

Communicating risk

We as doctors are not alone

EDITOR—Risk is a crucial part of current medical practice, as clarified in the editorials by Edwards, Godolphin, and Thornton.¹⁻³ It is a subject that we all have to deal with day to day, and knowing that others are grappling with these difficult ideas is refreshing. The debate, however, needs to be widened further.

As medical practitioners we are not alone in facing uncertainty and risk. Everyone involved in decision making faces the same problem. Whether it is the risk posed by an Iraqi regime headed by Saddam Hussein, the likelihood of a large meteorite striking the earth, or the chances of an Intercity 125 crashing, everyone is confronted with uncertainty and risk.

The debate on risk needs to be taken beyond the confines of medical journals and into the general media, the House of Commons, and school classrooms. Only when the concepts of risk and uncertainty become familiar to the public at large can we as doctors hope to have an informed discussion with people who come to us asking for advice.

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- 1 Edwards A. Communicating risks. *BMJ* 2003;327:691-2. (27 September.)
- 2 Godolphin W. The role of risk communication in shared decision making. *BMJ* 2003;327:692-3. (27 September.)
- 3 Thornton H. Patients' understanding of risk. *BMJ* 2003;327:693-4. (27 September.)

Compulsory measures can work

EDITOR—Thank you for devoting an issue of the *BMJ* to the important topic of communication and public perception of risk. As a public health doctor, I have long puzzled over the apparent dissonance between statistical and public interpretation of risk.

Risks imposed by others may be less acceptable than risks under individual control. In the examples covered by Bellaby,¹ injuries to child passengers could be perceived by parents as under their own control. Measles, mumps, and rubella vaccination² and variant Creutzfeldt-Jakob dis-

ease are, however, perceived as imposed by authority.

When comparing the risk of death from smoking and air travel, statistics tell us that air travel is incredibly safe and that smoking is not. Plane crashes induce enormous public fear, yet some 340 jumbo jets would have to crash every year to equal the toll from smoking in the United Kingdom. The media, and hence the public, seem more frightened by unusual and immediate events. Smoking is an every day occurrence and takes many years to kill. Plane crashes are rare and happen in a matter of hours after take off.

Bellaby argues that in a post-war democracy, compulsion cannot work and concordance through two way communication is the only way forward. Although concordance is preferable, compulsion can work well: seat belt legislation. After it was introduced in 1988 this compulsory, effective health measure did not generate mass riots or failed compliance.³⁻⁵ Research into the above issues could contribute to the implementation of effective public health programmes, through better communication, in today's Britain.

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Patients often have complex understanding of risk

EDITOR—Why do doctors make such heavy weather of risk? The discussion of risk assessment and communication still slips

into patronising patients and oversimplifying issues.¹ We think that individual decisions are almost always reasoned and that patients often have more complex understanding of risk than their doctors.

There are two dimensions to understanding health risks from a citizen's perspective: their estimation of the probability and impact of any action or inaction, and their position on a spectrum from conformist to dissenting attitude.

Driving children to school does expose them to the risk of road crashes, but the probability of this happening is decreasing as the volume of traffic rises and the rate of serious crashes falls. The impact of accidents can be reduced by individual action (careful driving), technological innovation (safer cars), and social measures (traffic calming).

Similarly, the possibility of a connection between the vaccine for measles, mumps, and rubella and autism is understood as a risk of a highly unlikely event that will have a profound impact, whereas measles, mumps, and rubella will have a low impact, despite being increasingly likely.

An emerging conception of the fit body emphasises that the immune system (if well brought up) will respond flexibly to challenge, without need for potentially hazardous immunisation. This new common sense about health emphasises autonomy and responsibility, and resonates with conventional wisdom about personal and economic flexibility. What alternative common sense can *BMJ* readers offer? Herd immunity is hardly an enticing idea for robust individualists.

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- 1 Bellaby P. Communication and miscommunication of risk: understanding UK parents' attitudes to combined MMR vaccination. *BMJ* 2003;327:725-8. (27 September.)

Journalists take note

EDITOR—Gigerenzer and Edwards provide us with a succinct summary of everything that is wrong with communicating risk both within the medical profession and to the public at large.¹ What is more, they suggest comparatively easy ways of improving the current sad state of confusion and misunderstanding, by using natural frequencies or absolute risks whenever possible, rather than relative risks alone.



My concern is that the public invariably gets its medical information from the media first, and that journalists who scan the medical press often clearly do not understand the statistics that they are quoting. Particularly with the results of drug trials, the relative risk reduction is quoted (as it is the figure which looks the most impressive) without any reference to natural frequency or absolute risk. Relative risk has very little meaning unless it is framed by the natural frequency of the event considered.

This problem was apparent with the splash headlines recently produced for hormone replacement therapy as a result of the "million women study"—newspapers referred to combined hormone replacement therapy doubling the risk of breast cancer, without saying what the risk was. Figures for a worst case scenario would be helpful. For example, "At the age of 60 the risk of breast cancer in a woman who has never taken hormone replacement is 3.8 for every 100 women: for a woman of 60 who has been taking combined hormone replacement for 10 years the risk increases to 5.7 in 100 women." Adding the positive frame to these figures (that 94.3 in 100 women who had taken hormone replacement for 10 years did not get breast cancer) also helps clarify the risk.

Maybe it also helps clarify the recent report in the newspapers that despite the widespread retreat from hormone replacement therapy in the public at large, 80% of women consultants continue to take it while being fully aware of these absolute risks.

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1 Gigerenzer G, Edwards A. Simple tools for understanding risks: from innumeracy to insight. *BMJ* 2003;327:741-4. (27 September.)

Journalists have responsibility to report risks in context

EDITOR—Easton discussed health risk reporting in the media.¹ A lot can be learnt about people's perceptions of risk by examining lottery play. This in itself may have implications for how journalists report risk probabilities in media settings.

The probability of winning lottery prizes are the basic risk dimensions that may help determine whether a person gambles on a particular activity in the first place. The ordinary "social gambler" probably does not think about the probability of winning. What most people will concentrate on is the amount that could be won, rather than the 1 in 14 million probability of winning.

How probability operates is generally not understood. Some of the general public seem not to believe that the probability of the numbers 1, 2, 3, 4, 5, and 6 being picked from the 49 balls is equally as likely as any other sequence of six numbers. Some also believe that future predictions can be based successfully on previous draws.

People tend to overestimate positive outcomes and underestimate negative ones.

This may have implications for reporting health risks in the media. For example, if someone is told they have a one in fourteen million chance of being killed on any particular Saturday night they would hardly give it a second thought because the chances of anything untoward happening are infinitesimal. However, given the same probability of winning the National Lottery, people suddenly become over optimistic.

The public's understanding of risk probability could be improved. However, journalists still have a responsibility to report risks in context. Too many reports seem to say, for example, "Coffee drinkers are three times as likely to develop X" while omitting to point out that the risks are still infinitesimal.

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1 Easton G. Reporting risk—that's entertainment. *BMJ* 2003;327:256. (27 September.)

Doctor's recommendation is decision making in uncertain conditions

EDITOR—In his editorial Edwards discussed the communication of risk.¹ Many times in health care decisions must be made under conditions of uncertainty, such as choosing the type of breast cancer surgery when the staging of the disease has yet to be confirmed.

Under such circumstances we have found that Chinese women facing choice between mastectomy and lumpectomy lack sufficient information on risks and outcomes and, as such, tend to use an intuitive rather than rational decision making approach.^{2 3} In the absence of clear outcome data, these women want their surgeon to make a clear recommendation about a preference for treatment. Such a recommendation may be being used as an "experience" proxy for lack of risk estimation.

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But does it work, Doctor?

EDITOR—A theme issue of the *BMJ* urged practitioners to communicate risk, and share decision-making with their patients, but this is not always straightforward. Godolphin says that there are comparatively few medical problems for which good risk information is available.¹ I would add that, even when there is substantial research, the findings do not always answer those questions most relevant to patients.^{2 3}

We examined research conducted into the available treatments for menorrhagia, in the course of designing a decision aid to support treatment decisions in our current randomised controlled trial (MENTIP: menorrhagia, treatment, information, and preferences). The studies included five Cochrane reviews, five other reviews, 17 randomised controlled trials, and six cohort studies.

Even with all this available evidence it was still remarkably difficult to answer the simple question from patients, "Does it work, Doctor?" Although menorrhagia is defined objectively as menstrual blood loss of greater than 80 ml, the actual experience of symptoms is highly variable.³ Many research studies reported treatment outcomes in terms of percentage change in menstrual blood loss, but percentage reduction would mean different things to different women and may not be a good measure of the perceived benefit of treatment.

Perhaps it would be helpful if researchers designing randomised controlled trials of treatments, for any condition, could include, among their objective outcomes, some more global, patient centred outcomes such as "satisfaction with treatment," "will continue with treatment," or "symptoms better." This would help us answer the patient's questions, including "Does it work, Doctor?" and "What's the evidence for that, Doctor?"

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Drug sales in four European countries still differ

EDITOR—The box shows, by value, the top selling pharmaceutical products that are common to Italy, France, Germany, and the United Kingdom. In 1992,¹ 1996,² and 2001 few products were prescribed in all four countries. Nineteen active substances were common to three countries, 17 to two countries, and 63 were on only one country's list.

Several classes of drugs were represented in all four countries but with different products. For example, angiotensin converting enzyme inhibitors were prescribed as enalapril in Italy, lisinopril in the United Kingdom, and ramipril in Germany and France. Selective serotonin reuptake inhibitors were paroxetine and sertraline in Italy, the United Kingdom, and France; amoxicillin was common in Italy, the United Kingdom, and France, but no antibiotic featured in the top 50 in Germany. The preferred fluoroquinolone was ciprofloxacin everywhere but in France.

In Italy several antibiotics stand out—ceftriaxone, clarithromycin, and azithro-