of their disease: if the stakes increase, a greater risk might be thought worth while. A drug used for prevention has a very different trade-off value from one used for early stage disease or for metastatic disease.[11]

Knowing and understanding the frequency of an event in a population provides no certainty for individuals—only a guide to be used according to their own circumstances, values, and preferences. Accepting uncertainty is probably the most difficult aspect for any patient.[12] Fear disturbs the balance between rational and irrational behaviour. Taking responsibility for decisions is not easy but can be helped by sharing the process with a skilled and sensitive health professional.[10]

The business of enabling patients to understand risk so that they might incorporate it into their decision making processes is fraught with difficulties. It goes without saying that health practitioners need the knowledge, skills, confidence, communication skills, and the decision aids to provide this essential component of shared decision making. [10] Few interventions are risk free.

Those charged with the governance of risk in society will need to widen their research in partnership with users, to examine social factors that go beyond the cognitive to the behavioural, including the social context in which meanings are shaped. This will require attitudinal shifts in policy makers, patients, purchasers, and professionals, with potential consequences that are far reaching for individuals, health services, health economics, and society.

Hazel Thornton *honorary visiting fellow*

Department of Health Sciences, University of Leicester, Leicester LE1 7RH (hazelcagct@aol.com)

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Teaching medical students and doctors how to communicate risk

Combining the teaching of statistics with communication skills

The need for doctors to have proficient communication skills is well recognised,[1] but teaching students how to communicate risk to patients seems to have received little attention in the undergraduate medical curriculum. Primarily it is statisticians who teach the concept of probability. This ultimately translates into the communication of risk that informs the clinical consultation. Although students need to appreciate the basics of statistical methods and know the different ways to convey risk,[2] it is particularly important that they have the opportunity to practise these skills under safe conditions and receive constructive feedback.[1 3]

The recently established graduate entry programme at St George's Hospital Medical School in London has an integrated curriculum across all years.[4] The course is delivered by using problem based learning whereby students use "triggers" from a problem case or scenario to identify their own learning issues.[5] It has been suggested that students are more motivated by such an approach, where the practical problems they experience act as a stimulus for learning.[6] Despite the best efforts of teachers, however, students tend to see medical statistics as inherently mathematical and irrelevant.[7] Within the graduate entry programme integrating the teaching of medical statistics with communication skills has enabled students to see the relevance of medical statistics, in particular the need to communicate risk effectively to patients.

Various techniques can be used to raise students' awareness about the problems that may occur when communicating risk, not only for the patient but also the doctor. Qualitative expressions of probability, such as "unlikely," "a chance," "occasionally," and "probably" are used all the time in clinical medicine to describe risk. A useful approach is to ask students individually to rate such expressions as a numerical proportion,[8] placed in relation to an event occurring, such as a child being born with Down's syndrome. The results of this exercise enable students to compare their own interpretations with those of their peers. Typically, the interpretation varies widely,[9] and some students find it impossible to ascribe a single value to a qualitative expression of probability. Ideally this awareness raising exercise encourages students to think carefully about how their patients might interpret such descriptive statements of probability, and clarify if necessary.

Role playing consultations between patient and doctor plus small group discussions play a valuable part in the students' general education.[10] These teaching

A table of everyday risks appears on bmj.com

BMJ 2003;327:694–5

methods develop the skills of listening, presenting ideas, decision making, and working as part of a team. They help the student appreciate that one of the biggest problems that clinicians face is how to interpret results from epidemiological studies or clinical trials in ways that have meaning to the individual patient sitting in front of them. The patient will either develop a disease or not, and it is not obvious how the patient's view of their outcome is altered by any risk the clinician ascribes. After feedback the key message that students take away is to tailor information to what the patient wishes to know and to verify his or her understanding.

Video recordings of patients (or actors) in a clinical consultation are a valuable way to raise awareness.[3] Students can observe patients' concerns and suggest where the clinician could have enhanced his or her communication. We have used a video of women describing their experiences when undergoing screening for Down's syndrome and open neural tube defects in pregnancy. After watching the video the students can explore different ways of discussing risk with patients and presenting test results in ways that are helpful. One of the issues discussed was the difficulty for patients in appreciating the magnitude of a risk in relation to everyday events (see table on bmj.com). Furthermore, the way in which information was presented may influence subsequent decisions.[11] If the probability of having a child with Down's syndrome was framed negatively—as a 20% risk of an affected child—women were more likely to have an amniocentesis than if the risk was framed positively—an 80% risk of no abnormality.

We believe that integrating medical statistics with communication skills in this way helps students appreciate the relevance of probability by learning it in context while also developing skills in communicating risk. Edwards et al have shown with general practice registrars that these approaches and benefits may also be relevant to postgraduate learning and skill acquisition.[12]

Philip Sedgwick *lecturer in medical statistics*
(p.sedgwick@sghms.ac.uk)

Angela Hall *senior lecturer in clinical communication*
(ahall@sghms.ac.uk)

Departments of Community Health Sciences, Medical and Health Care Education, St George's Hospital Medical School, London SW17 0RE

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Making sense of risk information on the web

Don't forget the basics

Web based risk calculators are among the newest information resources available to people who want to understand the health risks they face. The advantage of these calculators is their ability to generate tailored risk information based on personal factors. But their usefulness depends on their accuracy and whether they are complete or balanced. To focus on the second issue, we present a hypothetical case history highlighting some elements of good (and not so good) risk communication.

The case: Mr Jones is a 55 year old white man worried about prostate cancer after reading about a politician who had recently been diagnosed with the disease. His first search effort—using the Google search engine to look for "prostate cancer *and* risk calculator" yields 8410 hits. The first hit (www.yourcancerrisk.harvard.edu) seems perfect. This asks him questions about himself and, based on his age, ethnic group, family history, height, vasectomy history (he had one), and dietary habits (he eats ≤5 servings of food with animal fat a day and ≤5 servings of tomato based foods a week), tells him his risk is above average. He is now even more worried and calls his doctor.

BMJ 2003;327:695–6

Mr Jones's doctor explains that three things are missing in this risk assessment: clarity about the risk, context, and an acknowledgment of uncertainty.

Clarity

Clarity means knowing what specific risk is under consideration (is this about getting or dying of the disease?), a number (the probability), and the time period associated with that number. Just being told that his risk is above average does not tell Mr Jones the chance that he will get or die of prostate cancer in some defined time frame.

A limited number of calculators are available that can generate quantitative risk estimates for various diseases such as breast cancer in the next five years,[1] lung cancer in the next 10 years,[2] or the combined chance of myocardial infarction or death over 10 years.[3] Most, however, calculate only the chance of developing a specific disease, not the chance of dying from it. The US federal government's surveillance, epidemiology, and end results (SEER, http://seer.cancer.gov/) site provides look-up tables and an interactive calculator for estimating the risk of both getting and dying of