Hospital doctors’ views of factors influencing their prescribing

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Abstract

Rationale, aim and objective Factors influencing doctors in prescribing of drugs have mostly been studied in primary care. Studies performed in hospital care have primarily focused on new drugs, not prescribing in general. An in-depth understanding of the prescribing process in the more specialized secondary care is not only important for secondary care itself, but because it also influences prescribing in primary care. The aim of this study is therefore to identify factors that secondary care doctors believe influence them in prescribing drugs, using a qualitative approach.

Method Semi-structured interviews were conducted with 15 hospital doctors in different medical specialities and the interviews were analysed from an interpretivist perspective. The information gathered was on how prescribing decisions were made in general and how the doctors chose a specific drug therapy, including information sources used.

Results According to our interviews, the hospital doctors took patient-specific factors and cost into consideration when prescribing, informed by different written information sources and commercial verbal information. Personal practice, colleagues and therapeutic tradition at the hospital or clinic, were influential in the prescribing of drugs. The themes identified should not to be seen as individual influences; many of them probably act in combination.

Conclusions If changes in prescribing behaviour are desired, factors warranting more attention include understanding how to influence therapeutic traditions and the doctor’s personal habits for prescribing. The importance of clinical experience and information exchange with colleagues should not be underestimated in providing information about drugs to hospital doctors.

Introduction

In 2004, in Sweden, there were 61.3 million prescriptions dispensed for a population of nine million people. The number of prescriptions has increased over time [1], and shows no sign of decreasing. In the debate about the quantity of drugs prescribed, the focus is often on cost and strategies for cost containment including, for example, targeting prescribers with guidelines [2]. Guidelines can increase prescribing quality by limiting unjustified prescribing variability between different doctors, practices, clinics or hospitals for specific diseases or symptoms. Studies have been done on the influences on prescribing in primary care to understand the reasons for such variability. For example, more rural than urban doctors in Australia claim that their information needs on prescribing are not being met in practice [3]. Low-cost prescribers among general practitioners in New Zealand emphasize listening to the patient during consultation more than do high cost prescribers [4]. However, results from studies of factors influencing prescribing in primary care cannot readily be transferred to hospital care, as the latter is more specialized and less standardized.

Studies performed in secondary care, looking at factors influencing prescribing, have primarily focused on newly marketed drugs. A qualitative study in Great Britain showed that hospital consultants rely on scientific literature and meetings when prescribing new drugs within their own speciality, but consult colleagues of other specialties when prescribing new drugs outside of their own speciality [5]. Another, similar, study showed that the determinants of new prescribing were based on four types of knowledge, that is, scientific, social, experiential and patient knowledge [6]. It is difficult to tell if the influences on the prescribing of new drugs are the same as on prescribing in general. Newly marketed drugs are often accompanied by intensive marketing...
campaigns and the distribution of copious scientific information by the pharmaceutical industry.

Prescribing decision making in secondary care has also been studied, using quantitative approaches. A study from the Netherlands showed that the doctors did not only consider the biomedical aspects in their choices of treatment – following the hospital or ward routine was also important, as was the opinion of colleagues and personal experiences [7]. This study presented the doctors with short patient descriptions and asked for treatment preferences for each case. This approach provides information about the preferences and influences on treatment in hypothetical patients, but this may not reflect the doctors’ behaviour in clinical practice.

An in-depth understanding of the prescribing process in secondary care is not only important for prescribing in secondary care, but also because it influences prescribing in primary care [5,8]. Qualitative studies of the influences of prescribing in secondary care are scarce, but form a useful complement to quantitative research as it permits the doctors’ own explanations for their behaviour to be the focus of the research. For a complex issue, like prescribing, giving doctors the opportunity to talk freely provides another type of information than having them choosing between alternatives in a questionnaire. The latter directs the focus of the respondents, providing data of less depth. The aim of this study is to identify factors that secondary care doctors believe influence them in prescribing drugs, using a qualitative approach.

Methods

Subjects

Qualitative interviews were conducted with 15 doctors at a large teaching hospital in Sweden between June and October 2004. Doctors were purposively selected to cover different grades and medical specialities (see Table 1). Medical specialities were chosen as the doctors are high volume prescribers. A letter briefly describing the purpose of the study and the planned interview was sent by mail, together with an answering counterfoil and prepaid envelope. Follow up by telephone was made 1 or 2 weeks after the letter, to those doctors who had not yet responded.

Doctors were recruited for interview in rounds; after each round was completed, a further set of letters was sent out to doctors from different specialities and grades. In total, 38 doctors were asked to participate, 17 said yes but one withdrew before the interview and one was unreachable for an appointment. After 15 interviews, saturation was judged to have been reached, so recruitment ceased. The point of saturation is when no additional information from the interviews contribute to the explanation of the data [9].

Interviews

The interviews were semi-structured and the interview guide contained the topics to be covered (Table 2) and suggestions for key questions. The sequence of topics depended on the answers received, and the interviewer made sure that all topics were covered, using prompts [10]. Information was also gathered concerning the doctors’ views of appropriate prescribing and the validity of a set of appropriate prescribing indicators (results described elsewhere). Most of the interviews took approximately 45 min, but one interview lasted only 20 min. The interviews were audio-taped with permission, and transcribed verbatim.

Analysis

The data analysis was performed from an interpretivist perspective, trying to see things from the respondents’ point of view, assisted by the NVivo 1.2 software (QSR International Pty Ltd, Melbourne, Australia). The first author (CL) performed the interviews, transcribed them and carried out the analysis. Data were coded, categorized and similar categories grouped into themes. The constant comparative method was used, where the data analysed were constantly compared with earlier collected data, to form the categories and to explore variations in the data [11]. The coauthors contributed to the analysis in discussion of data to ensure that all perspectives were covered.

The citations reported in the results section were chosen after how well they illustrated the described theme. In translating the citations from Swedish to English, effort was put into preserving the meaning of the citation, rather than literally translating word for word. Parts of the citations that were unnecessary or repetitious were excluded and indicated with an // //. Additions of words to facilitate the understanding of the citation were put in square brackets.

Results

In the analysis, seven different themes were identified: patient-specific factors, personal habit, colleagues, therapeutic traditions,

<table>
<thead>
<tr>
<th>Number of respondents (n = 15)</th>
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<tbody>
<tr>
<td>Sex</td>
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<tr>
<td>Male</td>
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<tr>
<td>Grades</td>
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<tr>
<td>Doctor in pre-registration training</td>
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<td>Doctor in specialist training</td>
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<td>Specialist doctor</td>
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<td>Haematology</td>
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<td>Endocrinology and diabetology</td>
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<td>General medicine</td>
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<td>Gastrology</td>
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Table 2 Topics covered by the interview guide

Reasoning when initiating drug therapy
Guidance in the choice of a specific drug
Prescribing support used (written, computer-based, other . . . )
Other influences to prescribing (apart from already mentioned . . . )
guidelines and other information sources, cost and marketing. The themes are described starting with the more individual perspective, that is, factors relating to the patient and the doctor, and leading to the wider perspective, that is, prerequisites for prescribing, such as information sources and cost. This largely corresponds to the order in which the doctors raised the themes during the interviews.

**Patient-specific factors**

The first factors the doctors described taking into consideration were patient-specific, such as the indication. Relevant tests should be conducted to confirm the diagnosis and the drug justified. The risk-benefit ratio must be estimated and the risks that were mostly stressed were drug–drug interactions, contraindications, allergies and substance abuse. According to the doctors, there was always the choice of not prescribing, or doing additional follow-up in primary care before initiating a drug therapy. In the choice of a specific drug, it should be effective, have few side-effects and preferably other beneficial effects than just the main indication.

Another patient-specific factor was the patient’s ability to take the drug. A frequently used example was warfarin, which requires follow-up and might involve extra support from the patient’s home-help services or family. The drug therapy could also cause inconvenience for the patient depending on, for example, the dosing schedule or mode of administration. A few of the respondents, all of different grades, talked specifically about discussing different treatment options with the patient. For example, when several modes of administration were available, they would take the patient’s own wishes into consideration. If it was obvious that the patient was sceptical about the treatment and probably would not take it, not initiating the drug therapy was described as a better choice.

**Personal habit**

Familiarity with a brand name, or practical experience with a range of brand names and preparations, was discussed as a factor influencing the choice of a specific drug. At the point of prescribing, a certain brand name could ‘pop up’. A ‘certain feel’ for how a drug works, or just ‘having got the hang of it’, were descriptions used for this familiarity. The personal experience could sometimes come from having been involved in a clinical trial. The initial drugs on the market, with familiar brand names, were described as the ones you have had had time to get most experience with, as one doctor explained:

Drugs that are common, they are recognized by more, so to speak, tradition. Losec® is a familiar name for everyone. / . . . /

Especially if it is drugs outside of your own specialty: - Yes, I recognize that one! (Doctor in specialist training 1)

**Colleagues**

The interviewed doctors did not have access to any formal discussion forums, such as journal clubs. Discussion about drug therapies took place in connection with everyday work, sharing knowledge when discussing the treatment of individual patients. A junior doctor said it could get slightly confusing if you were ‘stupid enough’ to ask several doctors for advice, and get different advice from different colleagues.

The reason given by the doctors for not having any forum for discussion was time constrains. The senior doctors described how they learnt by consulting colleagues, and how some of them have developed their own specific ‘niche’ where they keep updated. This was described as having evolved informally, but helped them to cover a large topic using their combined competences, as described by one consultant:

No, there is very little time for that [literature searches and discussion forums], but then we are a group here and different people read different things, and because of this a lot of stuff is picked up. So we discuss lots within the department, but [the specialty] is an enormous area. (Consultant 1)

The junior doctors often referred to the senior doctors as important sources of information, as they have both more knowledge and more experience.

**Therapeutic traditions**

Apart from personal experience and habit, the respondents acknowledged the influence of the therapeutic traditions at the clinic or hospital. These traditions were described as not necessarily being evidence based. One of the interviewees gave an example:

Doctor: As an example of the power of the tradition/ . . . /there are these low molecular weight heparins and all surgical wards almost always use Klexane® and all medical wards use Fragmin®, and at dialysis they use Innohep®. And they have a slightly different profile, but I don’t think it has a foundation in, that they have any specific reason other than tradition. / . . . /

There is like a border within the hospital, in the surgery building it is Klexane® and on the other side, after that building, it is Fragmin®. / . . . /

Interviewer: How odd for the hospital pharmacy, they must have all three in stock and notice that they go in different directions.

Doctor: And for the patient, when the patient is moved from medicine to surgical [ward] you switch [drug]. (Doctor in specialist training 3)

Thus, some treatments had ‘support from the clinic’. In addition, while working as a doctor in another ward, the interviewees described choosing drugs that they had seen the regular ward doctors prescribe.

**Guidelines and other information sources**

In addition to colleagues, guidelines and recommendations (Table 3) were used to support prescribing. The ‘List of Recommended Drugs’ (LRD) published by the local Drug and Therapeutics committee (see Table 3) was the guideline mentioned most frequently in the interviews. For some doctors this was the only guideline discussed. The convenience of the LRD was discussed by one of the doctors:

It makes it pretty simple. You look in the list and you know what you should prescribe in the first place/. . . /then you don’t have to keep up to date with that or look it up in more detail, it is actually quite convenient (Specialist doctor 2)

That doctor considered the drug to be both reliable and cost-effective, as it was recommended. Criticism against the LRD was that it did not always cover the more specialized therapies used in secondary care.
Consulting guidelines was described as more common when prescribing in specialties other than their own, as the doctors believed they already had a good understanding of their own field, and did not need to look for information that they thought they already had. In accordance with this, one of the doctors in specialist training believed younger doctors were more compliant to guidelines.

I believe that we who are younger, we are more dutiful and compliant. / . . . We who are new are more open to not knowing. (Doctor in specialist training 1)

The people who developed the guidelines and other written sources of information might be known to the doctors, or they might even be involved themselves.

Besides that we take part in pretty well many of the groups that issue guidelines for the care of [condition] in this country, which makes us, of course, know fairly well what it says. (Consultant 3)

Deviations from the recommendations could depend on patient-specific factors, such as the need to avoid inconvenient dosing regimens. The doctors did not see any practical obstacles to following the available guidelines, but deviation was not seen as controversial as long as they relied on their knowledge and experience. As one specialist doctor expressed it:

It actually depends on your own knowledge and interest. Perhaps you read a lot of the literature, kind of focused on scientific papers. And perhaps then you consider yourself to have a picture of this, and then you can make your own assessment. (Specialist doctor 5)

Table 3 Written sources of information brought up by the respondents

<table>
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<th>Local guidelines</th>
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<tr>
<td>• The list of recommended drugs – The Drug and Therapeutics committee list the first-hand choices in different therapeutic groups considering the cost and effectiveness of the alternatives.</td>
</tr>
<tr>
<td>• The local care programs – Small booklets drawn up in cooperation with primary care. The programs discuss treatments and procedures for different diseases, and clarify the responsibilities of secondary and primary care respectively.</td>
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<tr>
<th>National guidelines</th>
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<tr>
<td>• National guidelines from different specialist organizations</td>
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<tr>
<td>• Guidelines issued by the National Board of Health and Welfare</td>
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<td>• Guidelines issued by the Swedish Council on Technology Assessment in Health Care</td>
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<tr>
<th>Other sources</th>
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<tr>
<td>• Scientific studies</td>
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<tr>
<td>• Medline</td>
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<tr>
<td>• FASS (contains information about drugs registered in Sweden, alphabetically ordered after trade names, published by the Swedish Association of the Pharmaceutical Industry)</td>
</tr>
<tr>
<td>• The Drug Therapy Handbook (focuses on pharmacotherapy in different disease areas, mainly intended for primary care, published by the National Cooperation of Swedish Pharmacies)</td>
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<tr>
<td>• The Medical Products Agency bulletin</td>
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<tr>
<td>• Conferences</td>
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<tr>
<td>• Medical text books</td>
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<tr>
<td>• Internet sites providing support in prescribing, for example, Janus, Internetmedicin and Praktisk medicin</td>
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As another doctor put it, someone must try the new things out, otherwise there would be no change or experience gained – the guidelines cannot always be used.

Cost

Cost was explicitly talked about as an important factor influencing prescribing. However, again, deviation based on knowledge and experience was not seen as controversial.

If I think that a more expensive drug is better than the cheaper, then I choose the more expensive. (Specialist doctor 3)

Although the respondents said that small differences in effect could lead to large differences in cost, they described it as being hard to take price into consideration in the encounter with the patient. One respondent described the problem of incorporating the more abstract, economic perspective:

Yes, but it is so, it is so much a discussion about money, about what different things cost. Sometimes the comparisons are a bit difficult: Should you treat a hundred diabetics or two [patients] with this rare disease and so on. That is a comparison that is very difficult to make, at least for the individual doctor. (Specialist doctor 5)

Generic substitution in pharmacies was perceived as reducing the responsibility of the doctor to prescribe cheaper preparations:

We sometimes prescribe preparations that become something completely different, because it is not in stock, the hospital has bought others or if I write a prescription the patient gets the cheaper [generic drug]. I don’t attach great importance to what the patient gets. (Consultant 1)

The generic substitution was, however, also seen in a negative light. Patients might get confused when receiving different brand names every time they collect their medicines. A certain suspiciousness of whether generics really are as effective as the original drugs was voiced by another doctor:

Well, actually I have nothing concrete there, but if you are going to manufacture something that costs much less, then I find it perhaps hard to believe that it always is just as good, like with everything else. You pay, or you get what you pay for (laughter) so to speak. Sure the constituents are there and of course it shouldn’t be so, it is probably much the same but, well. (Consultant 2)

Marketing

According to the respondents, the pharmaceutical industry was an important provider of education and information about drugs, but some of the doctors talked of trying to stay away from marketing activities.

One respondent stated that the employer unfortunately could not afford continuing education about drugs for the health care personnel. Another thought it was bad that the employer did not replace the information given by companies when this was restricted, and did not consider that such a restriction was necessary. However, none of the doctors asked specifically for alternative non-commercial information. In the interviews, the doctors admitted the influence of marketing but claimed that they strove to be objective:

Of course you are influenced a little, but on the other hand I believe that now, all information [from company representatives]
is stopped. So you don’t even know about new drugs on the market. It bothers me a little that there might be drugs that you don’t know about. Well, drugs that you haven’t been informed about. It is really bad. (Junior doctor 1)

Well, because a lot of the education we have been given have been paid for by companies and there have been very good courses. They invite the best within the respective area mostly, that talk about the treatment. And not so infrequently, the company that pays the whole thing does not have a prominent role in the treatment. The education that the companies have given us is the only education we have been given actually. They [the employer] have not provided any other education, especially not about drugs. (Consultant 3)

Several doctors also mentioned aggressive marketing as a source of irritation, for example extensive mail shots resulting in ‘throwing away heaps of letters’ (Specialist doctor 2). One of the interviewees described how these feelings can influence prescribing:

If you have two equivalent preparations, then perhaps you are influenced by the company representative. . . You are perhaps influenced in your decision by which are the most pleasant or rather which are the least bad, so to speak. And then it can [cause influence] because some companies carry on tremendously aggressive marketing and that is offensive, I think. (Consultant 1)

The same doctor still wanted to stress the importance of what was familiar:

I believe [marketing] is of course influential, but still it is less [influential] than you believe. The most important is still local traditions in a way, what you are used to. If you are used to a preparation it is a great effort for you to change preparation. (Consultant 1)

Discussion

According to our interviews, the hospital doctors took patient-specific factors and cost into consideration when prescribing, while being informed by different written information sources and commercial verbal information. Personal practice, colleagues and therapeutic tradition at the hospital or clinic, were also influential in the prescribing of drugs. However, the themes identified should not to be seen as individual influences; many of them probably act in combination. These results complement findings in studies looking at the prescribing of new drugs, for example, that knowledge is transferred between clinics, without any other identifiable reason of the citations above (see Therapeutic traditions) is a telling example how prevailing the therapeutic tradition within different clinics can be. The drug therapy is even changed when the patient is stopped. So you don’t even know about new drugs on the market. It bothers me a little that there might be drugs that you don’t know about. Well, drugs that you haven’t been informed about. It is really bad. (Junior doctor 1)

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ment improves compliance to the guideline [21]. It may also make appropriate deviation from the recommendations possible, especially for the more experienced doctors. In the interviews, the more inexperienced doctors accordingly described themselves as more adherent to guidelines.

It is a matter for debate whether adherence to written guidelines is always desirable, or if guidelines rather should be used as a support for prescribing [22]. An American study, investigating doctors’ motivations for prescribing contrary to scientific evidence found that clinical experience, patient demand and the placebo effect were the main themes [23]. These themes could be said to belong to the ‘art’ of medicine, and are not always desirable to go against. The doctors interviewed in this study did not justify, for example off-label prescribing with scientific studies, but rather referenced to experience or therapeutic traditions, ‘we know that it is that way’ or ‘it is established treatment’. Most studies of prescribing patterns have been done in primary care but secondary care is more specialized and dynamic. A study from southern Sweden showed that adherence to the local LRD was higher in primary care than in hospitals [24], this could be explained assuming that hospital doctors see more complicated cases.

Implementation of research findings in practice requires more than passive dissemination of information, such as distributing educational materials like clinical practice guidelines [25–27]. Instead, educational outreach visits, such as academic detailing, or interactive educational meetings could be more effective [25]. At the time of the interviews, the verbal information from drug companies had been restricted for presumably ethical reasons, but reportedly not replaced by equivalent information from other sources. Some of the interviewed doctors expressed a frustration over these restrictions. A local agreement with the pharmaceutical industry, about the provision of education, was reached in 2005, that is, after our interviews were performed. At the time of the interviews, the secondary care doctors at this large hospital said they did not receive any organized verbal information about drugs. To keep updated with the literature requires time planning, and it may require less effort to give priority to organized activities such as visits from company representatives, than to introduce new self-directed activities like journal clubs. More verbal, non-commercial information could perhaps be beneficial for prescribing of generic or cost-effective drug therapies, and make the doctors less vulnerable to the influence of marketing. However, none of the doctor spontaneously asked for more non-commercial information.

Doctors need to be up to date with current treatment guidelines and available drug therapies for patient security, ethical and economic reasons. Getting information on drugs and keeping updated with the literature is, according to these respondents, the doctor’s own responsibility. More formalized meetings, like discussion forums or journal clubs, were described as impossible as time was scarce. Continuous professional development, or continuing medical education, is not required for professional qualification in Sweden. In Great Britain, for example, doctors must get revalidated by the General Medical Council every fifth year from 2005. To keep their licence to practise, they need to provide documentation on their continuing professional development [28].

Even though the interviewed doctors admitted being influenced by marketing, they considered themselves sceptical enough to handle commercial information. Marketing was perceived as a source of information; the representative could therefore be regarded as a ‘human filter’ providing information and research findings for their company’s products. Considering that this information is not countered by equally effective information from objective sources, doctors’ continuing education may be biased. In a survey of hospital doctors in Ireland, pharmaceutical representatives were the second most common source of information when last prescribing a new drug, although the doctors themselves underestimated the influence of the pharmaceutical representatives [17]. This is an example of the difficulty in being balanced when receiving information from commercial sources.

The interviewed doctors had different opinions about generic substitution, some felt that it was convenient as it reduced their responsibility to prescribe cheap preparations, others were more sceptical. It would be of interest to see whether and how prescribers’ attitude towards generic drugs influences attitudes and adherence with the therapy in patients. The generic substitution system in Sweden is strictly regulated by a list of generic products issued by the Medical Products Agency. Therefore, the interviewed consultant, who said that what he prescribes will be replaced might be more interested in issues relating to prescribing than others. This might have made the interviews more informative, but might also have affected the information obtained. Additionally, the interviews were performed in one hospital and the results are therefore not readily generalized to other settings. However, the identified factors correspond to those found in studies performed in primary care [29], and in studies of the prescribing of new drugs [6].

This study shows that there are many influences on prescribing by hospital doctors, including the patient, the personal experience or habit of the doctor, colleagues, therapeutic traditions, guidelines and other information sources, cost and marketing. If, for whatever reason, changes in prescribing behaviour are desired, an increased focus needs to be put on factors other than technical factors and information sources. Factors warranting more attention include gaining greater understanding of how to influence therapeutic traditions and the doctor’s personal prescribing habits.

In addition to biomedical factors or prescriber knowledge, aspects of the social environment and personal experiences have been shown to be important in prescribing using analytical decision models [7]. In this study we have explored these aspects by letting hospital doctors themselves describe the perceived influences on prescribing. The doctors are aware that factors other than biomedical play an important part, but there could be further relevant factors of which the doctors themselves are unaware. To be able to compare how well their description of the situation corresponds with reality, the doctors’ view must first be known so that future studies can explore the relative importance of these factors quantitatively.

More non-commercial information about drugs could be desirable for prescribing hospital doctors. In providing this information, the importance of clinical experience and information exchange with colleagues should not be underestimated. For example, practising clinicians who can reflect on research findings...
in the light of their own experience could be involved in the provision of information. Making the information personal may bring focus to other aspects of prescribing.

References


