Health Care Professionals Independent Information About Medicines

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Health care professionals are the key link between prescription medicines and patients. Without a prescription from a health care professional, in most cases a doctor, medicines will never reach patients. Although this is true in developed countries, even in developing countries where there are informal avenues for the acquisition of prescription medicines, many people still consult a professional first. It is therefore imperative to understand how the prescribing decision is made and the factors that affect it. This chapter will briefly explore some of the main influences on health care professionals drawing largely on literature from Canada, the United Kingdom (UK) and the United States (US). I will also concentrate on general practitioner (GP) prescribing since the vast majority of prescriptions are written by this group of doctors.

Interviews with general practitioners (GPs) in the UK found that GPs felt that the use of a medicine by a consultant lent acceptability to their prescribing the same medicine. GPs did not seem to adopt a critical appraisal process in their use of journal articles and instead relied heavily on drug company information (Jones, Greenfield, & Bradley, 2001).

The importance of pharmaceutical company sources of information does not seem to be realized by GPs. When British GPs were asked their sources of information about new and old drugs they rated an independent drug bulletin (*Drug and Therapeutics Bulletin*) as their most important source of information for both new and old drugs. Pharmaceutical representatives and hospital/consultant recommendations were more important for information on new drugs, as opposed to old. In actual practice, information on the last new drug prescribed came from pharmaceutical representatives 42% of the time and hospital/consultant recommendations 36% of the time. Other sources of information were used infrequently (McGettigan, Golden, Fryer, Chan, & Feely, 2001). A 2010 systematic review examined how prescribing was affected

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by information that doctors received directly from pharmaceutical companies in three dimensions: cost, frequency and quality. The authors concluded "With rare exceptions, studies of exposure to information provided directly by pharmaceutical companies have found associations with higher prescribing frequency, higher costs, or lower prescribing quality or have not found significant associations" (Spurling et al., 2010).

The presence of medicine samples also has an effect on prescribing. When samples of antihypertensive drugs were available in a family practice clinic doctors were much less likely to comply with national guidelines for prescribing to newly diagnosed patients with hypertension than when samples were not available (Boltri, Gordon, & Vogel, 2002). The presence of samples also leads doctors to prescribe drugs that differ from their preferred choices (Chew, et al., 2000).

The heavy use of drug company informational sources and especially pharmaceutical representatives is not surprising given the amount of money spent by the industry on promotion. In the US it is estimated that annual expenditures exceed $57 USD billion or $61,000 for each doctor in the country (Gagnon & Lexchin, 2008). Out of that total $20.4 billion is spent on the activities of sales representatives and $15.9 billion is the cost of providing samples. While detailed figures are not available for other countries in Italy in 1998 the figure was $1.1 billion (Centro Studi Farmindustria, 1998), while in the Netherlands in the late 1990s an analysis of 28 marketing plans revealed that about $75 million was being spent exclusive of the cost of medical representatives and product managers (van Egmond-Vettenburg & ter Steege, 2001). Older data from developing countries found that 25 cents out of every dollar in sales was spent on promotion and there was often 1 sales representative for every 3 to 4 doctors (Lexchin, 1995).

Doctors are sensitive to the costs of medicines especially in situations where their patients need to pay part or all of the cost out-of-pocket. However, it is highly unlikely that costs actually influence prescribing decisions. In countries where this issue has been examined, the available literature indicates that doctors are generally unaware of costs, both relative costs (i.e., the cost of one medicine compared to another) and absolute costs. Country (developing or developed), level of training, specialty, and other factors seem to have little impact on the degree of

awareness. Furthermore, there is a consistent lack of appreciation of the large difference in cost between inexpensive and expensive drugs; expensive drugs are consistently underestimated and inexpensive drugs are consistently overestimated (Allan, Lexchin, & Wiebe, 2007).

Policy changes may increase doctors' awareness of costs. In the UK, such changes included the Indicative Prescribing Scheme, prescribing information and education initiatives, and the GP fundholding scheme. The latter gave general practices responsibility for their own budgets. The evidence suggests that when given responsibility for their own prescribing budgets in systems of socialized medicine, doctors do reduce their prescribing costs. In addition, the provision of individualized and practice-level prescribing data to GPs (known as PaCT data) that included the proportion of prescriptions written generically, increased the prescribing of lower cost generic drugs (Hobbs and Bradley, 1998).

The results of clinical trials have a variable effect on how doctors prescribe. After the publication of the Women's Health Initiative (WHI) showing that the use of hormone replacement therapy (HRT) led to an increase in breast cancer and coronary heart disease, prescribing of HRT dropped significantly in the US (Hersh, Stefanick, & Stafford, 2004) and in the Canadian province of Ontario (Austin, Mamdani, Tu, & Jaakkimainen, 2004). Similarly, there was a significant shift in the prescribing of antihypertensives following the release of the ALLHAT report that demonstrated that thiazide diuretics were as effective in reducing morbidity and mortality as newer more expensive classes of drugs (Austin, Mamdani, Tu, & Zwarenstein, 2004). Unfavourable results from ALLHAT about the alpha-blocker class of antihypertensives also led to a modest reduction in prescribing of this group of drugs (Stafford, et al., 2004).

Both WHI and ALLHAT were high profile trials that generated considerable publicity. For clinical trials that are less publicly visible the impact on prescribing appears to be dependent on whether or not pharmaceutical companies use the trials in their promotion. A group of researchers used 2 trials, Heart Outcomes Prevention and Evaluation (HOPE) study and the Randomized Aldactone Evaluation Study (RALES) to determine if publication of new evidence changes practice, and the extent to which promotion influences adoption of new evidence. HOPE

showed that the use of ramipril was beneficial for patients in heart failure and RALES showed the same thing for spironolactone. Publication of the HOPE study results was associated with rapid increases in the use of ramipril in Canada versus the US whereas there was only a modest increase in the use of spironolactone after RALES was published. The difference seemed to be due to company promotion to prescribers of the results of the 2 studies. HOPE was headed by a prominent Canadian researcher and the company making the product took advantage of this situation to aggressively promote ramapril in that country as opposed to the US. Since spironolactone was off patent in both Canada and the US there was no additional promotion of it and consequently much less growth in its prescribing (Majumdar, McAlister, & Soumerai, 2003).

The relationship between prescribers and patients also appears to have a significant effect on how health care professionals prescribe. In a Canadian study doctors identified perceived pressure from parents as a major factor in antibiotic prescribing. However, when parent focus groups were conducted it was discovered that most parents did not expect antibiotics when they visited their doctors and, in fact, suggested the opposite, i.e., that they did not expect the doctor to give their children a prescription. It is possible that the pressure perceived by physicians is not an expectation for antibiotics but rather an expectation for a physician to provide some form of intervention (Paluck, et al., 2001). Other research also supports the hypothesis that physicians were significantly more likely to perceive parents as expecting antibiotics if they used certain communication behaviours (Stivers, Mangione-Smith, Elliott, McDonald, & Heritage, 2003). Studies have shown that doctors' perceptions of patients' expectations were a stronger influence on prescribing than the expectations themselves (Britten and Ukoumunne 1997, Cockburn and Pit 1997). GPs may prescribe to preserve relationships with their patients, even when they know that such prescribing is not evidence based (Butler et al 1998).

Another manifestation of how doctor-patient relationships may affect prescribing is the work that has been done on the effects of direct-to-consumer advertising of prescription medicines in countries where this is legal, such as the US. A number of studies have shown that patients are highly likely to get a prescription for a specific product if they ask for that product by name. One of the factors motivating doctors to comply with their patients' requests is probably the

observation that 15% of patients reported that if they did not get the medicine that they requested that they would consider switching doctors (Frosch, Grande, Tarm, & Kravitz, 2010).

Finally, the way that health care professionals are paid may be a determining factor in how they prescribe. Two studies, one looking at prescribing of benzodiazepines (Renaud, Beauchemin, Lalonde, Poirier, & Berthiaume, 1980) and the other at antibiotic prescribing (Hutchinson & Foley, 1999) both found that doctors who are paid salaries are better prescribers than those who are paid under a fee-for-service system. The explanation is that a fee-for-service system encourages doctors to see patients quickly in order to generate more income and does not allow sufficient time to explore patients' problems and to discuss other treatment options, whereas when doctors are paid a salary there is no incentive to rush patients through the office. However, it is not completely clear if paying doctors a salary leads to better prescribing or if better prescribers choose to work in a salary setting.

Prescribing behaviour by GPs is a complex process with many factors influencing the choice of medication. Changing the way that they prescribe will also be a complex process and single initiatives are highly unlikely to be successful. Australian (Roughead, Gilbert, & Primrose, 1999) and Canadian (Maclure, et al., 1998) studies have both shown that a sustained message over a period of time can lead to significant changes in the way that doctors prescribe antibiotics and antihypertensives. Visits by specially trained educators, often clinical pharmacists, to doctors' offices to discuss specific prescribing topics produces effects that are relatively consistent and small, but potentially important (O'Brien, et al., 2007). However, many of these techniques are costly and resource intensive. In many developed countries there has been a reluctance to commit the resources necessary to achieve consistent and lasting changes, although there are some exceptions such as the employment of prescribing advisers in the UK (Weiss and Fitzpatrick 1997). The goal in developing countries will be that much more difficult to achieve.

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