious in their prescribing. A number of factors contribute to the downplaying of treatment risks. First, a culture of optimism about

the value of new drugs, partly generated by the industry, may lead to the risks associated with particular drugs – the adverse drug reactions (ADRs) and side effects – being viewed as a price worth paying for the benefits of a new drug (Abraham & Davis, 2005), leading negative evidence to be largely discounted (the term side effects itself implies the benefits outweigh the negative consequences). More importantly, ADRs and side effects, which can be extensive (see Pirmohamed et al. (2004)), may not be readily attributable by doctors to the medicine prescribed and so be less visible (Corrigan, 2002) – did someone commit suicide because they were depressed or because they took a particular antidepressant? – and may also be misinterpreted because of enthusiasm about a new drug (Abraham & Davis, 2006).

Again it might be argued that the difficulties of assessing the risks of treating versus not treating a potential illness are not new and have long tended to favour treatment. Equally it can be argued that the risks associated with taking medicines have long been downplayed. However as the range of medicines increases and doctors face the industry's extensive promotional activities, these features have a greater impact. Moreover we also need to add into the equation the greater risk consciousness, said to be a feature of late modern societies (Beck, 1992; Giddens, 1991). Greater risk awareness, combined with a far larger repertoire of medications and the industry's heavy marketing, exacerbates doctors' tendencies to prescribe medicines to those who seek their help.

A third feature that prevents tight gate-keeping is that doctors' knowledge of pharmacology is often limited, though hospital specialists may acquire a reasonable knowledge of drugs used in their field. During medical training the amount of specific teaching in pharmacology is limited – an English survey showed a total of only 61 hours teaching in pharmacology, clinical pharmacology and therapeutics (Aronson, Henderson, Webb, & Rawlins, 2006). And many admit they do not have the technical expertise to evaluate reports on the efficacy and effects of drugs (National Audit Office, 2007). With the number of medicines increasing, most say they do not have the time to keep up-to-date with new information about efficacy, risks and side effects, with 75 percent of GPs reporting that they had read less than half the prescribing information received over the previous year (National Audit Office, 2007). Doctors' limited knowledge of the full panoply of medicines and their efficacy and risks makes appropriate gate-keeping in the face of patients' expectations more difficult. It also makes them more susceptible to the pharmaceutical industry's intensive marketing. Doctors often learn about new medicines from company rerepresentatives rather than independent sources, finding time to meet with representatives keen to encourage the use of their products and emphasise their effectiveness.

Medicalisation (the more usual term than disease mongering) is the fourth feature of medicine that encourages an expansion in medicine use. The concept draws attention to doctors' contribution as researchers and clinicians in extending the domain of medicine. Zola (1972) defined medicalisation as the process that makes 'medicine and the labels "healthy" and "ill" *relevant* to an ever increasing part of human existence' (1972:487, his italics) attributing it to the increased reliance on experts in a complex, technological world and to medicine's potential to help people and not, unlike Illich (1977), to active medical imperialism. Most writers now argue that a range of factors including the activities of the pharmaceutical industry contribute to medicalisation (Conrad, 2007), and accept that while some doctors, usually researchers, act as medical imperialists, most do not.

In Creating Mental Illness (2002), Horwitz (2002) provides an example of how researchers and clinicians' actions, both witting and unwitting, led to an expansion of the territory of psychiatric disorder. He argues that a key factor was the shift from an aetiological to a symptomatological classification in the third revision of the American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders (1980) on the basis of symptom clusters resulted from a particular conjunction of the activities of research psychiatrists and clinicians. On the one hand, research psychiatrists were determined to enhance diagnostic reliability and to retain a categorical model of illness, believing greater reliability, which had been shown to be poor (eg Gostin, 1975), could be best achieved by a focus on identifying and grouping symptoms. On the other, clinicians, whose views were largely grounded in dynamic psychology (with its assumption of the continuity of the normal and pathological), wanted to 'cling onto their client base' (2002:70) and espoused a far broader view of psychopathology. The result was that the DSM-III adopted an inclusive approach to the boundaries of disorder thereby allowing a greater number of individuals to be identified as manifesting mental pathology. Depression provides one example, and Horwitz and Wakefield (2007) show how this approach to classification helped to transform normal sadness into the pathology of depressive disorder.

These four features of medical knowledge and practice in themselves tend to encourage the expansion in the use of medicines. Consequently, faced with the industry's marketing pressures, doctors have little interest in mobilising against the industry and do not usually act as a countervailing power, allowing it free rein to encourage the expansion of medicine use.

The public

The public's role in relation to medicine use is changing and its power has somewhat increased. Individuals now often play a more active role in relation to health and health care than previously, readily seeking medical help and making demands for medicines they have heard about, rather than simply waiting to see what, if anything, is prescribed. With growing affluence, the increased emphasis on consumption, and the greater use of information technology, individuals are not only being transformed into active consumers (see Applbaum, 2006) with higher expectations of their health, but also into 'expert patients' (Fox, Ward, & O'Rourke, 2005). In England, the government's emphasis on choice in the NHS, and on the expert patient, has also contributed to this transformation (Klein, 2006).

Much of pharmaceutical companies' intensive promotional work discussed earlier is directed towards potential patients – the media briefings and publicity, and the materials about new disorders and medicines for doctors' surgeries and chemists – and helps to change public expectations, encouraging people to think of medicines as the way of handling their problems. Consequently individuals in affluent, consumer-oriented societies are more inclined to feel that any problem they have can be ameliorated, that pain or suffering need not be tolerated, and to seek medical help and a prescription. This does not mean they necessarily comply with the treatment recommended; indeed greater consumerism may discourage adherence to drug regimes (the World Health Organisation (2003) found only 50 percent adherence to long-term medications, but this included taking medicines incorrectly as well as not taking them). Data show, for instance, that though statins are widely prescribed, many individuals do not persist with their daily doses (Bandolier, 2006).

An important feature of this increased consumerism is the growth of patient groups. These can provide invaluable help and support to members, drawing on patients' experiences and knowledge. Some groups become strong advocates of increasing accessibility to treatments, though a few have been formed to oppose a particular treatment because of users' adverse experiences. For

example, the addictive properties of certain tranquillisers, such as Librium and Valium, that became visible in the 1970s led to patient campaigns from groups such as Tranx to restrict their use. In recent years pharmaceutical companies have provided financial support to some groups, including some groups that campaign to increase access to expensive medicines. One example of such support was when Roche, Pfizer and other pharmaceutical companies gave funds to the Rarer Cancers Forum (2008) that helped them successfully contest an initial decision not to permit NHS use of certain expensive medicines to treat these cancers because of their limited cost-effectiveness (they can add around six months to a person's life). Some would argue that patient groups' acceptance of industry funding undermines their independence; others see it as unproblematic.

Overall, the growth of a consumer-oriented culture contributes to a growing public demand for medicines, because it encourages individuals to seek help for their problems and sometimes to request medicines, and doctors are more likely to prescribe a medicine if it is requested (Carthy, Harvey, Brawn, & Watkins, 2000) Consequently, whilst patients' adherence to drug regimes is often poor and patient groups sometimes mobilise against specific medications, nonetheless the public is generally responsive to the industry's promotional activities and only rarely acts as a countervailing power.

Governments and insurance companies

Governments' role in relation to the pharmaceutical industry and medicine use is multifaceted. A key government activity is to regulate the approval of medicines on grounds of safety and efficacy by establishing agencies to license new drugs and monitor them once licensed. Although countries often have their own regulatory agency (the Medicines and Healthcare Products Regulatory Agency in the UK; the Food and Drug Administration in the US), increasingly agencies are operating on a cross-national basis. There is now a European Medicines Agency, as well as international efforts to harmonise drug regulation across the world. However, the evidence indicates that harmonisation, which the industry actively supports (Abraham, 2002), can lead to a lowering of standards (Abraham & Reed, 2001), as can the competition that can develop between regulatory agencies (Abraham & Davis, 2006). Agencies require companies to provide data on trials to test the safety and efficacy of products that compare a new drug with either a placebo or its competitors. But the regulatory processes have defects (see Busfield, 2006) and are narrowly focused and, once licensed, a new, patented medicine can be intensively marketed, even if there is only a very small difference in efficacy compared with an existing, cheaper competitor, and there has been no long-term evaluation of its side effects.

The government is also a key influence on the character of a country's health services through its policies on the extent of the public and private health sectors and its decisions as to welfare arrangements, including how health services are structured and funded. Whether funded by government or insurance companies, the organisation of health services shapes access to medicines, determining how easy it is to see a doctor, any charge for a consultation, which medicines require prescription, whether prescribed medicines are available without cost to some or all groups, and whether costs are to be shared. In the UK, the NHS provides health care largely free at the point of use and the public sector is dominant, accounting for 82% of all health care expenditure (Pollock, Talbot-Smith, & McNally, 2006). The private sector is correspondingly small and only around 13% of the population in 2003 having private medical insurance, with BUPA (British United Provident Association) accounting for around 40% of the market (Foubister, Thomosn, Mossialos, & McGuire, 2006). The Labour government has encouraged private health care companies to compete to provide certain NHS services but their contribution to the overall volume of NHS care is not very extensive.

The existence of the NHS ensures access to medicines is generally good with only 11 percent of items charged in England (NHS Information Centre, 2008: 6), even though half the population have to pay for medicines (a standard charge below average cost). This is because the largest groups eligible for free prescriptions – those under 16 or 60 and over – are precisely those where medicine use is greatest. There is therefore no major deterrent to medicine use on cost grounds and some government policies, such as the emphasis on choice in the NHS (see above), may encourage use.

Both governments and insurance companies have a direct interest in the price of medicines in order to control expenditure, and as medical costs have escalated, the pressures to control pharmaceutical costs have increased. The price of NHS medicines is negotiated with the industry, though the evidence indicates that prices have been quite favourable to the industry (Office of Fair Trading, 2007). But much of the government's effort to control NHS prescribing costs has focused on doctors. One strategy has been to encourage doctors to prescribe the lower-priced generic rather than more expensive patented drugs. Such policies have had some success (in 2008, 65% were dispensed generically in England) but costly patented drugs still accounted for most (74%) pharmaceutical expenditure (NHS Information Centre, 2009). There are also some government-sponsored campaigns designed to ensure that certain drugs are prescribed more cautiously if there is clear evidence of over-prescribing, as with antibiotics. Equally, however, there are government campaigns that encourage medicine use, as with the UK's decision to set up a helpline to deal with the spread of the H1N1 virus and to give access to Tamiflu without a medical prescription.

Funders, whether governments or insurance companies, also have an interest in the *level* of medical prescribing in order to contain costs. In the NHS, GP practice prescribing levels are now monitored by primary health care trusts and there are efforts to control high prescribers, while private medical insurance companies have tended to focus on controlling the costs of private hospital stays and consultants' fees rather than on prescribing levels and medicine costs (Foubister et al., 2006). One reason is that private medical insurance typically covers hospital care, where bed charges and consultants fees constitute the major part of the total cost, not primary care, where medicine costs are proportionately more important. Significantly, however, the cost of medicines tends to be measured in terms of the cost of the drugs themselves and not of the time used in prescribing them or the extra surgery visits they may involve. Medicines are said to account for around 10–11 percent of health costs (NHS Information Centre 2007; National Center for Health Statistics, 2007), but this does not include doctors' time seeing patients who might not have consulted them but for their desire for a prescription, though these costs are far harder to quantify.

In the context of rising health costs, governments and insurance companies now tend increasingly to focus on the cost-effectiveness of medicines, which may involve comparisons with the costs of alternative treatments (as in the case of generic versus patented drugs) or sometimes the cost of medication versus other types of intervention. In England, the concern to keep health costs down, along with a growing emphasis on evidence-based medicine, and the desire to ensure greater equity in access to treatments across the NHS, led to the establishment of the National Institute of Clinical Excellence in 1999, one of the major innovations of the new Labour government (Klein, 2006). NICE's guidance focuses on assessing the cost-effectiveness of particular health technologies,

Table 2
Key actors and influences on medicine use.

Actor	Role re medicines	Actor's own expansionary ideas and actions	External pressures
Pharmaceutical industry	Developers, producers, promoters and sellers	Desire to increase profits Mechanisms: (a) Marketing/promotion to doctors and public (b) Control over science (c) Disease mongering	x (a) Cost controls of govt and insurance cos. x (b) Drug licensing and safety regulations
Doctors	Prescribers and gatekeepers; sometimes researchers	(a) Interventionism; (b) Imbalances in risk assessment; (c) Limited knowledge; (d) Medicalisation	++ (a) Industry's promotion of medicines + (b) Patients' requests + (c) Greater risk consciousness xx (d) Cost controls of govt and insurance cos
The public	Potential users	(a) Desire to get better; (b) Belief in the value of medicines; (b) Active consumers/expert patients	++ (a) Industry's promotion of medicines + (b) growth of consumer-oriented culture + (c) Govt focus on choice and the expert patient
Governments and insurance companies	Set framework of health care including access to medicines; funders of health care; responsibilities re safety	(a) Improving access to health care; (b) Supporting choice; (c) Value of industry to the economy	++ (a) Industry's promotion of medicines xx (b) Growing cost of health care provision

Note: ++ = strong expansionary pressure; + weaker expansionary pressure.
xx = strong constraint on expansion; x = weaker constraint.

comparing them with the costs of other available treatments and sometimes indicating their cost-effectiveness at different stages of an illness. In order to reduce treatment inequities, NHS practitioners are required to follow this guidance, refraining from using treatments not judged cost-effective and ensuring that cost-effective treatments are made available, and private providers may also use NICE guidance to inform their policies. NICE does say 'No' to some technologies, but it can assess only a minority of treatments (Raferty, 2006), which reduces its impact.

However, although governments and insurance companies have a strong interest in product and price regulation, they can also have a strong interest in supporting the industry, either to secure more favourable prices or, if companies are located within the country, because they provide a valuable contribution to the economy. In the UK pharmaceutical companies are a significant part of manufacturing industry and their economic contribution to both employment and exports is emphasised by governments and the bodies representing the industry, like the Association of the British Pharmaceutical Industry. Moreover governments are subject to intense lobbying from the industry over a range of matters concerning regulation and pricing (Abraham, 2002). Both factors, the economic importance of the industry and its powerful lobbying, deter governments from acting as a countervailing power in relation to the industry to the extent that they might. Product regulation and cost controls can be tempered because of pressures to sustain the industry (Abraham & Davis, 2006).

Table 2 summarises some of the pressures affecting the level of medicine use.

Conclusion

My object in this paper has been to examine the key factors contributing to the expansion in medicine use using the framework of countervailing powers. My conclusion is that there has been a complex interaction of forces generating the expansion. Undoubtedly the development of new drug technologies by the pharmaceutical industry contributes to the increasing use of medicines, and many do meet health needs and alleviate illness. However, the industry, through its pursuit of profits and skilful use of marketing, its control of science, and its disease mongering, has been a major driving force in the current expansion, extending the boundaries of illness and encouraging use beyond the meeting of health needs. And as sales have grown and key companies have become larger, so the industry's power in the health sector has markedly increased.

Doctors in turn have done little to resist the expansionary endeavours of the pharmaceutical industry or to mobilise against it. This is because certain aspects of their knowledge and practice themselves encourage prescribing – their characteristic desire to provide some help to the patient, the imbalances in their risk assessments, their limited expertise in pharmacology, and their contribution to medicalisation. Many doctors also often believe, despite the evidence, that they are immune to the blandishments of the industry. Hence doctors have not generally acted as a significant countervailing power in relation to the industry and have largely played the role of handmaiden to its expansionary endeavours.

The public, who now have rather more impact on doctor-patient encounters than formerly, have nonetheless also only rarely acted as a countervailing power to the industry, for instance, when it has become clear that a particular medicine is causing major harm. Instead the transformation of individuals into active consumers with increased expectations of their health has encouraged medicine use, even though adherence to treatment regimes is often poor.

Governments and insurance companies have potentially far more power to control the industry through their role in regulating the licensing of medicines and the funding of health care. There have been some signs of greater efforts to control costs, which may well increase, given the current global financial crisis. In the UK up to now, the government has largely tended to concentrate on controlling doctors' power; in future they may seek to curtail the power of the industry more directly. Yet so far their efforts to control the industry have been relatively limited, in part because they are subject to intense lobbying from the industry and in part because in countries like the UK and the US the industry is very important to the economy.

I would argue that the expansionary tendencies that have increased pharmaceutical use so extensively are unfortunate. This is not only because medicines are often very costly, but also because the adverse reactions and side effects are considerable and should not be risked if not fully justified by medical need. In a subsequent paper I want to look more fully at evidence concerning the overuse of medicines. My aim here has been to explore the factors that have encouraged a very marked increase in the use of medicines, with rather little to hold them in check.

Acknowledgements

I would like to thank the two anonymous reviewers for their very helpful comments on earlier versions of this paper and in

particular for providing some additional references. I would also like to thank Ewen Speed for commenting on an earlier draft of the paper.

References

ABPI. (2008). Facts and statistics from the pharmaceutical industry. http://www.abpi.org.uk?statistics/section.asp?sect+1. Accessed 08.04.08.

Abraham, J. (2002). The pharmaceutical industry as a political player. *Lancet, 360*, 1498–1502.

Abraham, J., & Davis, C. (2006). Testing times: the emergence of the practolol disaster and the challenge to British drug regulation in the modern period. *Social History of Medicine, 19*, 127–147.

Abraham, J., & Davis, C. (2005). Risking public safety: experts, the medical profession and 'acceptable' drug injury. *Health, Risk & Society, 7*, 379–395.

Abraham, J., & Reed, T. (2001). Trading risks for markets: the international harmonisation of pharmaceutical regulation. *Health, Risk & Society, 3*, 113–128.

American Psychiatric Association. (1980). *Diagnostic and statistical manual of mental disorders* (3rd ed.). Washington: APA.

Andersen, M., & Sondergaard, J. (2006). How conducting a clinical trail affects physicians' guideline adherence and drug preferences. *Journal of the American Medical Association, 295*, 2759–2764.

Angell, M. (2005). *The truth about the drug companies*. New York: Random House.

Applbaum, A. (2006). Pharmaceutical marketing and the invention of the medical consumer. *PLoS Medicine, 3*, 445–447.

Aronson, J., Henderson, G., Webb, D., & Rawlins, M. (2006). A prescription for better prescribing. *British Medical Journal, 333*, 459–460.

Audit Commission. (2004). *Transforming primary care*. London: Audit Commission.

Bandolier. (2006). Patient compliance with statins. http://www.medicines.ox.ac.uk/bandolier/booth/cardica/patcomp.html. Accessed 17.10.08.

Beck, U. (1992). *The risk society*. London: Sage.

Bradley, C., Hanse, E. H., & Kooiker, S. (2004). Patients and their medicines. In E. Mossialos, M. Mrazek, & T. Walley (Eds.), *Regulating pharmaceuticals in Europe*. Maidenhead: Open University Press.

Britten, N., & Ukoumunne, O. (1997). The influence of patients' hopes of receiving a prescription on doctors' perceptions and the decision to prescribe: a questionnaire survey. *British Medical Journal, 315*, 1516–1610.

Busfield, J. (2003). Globalization and the pharmaceutical industry revisited. *International Journal of Health Services, 33*, 581–605.

Busfield, J. (2006). Pills, power, people: sociological understandings of the pharmaceutical industry. *Sociology, 40*, 297–314.

Butler, R., Rollnick, C., Pill, R., Maggs-Rapport, F., & Stott, N. (1998). Understanding the culture of prescribing. *British Medical Journal, 317*, 637–642.

Carthy, P., Harvey, I., Brawn, R., & Watkins, I. (2000). A study of factors associated with cost and variation in prescribing among GPs. *Family Practice, 17*, 36–41.

Conrad, P. (2005). The shifting engines of medicalization. *Journal of Health and Social Behaviour, 46*, 3–14.

Conrad, P. (2007). *The medicalization of society*. Baltimore: John Hopkins.

Corrigan, O. (2002). A risky business: the detection of adverse drug reactions in clinical trials and post-marketing exercises. *Social Science & Medicine, 55*, 497–507.

Department of Health. (2001). *Prescriptions dispensed in the community: Statistics for 1989–1999*. England: Statistical Bulletin. 2001/19.

Doyal, L., & Gough, L. (1991). *A theory of human need*. London: Macmillan.

European Commission. (2009). Executive summary of the pharmaceutical sector inquiry report. http://ec.europa.eu/competition/sectors/pharmaceuticals/inquiry/communication_en.pdf. Accessed 01.10.09.

Foubister, T., Thomosn, S., Mossialos, E., & McGuire, A. (2006). *Private medical insurance in the United Kingdom*. Copenhagen: WHO Regional Office, for European Observatory on Health Systems and Policy.

Fox, N., Ward, K. J., & O'Rourke, A. J. (2005). The 'expert patient': empowerment or medical dominance? *Social Science & Medicine, 60*, 1299–1309.

Freidson, E. (1970). *The profession of medicine*. New York: Dodd, Mead.

Gagnon, M.-A., & Lexchin, J. (2008). The cost of pushing pills. *PLoS Medicine, 5*, 29–33.

Galbraith, J. K. (1956). *American capitalism*. Boston: Houghton Mifflin.

Giddens, A. (1991). *Modernity and self-identity*. London: Polity.

Gostin, L. (1975). *A human condition*. London: MIND.

Healy, D. (2004). *Let them eat prozac*. New York: New York University Press.

Healy, D. (1987). *The antidepressant era*. Cambridge, Mass: Harvard University Press.

Horwitz, A. V. (2002). *Creating mental illness*. Chicago: University of Chicago Press.

Horwitz, A. V., & Wakefield, J. C. (2007). *The loss of sadness*. New York: Oxford University Press.

House of Commons Health Committee. (2005). *The influence of the pharmaceutical industry*. London: Stationery Office.

Howell, D. (1995). *Technology in the hospital*. Baltimore: John Hopkins.

Illich, I. (1977). *Limits to medicine*. Harmondsworth: Penguin.

IMS Canada. (2008). Global pharmaceutical sales, 2000–2007. http://imshealthcanada.com/o,3418,77303623_6387202_7777009. Accessed 06.08.08.

IMS Health. (2008). World pharmaceutical market summary. http://imshealth.com/mk/get_200806_WEBPAGE?_EC=pM8fAqdT. Accessed 24.06.08.

Katz, D., Caplan, A. L., & Merz, J. F. (2003). All gifts large and small; towards an understand of the ethics of pharmaceutical industry gift giving. *American Journal of Bioethics, 3*, 39–46.

Klein, R. (2006). *The new politics of the NHS* (5th ed.). Oxford: Radcliffe Publishing.

Lexchin, J., & Light, D. W. (2006). Commercial influence and the content of medical journals. *British Medical Journal, 332*, 1444–1447.

Light, D. (1995). Countervailing powers. In T. Johnson, G. Larkin, & M. Saks (Eds.), *Health professions and the State in Europe*. London: Routledge.

Light, D. (1997). The rhetorics and realities of community health care: limits of countervailing powers. *Journal of Health Politics, Policy and Law, 22*, 105–145.

Mintzes, B., Barer, M. L., Kravitz, R. L., Kazanjian, A., Bassett, K., Lexchin, J., et al. (2002). Influence of direct to consumer pharmaceutical advertising and patients' requests on prescribing decisions. *British Medical Journal, 324*, 278–279.

Moynihan, R., & Cassels, A. (2005). *Selling sickness*. London: Allen & Unwin.

Moynihan, R., & Henry, D. (2006). 'The fight against disease mongering'. *PLoS Medicine, 3*, 425–428.

National Audit Office. (2007). *Prescribing costs in primary care*. London: Stationery Office.

National Center for Health Statistics. (2007). *Health, United States, 2007*. Washington: Government Printing Office.

NHS Information Centre. (2006). *Prescriptions dispensed in the community: 1995–2005*. England, London: The Information Centre.

NHS Information Centre. (2008). *Prescriptions dispensed in the community: 1997–2007*. England, London: The Information Centre.

NHS Information Centre. (2009). *Prescriptions dispensed in the community: 1998–2008*. England, London: The Information Centre.

OECD. (2008). *Pharmaceutical pricing in a global market*. Paris: OECD.

Office of Fair Trading. (2007). *The pharmaceutical price regulation scheme*. London: OFT.

Payer, L. (1992). *Disease-Mongers*. New York: John Wiley.

Pharmaceutical R&D Policy Project. (2005). *The new landscape of neglected disease drug development*. London: London School of Economics.

Pirmohamed, M., James, S., Meakin, S., Green, C., Scott, A. K., Walley, T. J., et al. (2004). Adverse drug reactions as cause of admission to hospital. *British Medical Journal, 329*, 15–19.

Pollock, A., Talbot-Smith, A., & McNally, N. (2006). *The new NHS*. London: Routledge.

Prosser, H., Almond, S., & Walley, T. (2003). Influences on GPs' decisions to prescribe new drugs. *Family Practice, 20*, 61–68.

Prosser, H., & Walley, T. (2003). Understanding why GPs see pharmaceutical representatives. *Family Practice, 53*, 305–311.

Raferty, J. (2006). Review of NICE's recommendation, 1999–2005. *British Medical Journal, 332*, 1266–1268.

Rarer Cancers Forum. (2008). http://www.rarercancers.org.uk/about/our_sponsors. Accessed 18.08.08.

Scheff, T. J. (1963). 'Decision rules, types of error and their consequences in medical diagnosis'. *Behavioural Science, 8*, 97–107.

Shorter, E. (1997). *A history of psychiatry*. New York: Wiley.

Sismondo, S. (2007). Ghost management. *PLoS Medicine, 4*, 1429–1433.

Wazana, A. (2000). Physicians and the pharmaceutical industry. *Journal of the American Medical Association, 283*, 373–380.

World Health Organisation. (2003). *Adherence to long term therapies*. Geneva: WHO.

Zola, I. K. (1972). Medicine as an institution of social control. *Sociological Review, 20*, 487–504.