Making decisions about prescription drugs: A study of doctor–patient communication

Robin Gregory*, Ellen Peters and Paul Slovic

Decision Research, Eugene, Oregon, USA

(Received 5 January 2010; final version received 22 November 2010)

Effective communication between doctors and their patients is essential to successful medication choices and treatments. Our interest in this exploratory paper lies in the quality of communication between doctors and patients: what both parties seek to explain and what they commonly understand, what opportunities and what frictions occur as a result of their respective goals, what gaps exist in their knowledge bases, and how information of different types influences health risks and medication choices. The data reported in this paper come from conversations with doctors about how they communicate with patients when discussing the benefits and risks of prescription medications, and from patients who talked with us about their concerns and the perceived quality of their communications with physicians. Overall, we were surprised by the failure of the assumed decision-making models to explain much of what we heard and observed. In response, we advance a structured decision-making framework, based on decision analysis and value-focused thinking, that provides both descriptive and prescriptive models of physician–patient communication intended to assist in the development of improved communication standards concerning health risk assessments and medication choices.

Keywords: decision making; health risk communication; risks; benefits; tradeoffs

Introduction

Nearly everyone in North America has had the experience of meeting with a doctor to help decide whether to take a prescription drug in the hope of preventing, or limiting, adverse health conditions. For some people this type of discussion occurs rarely, and the stakes are relatively low: a sore throat or sinus infection might go away more quickly with help from a prescription medicine. For other individuals, discussions with their doctor occur frequently, on a monthly, weekly or even daily basis. For some, such as those with serious depression or heart problems or invasive cancers, the conversations that occur and the decisions that are made may significantly affect the quality and duration of their lives.

Our interest rests in observing and understanding communications between doctors and patients about choices concerning the use of prescription drugs: what both parties commonly say and understand, what opportunities and what frictions arise, what gaps exist in the knowledge bases, and how information of different types influences choices. The specific data reported in this paper come from conversations...
with doctors about how they communicate with patients when discussing the benefits and risks of prescription medications, and from patients who talked with us about their concerns and the extent to which they found doctors to be responsive. Overall, we are surprised by the failure of the assumed decision-making models to explain what we heard and observed. We also are surprised that so little apparently has been done (or at least done effectively) to provide guidance and standards for health risk communications about prescribed medications, on the part of doctors (what information should be provided to patients, and in what form?), patients (which issues should be raised with, and what questions should be asked of, the doctor?), and pharmaceutical companies (what information is most needed by doctors or patients to encourage better medication choices?).

Study findings are based on small-group discussions with patients and doctors living primarily in the western US states of Oregon and Washington. The majority of the doctors were primary care physicians, although participants also included oncologists, radiologists, surgeons, and one university health counsellor. These results were supplemented with more detailed interviews with individual patients and physicians in these same states as well as in British Columbia, Canada (information from Canadian interviews was used only as it relates to aspects of the doctor–patient relationship expected to be similar between the two countries). We make no claims concerning the representativeness of generalisations from our findings. Instead, we seek to describe some of the key considerations that typically shape doctor–patient dialogues, identify ways to improve health risk communications, and encourage additional understanding of the important topic of prescription drug treatment decisions.

Our observations were stimulated, and informed, by a growing literature on the quality of doctor–patient decisions: models for shared decision making (Charles et al. 1999), issues of concordance and collaborative information exchange and deliberation (Meegan and Berg 2002, Ruiz-Moral 2009), decision aids for treatment choices (O’Connor et al. 2009), and studies of physicians’ communication skills (Fallowfield et al. 2003). Although much of the previous research is domain-specific, with an emphasis on cancer care (Hagerty et al. 2005), the following five issues are noted as leading concerns in many of the studies we reviewed:

1. Literacy: poor literacy and language skills can affect peoples’ ability to make appropriate health care choices. A recent report by The Joint Commission, a national health care accreditation group, concludes that ‘...the issue of health literacy, defined as the degree to which individuals have the capacity to obtain, process, and understand basic health information...’ casts[s] a long patient safety shadow (Skelton 2007).

2. Numeracy: many studies have shown that people have a limited ability to comprehend numeric information. As a result, having access to quantitative information may not necessarily translate into improved decision making (Peters et al. 2007a) and erroneous assumptions may be made about people’s ability to understand quantitative data or to act on the basis of shared information about costs, benefits, and risks.

3. Time: many doctor–patient discussions occur within a window of no more than 15 minutes, in the case of an office visit, or even less time in the case of many hospital and clinic exchanges. This issue has been highlighted in numerous studies of communication involving general practice doctors, who
note that it is extremely difficult to discuss treatment options adequately due to the short time allowed for each appointment (Edwards et al. 1999).

(4) Emotion: individuals meeting with doctors, as well as the physicians themselves, often need to make decisions in an environment characterised by high emotion and (at least for the patient) extreme vulnerability. The doctor–patient dialogue is thus marked by affective considerations as well as cognitive concerns, which can alter decision-making practices (Slovic et al. 2004).

(5) Decision skills: physicians and their patients are limited by a lack of training in decision making and the skills required for effective problem solving, particularly in cases involving multiple factors. The physician Jerome Groopman recently quoted a colleague as saying ‘Currently, in medical training, we fail to recognise the importance of critical thinking and critical reasoning. The implicit assumption in medicine is that we know how to think. But we don’t’ (Groopman 2007b). Numerous studies by Gigerenzer and his colleagues support this conclusion (Gigerenzer 2008).

Our findings, presented in the next sections, lend support to these critical concerns and highlight several improvements in doctor–patient communication that could be realised through the adoption of simple, widely used decision-making frameworks. Using standards developed in the decision sciences, we begin by describing an idealised model of doctor–patient communication concerning possible use of prescription drugs. Next we present the results of our small group discussions and physician interviews, emphasising findings specific to doctor–patient decisions about the use of prescribed medications. We contrast this description of current practices with a prescriptive model for how communication should occur, based on multi-attribute decision analysis, when there are several dimensions of value, differing perspectives (of doctor and patient), and uncertainty about the outcomes of choices. In a concluding section we recommend several ways to implement improvements in the shared decision processes for prescription drug treatment choices.

**Doctor–patient communication: a decision sciences perspective**

In the Introduction to their book of readings on decision making, the influential decision theorists David Bell and Howard Raiffa joined with the psychologist Amos Tversky to consider three perspectives on decision making (Bell et al. 1988, p. 9): ‘how people do make decisions, how “rational” people should make decisions, and how we might help less rational people . . . to do better.’ Less rational people are identified as normal individuals who have ‘not given thought to the process of decision making’; in other words, the reference fits most individuals who visit a doctor and most individuals who are doctors. The attention given to descriptive (what is) and normative (what ought to be) aspects of decision making is not novel, but as Bell, Raiffa and Tversky point out, significantly less emphasis has been granted to the prescriptive side of decision making: how to help people make better choices. This third area is emphasised in this paper, but the road to prescriptions leads through both normative and descriptive models because it is important for recommendations to build on both ‘the logical consequences of normative theories and the empirical findings of descriptive studies.’
We therefore begin with the question: In an ideal world, how should doctors help their patients make good choices about whether to undertake a treatment regime that includes a prescription medication? This opening question obviously oversimplifies: there are many types of doctors, each patient (and his or her history, preferences, capabilities and needs) is unique, the setting for dialogue varies from the hospital to the office or the home, and decisions are not just whether to take a medication but when, in what dosage, for how long, and in combination with what other drugs. Leaving all these complications aside (for the moment), the expectation is that the logic of medication choices made by doctors and patients will follow a sequence of steps that lead from mutual recognition of the problem to agreement on a selected course of action. Yet despite the importance of medication choices, many doctors and patients enter into these dialogues with little guidance about how to proceed. Many desired criteria are implicit; for example, the doctor–patient dialogue should exhibit basic qualities of comprehension (e.g., it should make use of terms that both parties understand) and comprehensiveness (e.g., it should include the full scope of relevant considerations, ranging from the technical to the emotional). However, in the absence of a standard choice-based model for achieving these (or other) goals, most dialogues are unstructured and ad hoc. That unsatisfactory outcomes result is not surprising; for example, over 60 per cent of patients interviewed immediately after their visit to the doctor were found to have misunderstood key elements of directions regarding use of prescribed medications (Boyd et al. 1976), which suggests low scores for comprehension.

**PrOACT model**

Decision analysis, based in the principles of multi-attribute utility analysis (Keeney and Raiffa 1993), provides one possible standard for characterising a sound doctor–patient decision-making process. Previous research (Moskowitz et al. 1983, Gigerenzer 2002) has noted both similarities and differences between physicians’ diagnostic reasoning and a decision analysis approach to solving problems, and multiattribute models have been applied by other researchers interested in medication treatment choices (Mussen et al. 2007, Felli et al. 2009). Although the application of decision techniques is recognised as limited (as poetically stated by Moskowitz et al. 1983, p. 435: ‘there are cogent reasons for believing that physicians do not conceive and solve clinical problems by growing a decision tree in their heads’), decision analysis provides a widely used normative decision-making sequence that includes the following five steps: define the Problem context, clarify Objectives or concerns, identify treatment Alternatives, distinguish Consequences in light of uncertainties, and address key Tradeoffs, forming the acronym ‘PrOACT’ (Hammond et al. 1999). These elements provide a guide to a logical sequence that might characterise an informed doctor–patient dialogue and decision-making process regarding the selection of a medication and treatment regime.

**Recognition of problem context**

Doctor–patient communications about prescription medicines occur within a context for dialogue that ranges from the mundane and chronic to the extraordinary and acute. For decisions about medications, a fundamental contextual issue is the attention and emphasis given to shared decision making (Stevenson et al. 2000,
whether either the patient or the doctor expects to engage in an open, two-way dialogue concerning the appropriate balance among benefits, risks, and costs of a prescription medicine or whether, in contrast, the expectation is that the doctor’s job is to choose an appropriate drug and treatment regime on behalf of their patient.

**Definition of objectives**

Objectives refer to the concerns or underlying values of either the patient or doctor. For the patient, objectives might include the relief of symptoms, minimising worry, avoiding high costs, and keeping the time and inconvenience involved with visits and treatments to a minimum. For the doctor, objectives typically include helping the patient, encouraging adherence to a treatment regime, and avoiding negative consequences to either the patient (e.g., adverse side effects) or himself (e.g., litigation). Decision analytic approaches emphasise the need to clearly define the values of all participants engaged in making drug-choice decisions (referred to as ‘value-focused thinking’; Keeney 1992) and include a variety of techniques helpful to these early stages of dialogue. It is critical to sound decision making that both patients and doctors recognise and articulate their respective objectives: some may be obvious and shared, although other issues (e.g., concerning the convenience, aesthetics, or taste of a prescribed medication) may be considered highly relevant by the patient but less so by the doctor.

**Consideration of alternatives**

In every case there exist a set of alternative actions that can be taken in response to an illness or health problem, including the option of doing nothing. Some alternatives may involve the use of a prescribed medication or a set of medications; others may include changes in diet, employment, or exercise. Alternatives will vary in terms of their costs, benefits, and risks as well as the precision of the supporting information: for example, some treatment options will be precisely defined (‘take drug x at a cost of $y for seven days and the problem will be cured’) whereas others are subject to substantial uncertainty (‘take drug x, and perhaps also drug y, for seven days and then we’ll see how you’re doing and what side effects you are experiencing’). Limits placed on the consideration of alternatives include the time that doctors have to meet with their patients and the knowledge base and preferences of both parties.

**Identification of consequences**

Ultimately, doctor–patient communication concerning the use of pharmaceuticals is concerned with bringing about a change from the undesirable health state currently experienced by a patient to something different and better. As many previous researchers have noted, access to more complete information about the anticipated consequences of treatments will only improve the quality of patient care if it is clearly conveyed and understood. Relevant consequences include a wide set of issues, in addition to amelioration of the primary health concern, that could be affected by the choice of medications: side effects, impacts on family members, treatment costs, emotional responses, or adherence demands. Identification of these diverse consequences is made more difficult to the extent that pre-existing conditions or
other initiating sources might in part be responsible. Knowledge of consequences also comes through learning and the monitoring of reactions; during the course of treatment, consequences will switch from those experienced by others (statistical outcomes) to those experienced by a specific patient or doctor (personalised outcomes).

**Examination of tradeoffs**

Different medications and treatment regimes vary in terms of their ability to satisfy patient and physician objectives: the best treatment for symptom relief may cost more than another option or may result in different side effects. Identifying and confronting tradeoffs can make people uncomfortable, which in turn can lead to emotional responses or to the adoption of overly simple decision rules, perhaps resulting in avoidance of important information (Luce 2005). Research has shown that tradeoffs across dimensions of value that are difficult to contemplate (e.g., for moral or ethical reasons) or that are markedly different (cost vs. adherence considerations, for example) can be especially difficult (Lichtenstein *et al.* 2007). Factual- and values-based information relating to the experience of either patient or doctor as well as family members, other physicians, and associated parties (e.g., insurance companies, regulators), also can be relevant to how tradeoffs are perceived and evaluated.

**Study design and methods**

This study engaged doctors and patients, primarily living five structured small-group (6–10 person) dialogues, supplemented in some cases by follow-up individual interviews. Two groups were held with patients and three with doctors. In all cases participants were selected through a convenience sample, in which a lead doctor or patient was asked to pull together a small group of peers that would provide a reasonably broad range of viewpoints. The detailed interviews with individual patients and physicians generally focused on issues or questions that partially had been addressed in earlier groups. Each group discussion took place over about two hours; individual interviews varied in length between one and three hours.

A one-page description of the project, study goals, and the researchers’ affiliations and prior related experience was handed out and discussed at the start of each session. Results of each group were either audio-recorded and transcribed or (including all individual interviews) hand recorded.

The goal of these discussions was to identify key issues associated with medication choices and to compare these descriptions with the insights of prescriptive models of decision making. A multi-attribute approach, and specifically application of the PrOACT model, was selected due to its emphasis on defining the decision context and clearly articulating fundamental objectives, both of which are central to the emerging literature on shared decision making and effective doctor–patient communication (Stevenson *et al.* 2000). In addition, decision analytic methods have been proposed in related contexts as a standard for deliberations that pose significant cognitive and emotional challenges and that require shared understanding between technical experts and members of the lay public (e.g., Gregory *et al.* 2005).
The dialogues were structured, in the sense that a pre-written set of questions was asked in sequence, with some discretion, by the group facilitators (one or more of the authors). These 14 questions, shown in Table 1, were designed to elicit frank responses from participating doctors and patients concerning the key elements influencing their respective decisions to prescribe, or to take, a medication. We (loosely) followed the PrOACT model in developing the content and order of our questions, so as to move from general descriptions of the decision context and treatment objectives to more specific discussions about how the consequences (the costs, benefits, risks, and key tradeoffs) of alternative drug choices were perceived by patients and doctors. Impromptu follow-up questions probed doctor or patient responses and were used to help guide the discussions back to key issues.

Subjects were recruited opportunistically; payments (at US$20/hour) could either be made to individuals or to a selected local charity. All subjects were reminded that their participation was voluntary, that they were free to leave at any time, and that all responses would remain anonymous.

A descriptive model of doctor–patient communication

In this descriptive section we use the PrOACT framework as a standard to organise results of our interviews with doctors and patients and to highlight some of the strengths and weaknesses of current interactions from a decision-making perspective. In the subsequent prescriptive section we use this same five-step model to examine opportunities for improved decision-making practices.

Recognition of problem context

The doctors and patients we spoke with described a wide range of problem contexts for their discussions on medication choices. A core distinction is the extent to which doctors seek to engage in dialogue with patients and cooperatively work out a treatment plan, as compared to a contrasting model whereby patients provide initial information concerning their health status but then are told by the physicians what medicines they should take (Epstein and Peters 2009). This latter model is less dictatorial than it might seem; for many doctors, it reflects a natural extension of the

<table>
<thead>
<tr>
<th>Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. General thoughts about benefits and risks of prescription drugs</td>
</tr>
<tr>
<td>2. Description of typical drug treatment decision process</td>
</tr>
<tr>
<td>3. Review of typical objectives: doctors and patients</td>
</tr>
<tr>
<td>4. Extent of shared decision making and usual doctor–patient balance</td>
</tr>
<tr>
<td>5. Extent of discussion of treatment alternatives and non-drug options</td>
</tr>
<tr>
<td>6. Information provided about main effects of drug treatment (to doctors/patients)</td>
</tr>
<tr>
<td>7. Information provided about side effects of drug treatment (to doctors/patients)</td>
</tr>
<tr>
<td>8. Description of differences in dialogue if drug is new to market vs. familiar</td>
</tr>
<tr>
<td>9. Extent to which monitoring of treatment effects occurs</td>
</tr>
<tr>
<td>10. Extent to which key tradeoffs (across objectives) are noted or discussed</td>
</tr>
<tr>
<td>11. Perceived overall quality of communication between doctors and patients regarding risks and benefits of prescribed drug treatments</td>
</tr>
<tr>
<td>12. Ways that more information can be sought (by doctors/patients)</td>
</tr>
<tr>
<td>13. Suggestions for improved information displays or formats</td>
</tr>
<tr>
<td>14. Anything else we should know?</td>
</tr>
</tbody>
</table>
competency they have gained over years of practice and permission granted through a long-term patient–doctor relationship, marked by trust and familiarity. One doctor described his usual context for treatment decisions as follows:

I find that patients really come to you and want you to make that decision [whether to prescribe a medication] ultimately. You could decide whether you’re going to give them this drug or that drug . . . I think you sort of have that ultimate decision . . . Occasionally, a patient will sort of balk at something but most of the time, they’re seeing you and they have good rapport, you’re making that decision for them, not with them so much.

Other doctors seek to establish a forum whereby information is shared and an open discussion takes place. Typically this involves an exchange of information: patients know about their condition and treatment preferences and what types of risks they are willing to undertake, whereas doctors know about medication options and the extent to which different treatments might bring about changes in patients’ health. A second doctor, in describing what he viewed as the most critical aspects of doctor–patient communication, told us: ‘I just want an informed discussion. They’re going to get the facts, they’re going to make that decision with me.’ This same doctor went on to say that he feels treatment decisions are up to the patient: ‘Mostly they’re going to make that decision [of treatment choice]. It won’t be anybody else; it’s going to be them.’

Although both these doctors cited adjustments in their behaviour based on patient characteristics, the difference between them is critical. In the latter case, where power is shared and decision-making responsibility ultimately rests with the patient, the doctor is more likely to elicit information about the patient’s preferences and concerns. In addition, the patient is encouraged to take on more responsibility for the choice of treatment, in part because his or her doctor is willing to consider more carefully patient objectives and circumstances (health background, emotions, expressed concerns about cost or convenience) as part of a drug treatment choice. In contrast, in the earlier example (‘ . . . you’re making that decision for them . . . ’) the doctor is likely to obtain less information prior to prescribing a medication and, in most cases, there will be limited interaction and less shared deliberation.

One explanation given by several doctors for their limited interaction with patients is that, based on patients’ cues and the presumed lead role of physicians in decision making, the patient is quickly perceived to be a representative of a familiar group and thus takes on many of the characteristics of this set. Groopman (2007a) reports ‘Studies show that – an expert clinician typically forms a notion of what is wrong with the patient within 20 seconds.’ Kahneman and Tverksy (1973) refer to this as an example of the ‘representativeness’ heuristic, whereby we look for traits in an individual that correspond with previously formed stereotypes or groups. Some of the most obvious cues come from a patient’s age and gender; one doctor told us:

I’d say more of my older patients just will do whatever you think is best, and even sometimes when you try to have conversations about risks and benefits they’ll just go, it doesn’t matter, just tell me what you want me to do – they’re just sort of defaulting to what you think.

Several doctors also emphasized that problem the context depends on patients’ understanding and comfort levels when discussing drug treatments, due in part to their limited comprehension of quantitative information:
Let’s say the risk of a stroke is 11 per cent a year or something and if I give you aspirin, it will get to six per cent and if I give you Coumadin I’ll maybe get it down to two per cent but there’s a lot more involved . . . I think a patient hearing that for the first time, it’s a little overwhelming. It’s a tough decision to make . . . So, ultimately, I think they’re looking to someone who has a bigger, overall experience to sort of say ‘You’ll be okay with this approach because this is the best thing for you.’

**Definition of objectives or concerns**

As implied by the earlier ‘value-focused’ characterisation of normative models, good decision making requires that attention be paid to the underlying objectives: what matters, for both the patient and the doctor. For the doctor, listening to patients’ concerns is dependent on knowing enough about their condition and emotional state to distinguish what is related to their illness and what is not. If patients know little about a disease, they are more likely to rely on the advice of their doctor and to look to their doctor for help in understanding the pros and cons of a treatment option. One doctor told us that, when an illness is unfamiliar, ‘the idea of informed consent is actually an illusion’ because the information available to the patient is so limited. For more common illnesses, patients are likely to already have access to a substantial body of information (some accurate, some less so). For rare or exotic diseases, doctors become a more important source of information about the benefits, costs, and risks of different medications. As one patient commented:

High blood pressure and diabetes . . . lots of people can talk about it and compare notes [whereas] when somebody has (let’s say) lymphoma, we may not have any idea of what that’s all about.

Both patients and doctors cited a clear understanding of possible side effects as one of the most important communication objectives. Another patient, commenting on why she needed help from her doctor in making medication choices, told us:

... this paper ... lists a lot of these different things and you think, my God, do they really want me to take that? Because it lists so many different side effects that you think, do I want to put that into my body with all of these things?

Several physicians also commented on the need to communicate key side effects in easily understood language:

Drug A has a column of about 30 side effects long and they try to put it into layman’s terms but nobody is going to be able to – so that makes a folly of this whole approach of trying to inform somebody of what they’re about to go through and nobody could possibly understand that and make use of that information ... 

Another doctor told us:

Sometimes the side effects are worse than some of the drugs ... I think that’s a real big problem ... even though the drug itself is maybe doing a person good.

Many doctors told us that they considered patient adherence to be among their primary tasks (‘to know that the medicine is working’) and that this required helping patients to appreciate the direct link between changes in physical attributes and the
medication. One doctor, in describing some of the difficulties associated with getting younger people to adhere to a drug treatment regime, said:

There are some big areas where you can have the person . . . monitor their blood sugar and their blood pressure. Middle-aged and older people, who feel less bulletproof, will often do it and that’s the feedback that they need to know that the medicine is working, and that helps with adherence.

Throughout our interviews, both patients and doctors highlighted adherence problems that are due to poor understanding of the directions given patients by doctors, although doctors tended to blame patients and patients tended to blame doctors. The small-group discussions noted many different possible forms of non-adherence: stopping treatment too soon, taking a medication at the wrong time or in the wrong amounts, failing to fill or refill a prescription, and taking an incorrect dosage. Several doctors noted that adherence rates probably were no better than 50 per cent (other research supports this observation) and characterised the issue as a central dilemma of their practice. Sadly, both doctors and patients appeared to accept such misunderstandings as inevitable, we return to this topic in the concluding discussion. In particular, we discuss the linkage between risk perceptions and benefit perceptions and the importance of communicating about benefits as well as risks.

A related problem, described by several physicians, is the difficulty associated with getting patients to pay attention to their own multiple objectives. The decision-making literature characterises this observation as an example of lexicographic choice: when faced with a complex issue, one with diverse dimensions of value, people often simplify their choice by placing primary importance on a single, most salient aspect. The result is an anchoring by many patients on a single concern. One doctor we spoke with saw this as a benefit, noting that it helped some of his patients to focus on desired functionality: the sole goal of a treatment regime became a desire to be well enough to carry out a specified activity or project. Other doctors viewed the single-objective focus as a source of difficulty because it meant the information provided to patients ‘just isn’t sinking in, because there are [so many] other things to think about.’ Yet when asked directly if he engages in ‘open-ended conversations’ about multiple treatment objectives and their consequences, one physician told us, ‘I fall very far short of the mark.’

Several doctors blamed direct advertising by large pharmaceutical firms for creating a false or misleading context for their discussions of drug treatment choices with patients. One doctor told us:

The conversations that we have with our patients about drugs aren’t the same ones we would have if direct consumer advertising weren’t present. I think it has a risk of skewing the relative value of certain diseases and different medications – the whole discussion about our health and what’s important and what we should be focusing on.

These observations are consistent with decision science findings in other contexts. In particular, research results that underlie the concept of constructed preferences emphasise that, in situations where known preferences are insufficient to solve a decision problem (e.g., because some elements of the decision are unfamiliar or involve novel risks and benefits), people tend to rely strongly on context-specific cues to make a choice (Lichtenstein and Slovic 2006). However, acknowledgement of preference construction highlights the difficulty of achieving a clearly articulated set of patient (or physician) objectives and adds to the responsibility placed on the
physician, since patients’ lack of expertise typically means they are more susceptible to judgmental cues (Payne et al. 1993).

**Consideration of medication alternatives**

Clearly defining the problem context and objectives is important as a means to the identification of a preferred treatment alternative. Here we were surprised by a generally conservative reaction of physicians to the diversity of drug treatment alternatives now available. A high proportion of doctors spoke about routinely prescribing only a small number of pharmaceuticals, and several doctors told us that they tended to rely on the same medications today that they relied on 10–20 years ago, at the time they first left medical school. One doctor explained:

> We don’t want to be the first on the block to use a new drug and we don’t want to be the last either . . . Many of us don’t want to experiment with our patients.

One result is that information about the benefits of new prescription drug options appears to have less influence than we anticipated. As another doctor told us:

> I tend to use what I’ve used for years and that works well . . . Why start using some new thing because there’s maybe some benefit of it when what I’m using is working well enough?

A primary reason given for doctors’ discounting of the reported benefits of a new drug is distrust of the information source. In particular, many patients and doctors referred to their mistrust of information supplied by drug companies. A patient told us:

> One place where I feel helpless is, am I being prescribed this drug because the salesman is more effective with my doctor, when there is actually another medicine that would be better for me?

Several physicians also expressed scepticism about information supplied by pharmaceutical companies; in speaking about a new anti-inflammatory drug, one said that the company ‘claimed that it was very rapid acting and that was their claim to fame, but it probably wasn’t true.’ Another doctor told us:

> Companies are always coming to us and trying to tell us why this [drug] is better than the other, but I tend to use what I’ve used for years and that works well.

Our discussions indicate that patients can be left feeling frustrated by what is perceived as their doctor’s refusal to help them learn more about the pros and cons of different treatment options. One patient told us:

> One place where I feel helpless is not knowing when there’s actually another medicine that would do better for me. I don’t know where I’d find a source of information . . . for prescription drugs, where I would find differences in the different brands . . . which one would really be best for me.

This concern extends to the issue of generic drugs and how they are to be evaluated in the context of treatment alternatives. As one patient wondered out loud:
I have to wonder why, if the generics are supposed to be less money, do they still have all of the components that the brand name drug has?

**Identification of consequences**

Doctors prescribe medications so that unpleasant or dangerous health symptoms can be ameliorated. Sometimes this benefit is obvious (i.e., there is quick or clear feedback) but often the improvement in a patient’s condition is not easily observable. There may be offsetting consequences, arising from costs associated with taking the medication or resulting from physical reactions (either anticipated or unforeseen). This complicates the information that doctors need to have access to and adds to the cognitive and emotional demands placed on patients. It also adds to the uncertainty associated with a treatment; one physician said ‘I mean, a lot of times let alone know what the downside of the risks are, we don’t even know what it is that they’re on.’

Our interviews revealed several key issues with respect to the ways in which patients typically learn about the consequences of recommended drugs. Patients cited the benefits of having access to information about the likely consequences of a drug treatment via the internet. Yet many doctors complained that patients now ‘come in biased’ from their discussions with private internet searches or friends. Such information searches are viewed by patients as demonstrating their desire to become better informed, but physicians questioned the uneven quality and relevance of the information.

Doctors have substantial freedom in describing the consequences of treatment options to patients but typically are given little guidance regarding the choice of wording or presentation format (e.g., use of statistics, charts or diagrams), even though their description may significantly affect patient behaviour. Several physicians described how they routinely simplify for patients what might otherwise seem to be an overwhelming benefit-risk decision:

I write the prescription out, hand it to them, and then say ‘Oh, by the way, these are things to watch for.’ Instead of saying ‘Here are some of the meds we’re giving you and here are some of the risks. Now we’ll make a choice together.’

Both patients and doctors talked about the difficulties of making rational choices over the consequences of different treatment regimes when difficult feelings and emotions are involved. As one doctor lamented:

Sometimes I get the sense that the drug companies have no idea how difficult it is to start a new drug on a patient … You start giving them some of the complications, they’ll walk out five minutes later and a lot of them don’t even remember what the potential problems are.

Decision scientists refer to this emotional response in terms of a person’s affective feelings associated with a stimulus, such as its goodness or badness, or responses of worry or comfort, calmness, or agitation (Slovic et al. 2004). One patient, in describing why she stopped taking a prescribed medication, told us:

I had to stop taking the drug because it wired me. I mean, it killed the pain, but I’m up there like you don’t know what and it just got to where I needed to go to bed.
Recent research has shown that reliance on feelings tends to increase with factors such as the complexity of the task at hand, stress (stemming from time pressure, for example), or discomfort (e.g., associated with the need to communicate unpleasant or quantitative information; Slovic et al. 2002). Because the occurrence of these factors is not unusual (which doctors would not use words such as ‘complexity’ or ‘stress’ to describe their daily experience?), affective dimensions of decision making can figure prominently in doctors’ treatment decisions.

A surprising affective response, noted by several doctors, was the (according to them, widespread) practice of writing prescriptions for emotional rather than medical reasons, even when they were not really needed. One physician, in discussing communication of consequences, noted that many of his patients were not greatly interested in discussing the details of his diagnosis but would be upset if he didn’t provide them with a prescription. He observed that ‘Even for ailments such as a common cold . . . many of my patients will feel [cheated] if they leave my office without a prescription.’

When asked to explain this phenomenon, several physicians rationalised their response by referencing the palliative nature of many pharmaceuticals. As one doctor told us:

> What I feel about drugs is that they mainly are designed to take care of the symptoms that you have. They don’t necessarily cure you of anything . . . they just take the pain away.

**Examination of tradeoffs**

Results from our interviews suggest that doctors typically address many tradeoffs implicitly, rather than in terms of patients’ objectives, and thus reflect their own perceptions and experience. Explicit analysis of tradeoffs is most often undertaken by the doctor alone rather than as part of a dialogue with patients: several doctors told us that one of their most important jobs is for them to make the tough tradeoffs that patients are unable to face. Overall, shared decisions with patients about key tradeoffs appear to be rare. This absence of weighing benefits, risks, and costs appears particularly true when treatment decisions involve dimensions that are considered sufficiently objectionable as to be taboo (e.g., even a very low probability that a medication could result in death). Research on tradeoffs supports this observation (Lichtenstein et al. 2007); tradeoff decisions over treatment options may seem especially easy when the consequences are more severe and thus emotionally evocative. As doctor explained:

> So let’s say that we’re going to spare four lives out of 100, she knows that’s her benefit. It’s in her hands, on a piece of paper that says this is statistically the likelihood of the outcome here. Then I tell her there’s a one or two per cent chance of a blood clots, which can be lethal in a rare case and [then I tell her about] this uterine cancer, which is not usually lethal but is obviously an issue. Then I let it sit. And that’s a risk benefit discussion that may or may not be solved that moment, or somebody might say, ‘Forget it! I’m not going to accept that risk,’ or they may say, ‘I want to think about it,’ or they might say, ‘Fine, let’s do it.’

Several doctors emphasised that the extent and content of tradeoff discussions were dependent on the nature and severity of the illness under treatment. One example is the weight given to side effects in making tradeoffs across treatment options, which
varies substantially depending on the overall health of the patient and the symptoms that are exhibited. For a patient who is basically healthy, one for whom symptoms are relatively minor and there is no pressing need for a change in status (e.g., towards a less painful state), then advice from the doctor is more likely to involve a discussion of tradeoffs and side effects. On the other hand, if a person is suffering or is in an acute state, then the side effects of a medication will receive less attention. One patient said of his medicines:

The stuff is dangerous, but after a while when the pain gets so bad I have to take it. There's not a choice there because the pain is so severe . . . I worry about what it's doing to my body, my liver and kidneys probably. But if I don't take it like he tells me, I end up crying until I get it down.

This same perspective was noted by several doctors; one told us:

If somebody comes to me and feels fine and their blood pressure is up, then the medicine isn’t going to make them feel any better. So they're concerned about the side effects of the medicine. Whereas when I'm walking in, and they've lost 30 pounds and they have a lot of pain and . . . their concern is ‘what can you do for me right this minute to get me to next Friday’ . . . the other issues are of less concern and the threat that's posed by the disease is such that they can now accept adverse side effects far more at that point.

A common patient tradeoff is the need to balance the cost of a drug against its anticipated effectiveness. Several patients told us that they typically opt for the cheapest treatment. Other patients described a lexicographic choice process, in which they simplify a complex choice by focusing on one dimension and choose the medication with the highest perceived benefit or least objectionable side effects. A typical context is the choice of competing drugs for treating cancer. One doctor told us:

The Arimodex seems to work a little bit better and the side effects are less. But most women will choose to take Tamoxifen because it is less expensive.

Another context where tradeoffs often were discussed was in the context of monitoring how patients respond to a treatment. Here the key issue is uncertainty with respect to optimal monitoring intervals: as one doctor stated:

... how do physicians decide how many weeks they'll let it go before they see a patient back in the office? ... It's one of these sorts of instinctual things but the time component is huge in medicine. If you go too soon or too long, you're missing out on what you want to see, like is there a side effect? Has the disease progressed? And I think not enough attention is paid to that.

One of the topics we heard surprisingly little about, from doctors or patients, was the tradeoff between the short-term risks and long-term benefits of a medicine. This topic came up in the context of adherence issues, where we were told that patients might place a relatively higher weight on the short-term inconvenience or discomfort associated with a treatment option and thereby neglect important long-term benefits that doctors seek to emphasise. In part this again reflects the influence of affective considerations: ‘living longer’ as the result of a prescribed drug is clearly an important benefit but, for the patient, it may not be emotionally salient because the
years that likely count the most are those occurring sooner, not at the extended end of life.

As a sympathetic doctor explained:

How do you communicate ... that they have to take suddenly a handful of pills that’s not going to make them feel any better and maybe worse but they can live longer?

**A prescriptive framework for doctor–patient communication**

A primary prescriptive finding from the small group discussions, with both physicians and patients, is that additional attention should be given to balancing the multiple effects of medications across a range of treatment options. Doctors feel they need to simplify and patients feel they have only a brief window of time; as a result, little information usually is exchanged and insufficient attention is given to identifying or weighing the anticipated benefits, risks, and costs associated with a treatment plan. This results in frustration for many doctors and their patients and, in part through non-adherence, shows up via decreased health outcomes. Making changes in this pattern does not involve the use of formal models, nor does it require either doctors or patients to perform heroic calculations or fill in detailed spreadsheet entries (within the 15 minutes they have to meet). What it does require is improved decision-making skills and a different foundational model for dialogue, one that makes use of an appropriate and more effective structure to inform medication decisions in light of typical time and information and attention constraints. In this section we discuss how use of the PrOACT model of decision analysis provides one standard for bringing about improvements in medication-choice communications between doctors and their patients.

**Problem context**

Most patients will need help in making medication choices because they have neither experience in facing such decisions nor knowledge of key decision factors. Doctors appear to be well aware of their role (along with pharmacists and, at times, other sources) in constructing the initial problem context. As one doctor explained:

To varying degrees, depending on the problem, I think we have an incredible influence to where we can totally spin something and, you know, we can tone down the risk profile or tone it up.

Another doctor noted:

People have a different way of viewing a medication or treatment based on how they ... how it’s presented. I mean, in terms of a benefit vs. a risk of not doing it.

Yet many of the doctors we spoke with gave little indication of careful thought regarding how their framing of a drug treatment choice might influence perceptions and behaviours of their patients: each physician appeared to have developed his or her own presentation style (some emphasising verbal instruction, others using charts or other visual materials) and, simultaneously, each appeared
at least moderately comfortable with what they were doing, even though it might be quite different from the choices made by their peers. Making progress on this issue would not be difficult. For example, it would be helpful if doctors were simply to meet and discuss the implications of different framings, although this would require both attention and time. Providing a range of different risk presentations, as a check on the bias associated with any single frame, also would require time as well as a recognition from doctors that changes to their current practices could result in improved medication decisions.

A key prescription, and a basic tenet of a values-focused approach, is that without first learning which concerns are at the top of patients’ agendas, and listening closely to the language used by patients, health risk and benefit communication is likely to be less effective (Gregory 2004, Iltis 2006). Involving patients more fully in setting the problem context also creates an opportunity for a more flexible and responsive diagnostic process. For example, a patient may come into the doctor’s office thinking that they seek symptom relief (e.g., a prescription medicine to lower their blood pressure) and learn from their doctor that there is a more fundamental problem (e.g., job-related stress, weight reduction, or quitting smoking). This suggests an active role for the doctor as well as the patient, in that the physician not only seeks to understand the problem but also (through careful questioning) to help the patient reframe their description of symptoms and to place their illness or symptoms in a larger context. Even helping the patient to realise that action needs to be taken can be a part of the problem context. As one doctor explained:

I think a lot of people put off making a decision . . . they’ll put it off and say ‘I don’t want to do it right now, can I just try diet and exercise and put it off a little bit longer?’ I always tell them to think about the word ‘decision’ which comes from the Latin decido meaning to cut . . . and I want you to make a decision, choose one thing or choose the other and do it, make a decision . . . and then we can go on.

Definition of objectives

Yogi Berra is reported to have said, ‘If you don’t know where you’re going, you just might end up somewhere else.’ For the patient, a key challenge is, first, to think clearly about their own objectives and, then, to ensure that these concerns are addressed by the doctor. Because most patients are not skilled in value-focused thinking, being clear about their own concerns, let alone describing the symptoms of their illness or overcoming a natural reticence in the presence of the doctor, can be a difficult task.

From a prescriptive point of view, one realistic approach to improving the discussion of patient concerns is for the doctor to organise the initial stages of the consultation to more clearly demonstrate curiosity and achieve understanding of the patients’ objectives (Ruiz-Moral 2009). This typically will not require more than simple inquiries: What are you experiencing? What do you hope to realise from this visit? Are there any concerns you would like to bring up with me? Why do these matter to you? However, results from the interviews with doctors suggest that even these basic questions are rarely asked of patients (Siminoff and Step 2005). Only one doctor told us that he directly asks patients ‘what’s important to you’ with respect to a drug treatment choice. This communications gap is perhaps most common in the context of more serious illnesses; as noted by Thorne et al. (2005, p. 875) ‘poor communication in cancer care seems unfortunately prevalent’ and results in ‘a
particularly detrimental impact on the quality of decisions patients are able to make in relation to their course of treatment.

One of the basic lessons of the emerging field of risk communication is that risk messages should be framed in terms of the concern and language of the intended audience (National Research Council 1989). If the benefits of adherence, or the risks of non-adherence, are not articulated in terms that make sense to patients and capture their attention, then a failure to adhere would be expected (rather than a surprise). As one patient commented:

I didn’t want to take narcotic drugs but the Tylenol wasn’t carrying me any anymore . . . So my doctor said, well, I can give you a narcotic drug. I said, I really don’t want to take narcotics. He said, I know you don’t but here’s a prescription. So I went and filled it and I never did take it because I didn’t want to become addicted.

Importantly, encouraging adherence also requires engaging patients in terms of their emotional and affective, as well as cognitive, responses; research on related healthcare communications issues (Peters et al. 2006) suggests that a non-adherence message stated abstractly, in terms of proportions or numbers (e.g., the percentage of remissions), may not elicit the desired response because it is neither understood nor felt. On the other hand, there is some evidence that individuals who share more in health decision making understand more and show improved health outcomes (Hibbard et al. 2007). Thus, to the extent that doctors can more fully identify patient concerns and address them directly and using familiar terms when discussing drug treatment options, the expectation is that both patients’ understanding and their adherence would increase.

**Consideration of alternatives**

In theory, any proposed new medication should be evaluated in contrast to existing treatment options and to no treatment, all of which also carry their own sets of benefits, risks, and costs. The decision question appears straightforward: do the benefits of the new drug merit its being substituted for, or added to, an existing treatment plan? Our interviews suggest that, in practice, treatment decisions rarely are framed in terms of an explicit comparison of alternatives. Further, new information rarely is presented in terms that facilitate multi-dimensional comparisons with previous studies. From the doctor’s and (often) the patient’s perspectives, this lack of trusted, clearly presented information is likely to encourage judgmental biases toward staying with the familiar and known rather than trying something new.

Effective decision making about medication treatment alternatives also requires that both patients and doctors are able to access the salient aspects of a choice and address these concerns when making decisions; the best treatment alternative would be that which most fully meets the more highly ranked concerns. Several physicians told us that this is one area of decision making they wanted to learn more about, in part to avoid diagnostic errors and the accompanying regret. Groopman (2007a) quotes one doctor who only in hindsight recognised the benefits of considering multiple options: ‘I learned from this to always hold back, to make sure that even when I think I have the answer, to generate a short list of alternatives.’

A useful tool for presenting and comparing alternatives, one that could be applied either formally or informally as a means to improved thinking, is a
consequence matrix (see Table 2). The concept, borrowed from decision analysis (Keeney 1982), refers to a simple matrix that compares alternatives (typically listed in columns) to the relevant objectives (listed in rows). To operationalise the table, it is also necessary to identify relevant and understandable measures that describe the objectives in simple terms that are suitable for the decision context (Keeney and Gregory 2005). If, for example, one of the primary patient objectives is to minimise medication costs, then different alternatives could be compared on this basis: some alternatives may ‘score’ about the same on this dimension, but others may vary by amounts that are considered significant. In the example shown below, the three alternatives vary quite significantly on costs and on the required daily regimen, whereas safety and discomfort are similar and don’t really help to differentiate across the alternatives. This underscores an important point: in multi-dimensional choice situations, the key concerns to be addressed typically will be those which are most salient because they vary significantly across the relevant set of options. The summary of information also may support simplification of the treatment decision; if Alternative A is considered impossibly expensive by the patient, then it might be dropped from further consideration and (with discomfort and safety not relevant, in this context) the simplified choice (about which reasonable people may differ) focuses on the value trade-off between treatment regimen and expenses for alternatives B and C.

The suggestion is not that consequence tables become a standard tool for doctors to communicate directly with patients; remembering the earlier quote from Moskowitz et al. (in Section 2), doctors are no more likely to begin spontaneously sprouting consequence tables than decision trees. Yet the logic of a consequence table, particularly for more consequential treatment choices (and perhaps in preparation for a patient’s visit), could prove to be very helpful. As we heard over and over again, one of the primary tasks for physicians when comparing alternatives is to help focus their clients on those aspects of the drug-choice decision that matter the most with regard to both short- and long-term health status; this showed up, for example, as the emphasis placed by many patients and doctors on minimising adverse drug interactions and side effects. Medicines would therefore be selected in part on the basis of their ability to avoid further complications; as one doctor described this:

I find drug interactions very complicated and so many of the patients have this huge list of medications that I have no idea what’s going to happen sometimes if I were to add another one. So I try to wiggle away medicines . . .

The goal is thus to achieve a defensible balance between fully considering relevant alternatives and paring-down or ‘wiggling away’ non-viable options. However, the

Table 2. Consequence matrix showing treatment alternatives.

<table>
<thead>
<tr>
<th>Objectives</th>
<th>Measure</th>
<th>Treatment A</th>
<th>Treatment B</th>
<th>Treatment C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost to patient</td>
<td>$/month</td>
<td>$150</td>
<td>$65</td>
<td>$40</td>
</tr>
<tr>
<td>Safety</td>
<td>Additional deaths/million</td>
<td>3.0</td>
<td>3.4</td>
<td>3.2</td>
</tr>
<tr>
<td>Regimen</td>
<td>Number of times per day</td>
<td>2</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>Patient discomfort</td>
<td>Itching index ($1 = low, 5 = high)</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>
quote (‘I try to wiggle away’) demonstrates the largely ad hoc nature of this process, oriented more toward identifying a ‘good enough’ alternative than it is toward selecting the best alternative from among a set of options. Yet simply thinking carefully, particularly when thinking is informed by techniques such as consequence matrices, has proven useful in other contexts as a way to help parties identify creative, preferred alternatives; numerous examples can be found, for example, in the negotiations literature (Raiffa 2002).

We also noted earlier the influence of a variety of simplifying strategies, or heuristics, that often characterise decision making for complex choices. Adopting judgmental heuristics is a normal response to a complex decision environment, yet despite strong supporting evidence of possible errors in thinking (McNeil et al. 1982), few doctors would recognise themselves as susceptible to the mistakes that can arise through the unconscious adoption of heuristics. Nor would most physicians willingly sign up for training that seeks to increase their understanding of common judgmental biases. Yet both these elements figure prominently as part of a prescriptive framework that seeks to improve doctor–patient decision making, and (for this reason) are among the topics in applied decision making that are now included as part of some medical school curricula.

**Identification of consequences**

One of the primary tasks for the doctor is to help the patient make sense of what can appear to be a bewildering amount of information about the possible consequences associated with taking a prescribed medicine. One physician told us: ‘I think you have to focus on the big picture … you have to sort out [for the patient] what’s important and what information is the most important.’

This task is harder than it might seem; several sources of difficulty arise when presenting information to patients about the likely consequences of a treatment regime. A first is the sheer range of possible consequences, which can vary from physical to financial or emotional issues, short- to long-term, and from individual (e.g., discomfort) to family (e.g., long-term care requirements) considerations. Doctors need to help their patients understand which consequences merit their attention and which, in light of the illness and patient case histories, can be ignored. One doctor told us:

> There are common side effects and uncommon side effects and it’s usually when you present it to a patient that way they don’t say well, what percentage of the time is it common and what percentage of the time is it uncommon. So that’s the sort of language you use, common side effects and uncommon side effects.

Another doctor in the same group continued on this theme:

> … these are lengthy sheets and they go over every little tiny detail and … there is no way for people to have all of that information and understand the process. Why shouldn’t the drug companies, when they give you medication, rather than a sheet that is fine print this long [gestures], have one sheet that shows in bold print the three major things, in red or something … [show] the common things in big print, unmistakable, keep it simple and keep it short.

This quote suggests a second source of difficulty, which is the probabilistic nature of many consequences associated with the decision to take a drug. From a prescriptive
standpoint, it generally will be necessary for the physician to provide some assistance to their patients in understanding the anticipated likelihood of both beneficial and adverse effects of a medication, either of which could involve quantitative probability estimates based on previous patient histories. Doing this well requires a sensitivity to patients’ numeracy abilities and to different ways for presenting probabilistic information. In some cases, it may also involve recasting numerical probabilities as verbal descriptions:

For example, I tell people I want them to lower their blood pressure to reduce their risk of stroke and that’s the end of the discussion. I mean, I don’t tell them that it will go down 10 per cent or 12 per cent, I just tell them that studies show the lower, the better.

Studies have shown that many people have a limited ability to comprehend numeric information, and that these difficulties can increase with age (Peters et al. 2007b). As a result, simply making quantitative information available may not improve a patient’s understanding of the consequences of taking (or not taking) a medication. From a prescriptive standpoint, there exist numerous ways to address innumeracy, including the use of affective markers (Hibbard et al. 2007) and the translation of probabilistic information into frequencies, so that estimates of 90 per cent or 0.20 are reframed as a nine-in-ten chance or as taking place, on average, two times out of ten (Gigerenzer 2002). These methods are helpful, but they may not be known to the physician and, even if they are, their application still requires time and attention that may be difficult to access.

A third source of difficulty, cited by several doctors we spoke with, concerns the integration of short-term and long-term effects. This problem often arises in the context of adherence, noted by several doctors as a critical treatment issue:

Medicines that make you feel better immediately . . . are taken and medicines like seizure medicines will make you feel a little worse and be helpful long term but it’s hard to assess how long you need them. If there were some instant feedback you could get, like you take your blood pressure medicine and if your blood pressure is on target your urine is green as opposed to yellow, then they would say ‘Oh, it’s really working!’ So sometimes I take a side effect from a medication and I tell them ‘It means it’s working’ . . . and that helps with compliance.

This is an interesting response to myopia, involving reframing the implications of a choice (‘side effects are good’) to help with compliance (‘it means it’s working’). It is in line with current thinking in related areas involving difficult risk and benefit calculations: some psychologists, economists, and lawyers, for example, have proposed a ‘libertarian paternalistic’ approach as a means to encourage adoption of favoured behaviours in the face of desirable public policy initiatives (Thaler and Sunstein 2008).

The problem is a serious one, particularly if one of the key effects of the drug in question is to (statistically) prolong the individual’s life but with the result that the patient experiences added short-term discomfort or inconvenience. A key task for the doctor may be to use opportunities for dialogue to increase the salience of the long-term benefits or to reduce the relative emphasis placed by patients on the short-term costs.

**Examination of tradeoffs**

Most physicians told us that they generally make key tradeoffs on behalf of their patients, because of the complexity of the underlying choices and as part of the
responsibility and trust assigned to them. One doctor said that he makes a four-way
distinction (in his own mind) when comparing risks to benefits, asking if the
anticipated side-effects are serious (life-threatening) or not and if they are common
(affecting more than five per cent of the population) or rare. If the side effects are not
serious (whether rare or common), then tradeoffs are easy and he will talk about it
with his patients; if side effects are serious, then he will do the benefit-risk
comparison himself and tell the patient what should be done. This doctor pictured
one of his patients asking themselves ‘do I run the risk of bleeding or do I run the
risk of a stroke?’ and recognising that, ultimately, ‘they’re looking to someone who
can . . . have a bigger, overall experience’ to address the tradeoff for them. Several
other physicians in this small group agreed, adding that their patients didn’t need to
hear about minor side effects and didn’t want to hear about more serious side effects.
Another doctor told us:

My decision to put them on a particular drug would be based upon what I feel would
have the lowest side effect profile and the easiest in terms of their compliance. That’s
basically where the risk/benefit ends.

We had anticipated that physicians would help their patients to make the effort to
consider tradeoffs across the multiple dimensions of different treatment options,
rather than focusing on only one aspect. Yet, many of the physicians we spoke with
expressed a level of discomfort with what one referred to as their own ‘nearly
automatic’ process to assess tradeoffs as part of medication decisions. One doctor
critically examined his own decision process and explained his reluctance to prescribe
new medications in terms of his own difficulties when confronted with tradeoffs:

Ninety percent of the drugs we prescribe are the same 20 drugs, so usually we know
everything about them backward and forward. The other 10 per cent is what we have to
stop and scratch our head and think about – so you tend to stick to the familiar.

This doctor, and several others in the same group, said they would welcome input about
how to best present tradeoffs to their patients, particularly concerning issues involved
in weighing the costs vs. quality of treatments and developing effective monitoring and
patient feedback. A specific issue noted by these doctors was a concern about order
effects (concerning sensitivity to what is said earlier or later). The accuracy of this
intuition is supported by previous research showing that benefits and risks are not
necessarily considered independently (Slovic et al. 2007). Studies on this topic, in a
variety of settings, have shown that there is a often an inverse relationship between
perceptions of risk and benefit, with the effect that activities judged high in risk tend to
be judged low in benefit (Alhakami and Slovic 1994). For the prescribing physician, one
implication is that the order of information presentation might (intentionally or
unintentionally) influence patient choices: an initial focus by the doctor on benefits of a
drug could influence patients to minimise its risks, whereas the reverse order (adverse
side effects first, then benefits) could lead to a discounting of benefits.

Discussion and conclusion
This paper makes use of interviews and discussions with a small sample of physicians
and patients to point out some surprising aspects of how doctors typically prescribe
prescription drugs and suggests initiatives from the decision sciences that could result in improvements on current practices. In the introduction to this paper we noted five main problems, drawn from the literature, that often adversely affect doctor–patient communications about medication choices. Three of these (numeracy, emotion, and decision skills) can directly be addressed through adoption of improved decision-making skills, and the other two (literacy and time) can partially be helped though use of a responsive and effective decision-making process. Overall, we suggest that insights from decision analysis and behavioural decision theory be used as a standard, to improve doctor–patient communication and to help implement calls for ‘shared decision making’ between doctors and their patients (Siminoff and Step 2005).

At the start of this study, we anticipated that most doctors would help their patients to select among alternative prescriptions based on an analysis of the perceived benefits, costs and risks of a suggested treatment. To our surprise, we found little evidence for this explicit balancing of risks and benefits across medication alternatives. Instead, the doctors we talked with most frequently engaged in a type of pattern recognition: they looked for cues in the status of the patient that would allow his or her condition to be linked, within a short time, to one of a relatively small set of familiar medication options. Well aware of the short time frame within which consultations typically occur, most doctors perceived themselves to have both a right (through their training) and a responsibility (based on their experience) to simplify the options and alternatives (and the associated tradeoffs) available to the patient. Although some patients seemed to accept this as the norm, others were frustrated by their doctor’s apparent unwillingness to assist them in learning more about different treatment options and undertook information searches on their own.

Our findings are consistent with the observations of others who observe high stress task environments where professionals routinely are asked to make difficult, and frequently consequential, choices under time and information constraints. Studies of airline pilots or chess players, for example, show a similar set of concerns and a similar reliance on heuristics such as availability, representativeness, and affect along with an ability to quickly undertake situational evaluations that lead to a defensible course of action (Klein 1998). Treatment options are evaluated less on the basis of an explicit comparison of the factors contributing to benefits or risks or costs but, instead, reflect an implicit and holistic judgment informed by experience.

Although physicians acknowledge the contribution of heuristics to time-constrained decision making, we found their overall lack of interest in the implications for judgment quality to be both surprising and disturbing. Most of the doctors and patients we spoke with were very open, and often eloquent, in stating complaints about the quality of treatment communications, but few knew how to go about making changes. The notion that there might be procedures (from decision analysis and elsewhere) to look to as a standard for improving communication, and visible measures of outcomes (e.g., adherence rates, health status) to use as feedback, was news to most participants. We observed a general acceptance of a process acknowledged to be substandard, while at the same time both patients and doctors were vocal in their complaints: doctors wanted patients exhibiting biases such as availability to be less easily misinformed by incorrect information, whereas patients wanted doctors exhibiting biases such as overconfidence to be more willing to question their own initial diagnoses and look for counterindications.
Practice implications emphasise the benefits that additional knowledge of decision making, for example as a standard part of doctors' training, would provide in helping physicians to more easily identify key objectives (their own and those of their patients) and to integrate more fully the cognitive and affective aspects of treatment choices.

Without learning about which concerns are at the top of patients’ agendas and the language that patients use to express them, adherence is likely to be far lower because communication will be less effective and key instructions are likely to be misunderstood. To the extent that the values focus of the PrOACT model helps to provide a useful framework for further explorations of such improvements to doctor–patient communications, it is recommended that more detailed studies be conducted with reference to particular medical conditions and decision contexts. It also is recommended that attention be given to improvements in the articulation and communication of both cognitive and emotional concerns. Although nearly all of the doctors in our groups recognised this need and spoke about the need to combine technical assessments with emotional sensitivity, it was clear that this important task was being done on an ad hoc, individual basis; in the one case where doctors did get together once every several weeks to discuss treatments, we were told that emotional responses were not ‘on the table.’ Yet good decision making requires that both emotional (or System 1) and cognitive (or System 2) responses be acknowledged (Kahneman 2002). For most doctors to be unaware of these basic judgmental mechanisms means that diagnoses and treatment recommendations are at times being made on the basis of unacknowledged cues and reflect influences about which the doctors themselves may be largely unaware.

Decision-making techniques have begun to find their way into the toolbox of many doctors and medical schools. Yet, if conversations with doctors in our small groups are representative, the primary role assigned decision-making insights is associated with decision support, in the form of quantitative analyses and computer software. Our conclusion, based on the interviews we report here, is that the real need is for a revision in thinking, one that puts an emphasis on making better choices rather than on bringing in new technologies to avoid mistakes (e.g., in medication interactions) or to increase efficiency, and one that recognises the place of emotion and dialogue as part of an informed decision-making process. We put forth the logic of value-focused thinking, and the companion PrOACT model, as one standard for helping to create such an improved decision-making process. It has the advantage of being relatively simple and fitting well with common sense, and it emphasises the importance of paying attention to the initial aspects of doctor–patient communication: clarifying the problem context, identifying objectives, and considering the pros and cons of a range of treatment alternatives. These aspects of decision-focused thinking are well suited to more informal, dialogue-based implementation, and they effectively address many of the most pressing issues raised by both the doctors and the patients we had the privilege to listen to as part of these interviews and small-group discussions.

References


