

# Section 3

## Principles and theoretical background



# The patient perspective on information

Dr Charlotte Williamson

## Introduction

Anaesthetists are well placed to take a lead in offering patients full, truthful and unbiased information, because their technologies actually work. Patients know that their anaesthetist should usually be able to give them safe, effective treatment with no long term harmful consequences. Excellence of information matches excellence of technical care.

The approach to offering patients information has changed radically. Once only minimal information, or none, was offered. But advances in medical ethics; the growth of the patient movement; the use of patients' descriptions of their experiences to improve practice; the demonstration of some therapeutic benefits from information; the expansion of the internet and other information tools; political trends and reports of committees of inquiry into recent 'scandals' have changed that.<sup>1-9</sup> Now information has to be offered as fully as each patient wishes to have it. How to do that in an unbiased yet sensitive way; how to make all information easily accessible to those who want it yet may not know exactly what it is they want; and how to incorporate this into rewarding doctor patient relationships is the challenge of the new approach.

A significant marker of this change is the General Medical Council's requirement that patients asked to consent to treatment be given the information they want and ought to have, not just the information the doctor assumes the patient needs.<sup>10</sup> The law, moreover, is moving towards requiring doctors to give patients the information that reasonable patients would expect, rather than the usually less full information that reasonable doctors might provide.<sup>11</sup> These changes respect patients' autonomy in as far as it is expressed through their right to accept or refuse the clinical treatment offered them. But information for patients can do much more than meet that requirement. It can support their autonomy much more widely, meeting their plea to be treated as people.

Respecting people's autonomy means upholding their opportunities and abilities to act in accordance with their own moral and cultural values; their responsibilities to themselves, to their families and to their communities; and their interests, as they define them. Respect for patients' autonomy is an ethical value to which the medical profession subscribes.<sup>12</sup> Doctors' autonomy protects patients' autonomy by enabling doctor and patient to act in the patient's best interests when together they have agreed what those are.<sup>13</sup> To respect both doctors' and patients' autonomy entails weaving together each's responsibilities, interests and values so that all are given due expression. Exactly what that due expression should be can only be worked out through doctors' and patients' engagement with each other, individually and collectively. It can only be worked out, moreover, through each's engagement with the norms and values of the wider society of which both are part.<sup>14</sup> That is why the changing context of the approach to information is important.

Autonomy is an abstract concept, difficult to translate into everyday practice. So it is useful to step down to a lower level of generalisation and look at the principles that together contribute to autonomy. A principle is a general rule adopted or professed as a guide to action.<sup>15</sup> The principles most important here are information, access, equity, respect, choice, shared decision making, safety, support, redress and representation.<sup>16</sup> Of these, information is the keystone. Without it the other principles cannot be built into the arch that supports patients' autonomy. Written information is an indispensable resource for patients. It can help them prepare for their consultation with their doctor, furnish patients and their doctors with a common vocabulary and constitute a guide to refer to during and after treatment, as well as before. Written and oral communication complement each other.

**Table 1** Ten principles

Information	Shared decision making
Access	Safety
Equity	Support
Respect	Redress
Choice	Representation

In this chapter I define each principle briefly, then give a few examples of the sorts of information that support that principle. A single piece of information may support several principles. So sometimes the same example could be put under several headings. This illustrates the interdependence of the principles; all should be drawn on in providing information about treatment and care.

## Information

Information is telling, imparting knowledge. What is excluded can be as important as what is included. So we should always ask, how far does what is written support the principles? does it omit any points that would support them better or further? When in doubt, offer more: more information, more choice, more access, and so on, rather than less. Patients can refuse what they do not want or need but they cannot create what is not offered.

## Access

Access is the putting of opportunities within easy reach of everyone who might need them. Access to the hospital and its departments, its out-patient arrangements, how to enquire about or cancel an appointment, etc. should be in the general hospital leaflet. So access to information itself will be the focus here. Access to information includes:

- Getting written information to patients well in advance of their elective day – or in-patient stay and to emergency patients promptly on their arrival in hospital.
- Providing clear, accurate, up-to-date basic clinical information about diseases and conditions, possible treatments and clinical techniques, etc., accompanied by guidance on how to reach further information for those who want it – booklets with more details about specific techniques, internet sites, the hospital library, specialist staff, patient groups’ publications.
- Reminding patients that they can ask to see their nursing notes, medical notes, test results, pathology reports and anaesthetic notes, to help them understand their clinical condition and the treatment and care they are receiving.
- Explaining to patients that it is they, not their doctor or nurse, who should decide how much information they want and when they want it.

### Equity

Equity means treating people with justice and with fairness. Information can help ensure that disadvantaged patients can experience the same benefits as advantaged ones can. A patient with a computer at home can look up sets of standards for anaesthetic departments, anaesthetic protocols, comparative data on hospitals’ performances, the latest research into post-operative care, other patients’ accounts of their experiences. A patient without a computer needs to have some of this information from the hospital, if he or she wants it. So access and equity overlap, with equity as the leveller-up to access for everyone (not the leveller-down to lack of access for anyone). Written information supports equity by:

- Providing information in appropriate formats and words for children, patients with physical or mental impairments and patients whose first language is not English.
- Avoiding words or pictures that jar on readers by seeming to suggest that all doctors are men and all patients women; that all belong to the same ethnic group; that all have carers at home; that all can easily understand numerical examples or, conversely, that none can, etc.
- Listing people who are happy to help patients with the meaning of the written information and with getting further information, e.g. an interpreter, an anaesthetic nurse.

### Respect

Respect means regarding patients as people whose own definitions of their responsibilities, interests and values, when within the law, are legitimate. It means not making judgments about their best interests without seeking their views, unless there is an emergency or they are unconscious or incapacitated. Written information supports respect by:

- Using a considerate tone, as if to a friend who happens to know less about anaesthesia than you do, just as you happen to know less about his or her areas of expertise.
- Avoiding the least hint of the patronising (‘a special kind of breathing tube’), the paternalistic (‘don’t worry’), the bossy (‘you must not ...’) or the dogmatic (‘of course it is ...’).
- Making it plain that any difficulties patients have in understanding what is written is not their fault (‘if this is not clear, please ask’ not ‘if you do not understand this, feel free to ask’).

- Always giving reasons for any instructions or advice, showing that you recognise that patients are rational adults who may occasionally challenge you on some points but who want to cooperate with you.

### Choice

Choice refers to decisions patients and prospective patients make on their own, or with their families or general practitioners. An important decision is what hospital to go to for elective treatment. So information supports choice by:

- Describing the anaesthetic services in a hospital, stating what facilities and techniques are available.
- Saying what choices patients can normally expect to be offered – of pre-med or no pre-med; of walking to the anaesthetic room or being wheeled; of anaesthetic technique; of watching the operation or not watching it; of methods of post-operative pain relief, etc.

The NCEPOD report for 2001 recommends that patients who are to undergo major acute surgery should be told if their hospital lacks an HDU.<sup>17</sup> Whether booklets should mention other gaps in the service, e.g. lack of autologous blood transfusion, is perhaps still contentious. From the patient’s perspective they should, for what is not there can be at least as significant as what is. Even if patients cannot easily change to a different hospital, they can prepare themselves to ask about anything especially important to them. They can also meet their responsibility for trying to act to the benefit of their community as well as of themselves by highlighting the deficiencies in local provision and joining with you to secure improvements.

### Shared decision making

Clinical decisions can be made by the patient alone (consumerism), as when someone decides to accept or refuse screening; by the doctor alone (paternalism), as for a very ill or unconscious patient; or by both together.<sup>18,19</sup> Then the doctor contributes technical skill and clinical knowledge, and interprets risks and benefits as they apply to the patient’s clinical state and to the levels of expertise and provision available. The patient contributes clinical knowledge about himself or herself, e.g. allergy to penicillin, past experiences of anaesthesia, any other clinical information he or she may have (which might include questions about techniques or treatments not available locally), and his or her own values and preferences.<sup>20</sup> Doctor and patient may reach consensus on what to do. Or the patient’s preferences may prevail. Conversely, some patients may prefer to leave all decisions to the doctor. As long as that decision to be dependent is made freely, it is an autonomous one and should be respected.<sup>21</sup> Written information before these discussions helps ensure that patients are briefed about:

- Why their anaesthetist will usually come to see them before their operation or procedure.
- The techniques and anaesthetic agents, with descriptions and explanations of the techniques.
- The benefits and risks of different types of anaesthesia and pain relief, based on good quality research and reviews.<sup>22</sup>
- What will happen when they are unconscious, if they have a general anaesthetic (consent will be needed beforehand for some predictable interventions).<sup>10</sup>

- What they might feel like afterwards.
- Who will carry out the procedure and who else will be present in theatre.
- If they will be conscious, what it will be like in theatre, whom they can talk to, whether they can choose to listen to music, how they can watch their operation (e.g. in a mirror).

Work is going on to find out how to help patients clarify their own values and preferences and how to help doctors communicate with patients about these matters.<sup>23,24</sup> Doctor and patient both need to be comfortable about discussing how much information and how much part in decision making the patient wants.

### Safety

Safety means avoiding avoidable risks and discussing with the patient unavoidable risks. So high risk procedures can be undertaken provided the patient understands and accepts the risk. Written information can support safety by:

- Saying what steps patients can take to safeguard their own safety, e.g. explaining why pre-operative fasting is necessary before a general anaesthetic and for how long it should be.
- Alerting patients to post-operative procedures, e.g. oxygen mask, catheter, so that they will not be alarmed by them and can cooperate rather than resist.
- Telling patients they can ask to have the protocols for their care so that they can follow the steps and help see that they are carried out at the right time.
- Assuring patients that they will be told about any problems or procedures carried out while they were unconscious that they will need to know about for their future health or health care, e.g. difficulties in intubation, an unplanned blood transfusion.

Safety is so important that it should never be used to justify a precaution or restriction without explaining why. If there are differences of professional opinion or practice, some patients will want to know what the evidence bases for the different practices are.

### Support

Support means ensuring that patients can have the company of their close relatives or close friends at times of stress and to other sources of support more generally. So information supports by:

- Stating the visiting hours in adult wards but making it plain that exceptions can be made, e.g. so that a wife can sit with her husband during the hours before his anaesthetic or on his return to the ward.
- For young children, setting out the arrangements for a parent to accompany the child to the anaesthetic room and to meet him or her in the recovery room.
- Offering advice on how to ask for a visit from a hospital social worker.

Good information is supportive in itself to some patients. It helps them feel that they know what to expect, that nothing is being kept from them, and that they are in a sense partly in control of their situation.<sup>4</sup>

### Redress

Redress is the putting right of wrongs. Written information should state the name, status, address and telephone number of the person with whom patients or relatives should raise any concerns. (The general hospital leaflet should describe the complaints system.) It should also remind patients that doctors and nurses need approval just like everybody else. When things have gone well, or staff have been especially good in some way, patients should be encouraged to express their appreciation, either directly or by writing to the Chief Executive who will always copy and circulate such letters.

### Representation

Representation means the inclusion of patients or patient representatives at every stage of health service decision making, in such a way that they can take their place in discussions and have their views matter. In decisions within individual doctor – patient relationships, many patients can represent, that is, speak for, themselves. But booklets should say:

- That a relative or friend can be with the patient during his or her consultation with the anaesthetist.
- How to obtain the services of an interpreter.
- How to summon the hospital's patient advocate if there is one. (The general hospital leaflet should refer to the CHC or its replacements when they are in place).

### Conclusion

Though these principles are of first importance, additional ones could be put forward. So could many more examples of the sorts of information that support the principles. Using this approach to thinking about what should be included in your written information should contribute towards producing booklets that will help your patients, to the satisfaction and reward of you and them.

### References

- 1 Kravitz RL, Melnikow J. Engaging patients in medical decision making. *British Medical Journal* 2001 Sep 15;323(7313):584–585. Pubmed ID: 11557690.
- 2 Williamson C. Consumer and professional standards: working towards consensus. *Quality Health Care* 2000 Sep;9(3):190–194. Pubmed ID: 10980080.
- 3 Reiser SJ. The era of the patient. Using the experience of illness in shaping the missions of health care. *Journal of the American Medical Association* 1993 Feb 24;269(8):1012–1017. Pubmed ID: 8429582.
- 4 Morris J, Goddard M, Roger D. *The Benefits of Providing Information to Patients*. York: University of York Centre for Health Economics, Health Economics Consortium, 1989.
- 5 Weed LL. New connections between medical knowledge and patient care. *British Medical Journal* 1997 Jul 26;315(7102):231–235. Pubmed ID: 9253272.
- 6 Coulter A. Evidence based patient information. is important, so there needs to be a national strategy to ensure it. *British Medical Journal* 1998 Jul 25;317(7153):225–226. Pubmed ID: 9677206.
- 7 Department of Health. *Involving Patients and the Public in Healthcare*, A Discussion Document. London: Department of Health, 2001.

- 8 Bristol Royal Infirmary Inquiry. Learning from Bristol: the report of the public inquiry into children's heart surgery at the Bristol Royal Infirmary 1984–1995. London: Stationery Office, 2001.
- 9 The Royal Liverpool Children's Inquiry. The Royal Liverpool Children's Inquiry Report. London: Stationery Office, 2001.
- 10 General Medical Council. Seeking patients' consent: the ethical considerations. London: General Medical Council, 1999.
- 11 Skene L, Smallwood R. Informed consent: lessons from Australia. *British Medical Journal* 2002 Jan 5;324(7328):39–41. Pubmed ID: 11777808.
- 12 Downie RS, Calman KC. *Healthy Respect, Ethics in health care*. London: Faber and Faber, 1987.
- 13 Irvine D. The performance of doctors: the new professionalism. *The Lancet* 1999 Apr 3;353(9159):1174–1177. Pubmed ID: 10209996.
- 14 Parker M. The ethics of evidence-based patient choice. *Health Expect* 2001 Jun;4(2):87–91. Pubmed ID: 11359538.
- 15 Brown L. *The New Shorter Oxford English Dictionary*. Oxford: Clarendon Press, 1993.
- 16 Williamson C. Representing patients. *Bulletin of the Royal College of Pathologists* 2001;116:26–27.
- 17 Burke M, Callum KG, Gray AJG, Hargraves CMK, Hoile RW, Ingram GS, Martin IC, Sherry KM. Changing the way we operate, The 2001 Report of the National Confidential Enquiry into Perioperative Deaths. London: National Confidential Enquiry into Perioperative Deaths, 2001.
- 18 Hogg C. *Patients, Power and Politics, From Patients to Citizens*. London: Sage Publications 1999.
- 19 Georgiou A, Robinson M. What is the Scope for Improving Health Outcomes by Promoting Patient Involvement in decision making? Leeds: Nuffield Institute for Health, 1999.
- 20 Tuckett D, Boulton M, Olson C, Williams A. *Meetings Between Experts, An Approach to Sharing Ideas in Medical Consultations*. London: Tavistock Publications, 1985.
- 21 Harrison A. Choice is a gift from the patient to the doctor, not the other way around. *British Medical Journal* 2000 Mar 25;320(7238):874. Pubmed ID: 10731197.
- 22 Coulter A, Entwistle V, Gilbert D. *Informing Patients, An assessment of the quality of patient information materials*. London: King's Fund, 1998.
- 23 Towle A, Godolphin W, Richardson A. *Physician and Patient Communication Skills, Competencies for Informed Shared Decision Making*. Vancouver, BC: University of British Columbia, 1997.
- 24 Elwyn G, Edwards A, Kinnerley P, Grol R. Shared decision making and the concept of equipoise: the competences of involving patients in healthcare choices. *British Journal of Gen Practice* 2000 Nov;50(460):892–899. Pubmed ID: 11141876.

# Risk communication and anaesthesia

Dr Andrew Smith, Dr Tony Adams

## 1 Introduction: risk and safety

**R**isk is part of life. It may be defined as the probability or chance of incurring bad consequences or misfortune. All medical interventions carry risks but anaesthesia, rightly or wrongly, is often perceived to be especially risky (see below) though in fact the risks of anaesthesia are generally small. Whilst we can be proud of our safety record, it is true to say that it is a double-edged sword, for as life becomes generally safer, people become more and more reluctant to undergo such risks as remain. So the idea of ‘safety’ is not quite as simple as it might seem. What matters is whether the trade-off between risk and benefit is acceptable to an individual patient. Most of the time, the risk of anaesthesia is low enough for it to be presented as ‘safe’ but where the risk is higher, patients should be made aware of this as it is no longer sufficient for the anaesthetist to make that judgement alone. Discussing risks is an essential part of informing patients about anaesthesia, and is now enshrined in the Department of Health’s guidance on consent.<sup>1</sup> Clinicians should consider two points:

- 1 What are the risks?
- 2 If there are risks, are they minor or major?

This chapter is an attempt to help anaesthetists think about risks. We hope they will find it useful when writing about risk and when talking about risk with their patients. First we discuss how risks are perceived, with particular emphasis on the different perspectives of doctors and lay people. Then we review a number of possible ways of communicating risks. Finally we offer a menu of suggestions, developed in conjunction with patient representatives and other anaesthetists.

## 2 Factors affecting the perception of risk<sup>2</sup>

**Personality** People can be categorised according to their behavioural response to risks. There are three basic types: risk takers, risk avoiders, and those who are risk neutral.

**Availability bias** The likelihood of rare, catastrophic or dramatic events is magnified according to the ease with which instances of similar events can be recalled; memorable events seem more common.

**Compression bias** Deaths due to rare unusual or dramatic causes (e.g. floods, tornadoes) are perceived to be more frequent whereas common killers such as heart disease are perceived to be less frequent than they really are.

**Miscalibration bias** Individuals tend to be overconfident about the extent and accuracy of their knowledge, which tends to desensitise them to the risks concerned.

**Representativeness bias** Individuals tend to believe that the specific risks for them are significantly less than they really are. For instance, a cigarette smoker might downgrade the risks of

smoking because their parents were lifetime smokers and remain healthy. This also has to do with another psychological trait, which is how vulnerable – or invulnerable – people feel to risk in general.

**Framing effect** The way risk information is presented can significantly affect the perception of risk and thereby influence decision making. For example, adding emphasis to the positive aspects of an intervention is known to cause a greater uptake; a treatment reported to be 60% effective would be evaluated more favourably than one reporting a 40% failure rate, even though the two statements are objectively equal. Similarly a treatment with a 10% mortality will be better received if described as having 90% chance of survival.<sup>3</sup>

**Magnifiers or ‘fright factors’** These are aspects of risk that make it seem larger. These are listed, with examples, below.

**Table 1** Risks cause more alarm and are less acceptable if they are perceived to:

Be <b>involuntary</b> or <b>unavoidable</b> .	Exposure to pollution or passive smoking.
Be <b>unfair</b> versus <b>fair</b> , i.e. are unfairly distributed.	Some benefit while others suffer the consequences.
Cause occult or <b>hidden</b> damage.	Onset of illness many years after exposure.
Result in <b>permanent</b> or <b>incurable</b> conditions.	Spinal haematoma and paraplegia following an epidural.
Threaten <b>vulnerable</b> groups.	Families living near nuclear power stations.
Be particularly <b>feared</b> or <b>dreaded</b> .	Violent death, illness or injury.
Result from <b>man-made</b> , rather than natural sources.	Unnatural sources are more ethically or morally objectionable.
Arise from an <b>unfamiliar</b> , <b>novel</b> or <b>exotic</b> source.	
Damage <b>known</b> rather than anonymous victims.	
Be <b>poorly understood</b> by science.	

## Risk perception and its effect on risk management

All the above refer to perceptions. Thus whether a risk really is involuntary or imposed, is not the point. What matters is whether it is seen that way. So in a way patients’ perception of anaesthesia as especially risky is correct. It is something which patients have to undergo to allow surgery whether they like it or not and its worst consequences, though rare, can be permanent

and disabling. But is anaesthesia really risky? One could well argue that it is. The state of general anaesthesia is easily achieved but is characterised by uncertainty and unpredictability. Its mechanisms, the mode of action of drugs and cause-and-effect relationships are incompletely understood. The constantly-changing physiological status of the patient and the superimposed disturbances due to surgery create a potentially hazardous state for the patient. The process of anaesthesia is probably more akin to other complex technological systems such as the aviation industry than to other branches of medicine, as it shares with them the characteristics of high dynamism, uncertainty, time pressure, ill-formed problems, complex human-machine interactions and risk.<sup>4</sup> All such industries are inherently unsafe but paradoxically have fewer accidents than one might expect from such complex and hazardous activities. These enterprises have been termed ‘high reliability organisations’<sup>5</sup> and typically show unsafe processes made less unsafe by the attitudes of staff and the construction of safety-promoting systems of work. A culture of ‘intelligent wariness’ in anticipating and dealing with complications is one hallmark of such organisations and this resonates with the emphasis on vigilance and swiftness of response in the training and education of anaesthetists. It could also be argued that the maintenance of safety is so deeply engrained in anaesthetists’ collective consciousness that we lose sight of the basic fact that people who are unconscious come to harm if not properly looked after. We simply do not ‘notice’ the risks as they do not usually become visible. Only when the skill of the anaesthetist is much less than usual (a novice trainee, for instance) or the risks posed by a particular patient are much greater than usual (an emergency procedure in a person with severe pre-existing disease) do we acknowledge the potential for harm that is present at least in some small way during every routine anaesthetic procedure.

We do not mean to suggest that anaesthetists present these concepts directly to their patients as a matter of routine. Rather we are trying to show how anaesthetists’ perceptions of the riskiness of anaesthesia differ from patients’ and explain why some approaches to communication may work better than others.

### 3 ‘Two tribes’: scientific and lay perspectives on risk

#### Risk: ‘experts’ and ‘consumers’

Risk ‘experts’ are those people who have knowledge of, and usually some responsibility for dealing with, risks in a particular area. They may not be responsible for creating the risks, but are charged both with representing those risks to others and with influencing their nature and severity. Thus anaesthetists are experts in the risks associated with anaesthesia. The risks within their ‘care’, as it were, arise not only from the state of anaesthesia and the disturbances caused by surgery but also from patients themselves. Although we can try to get our patients into good condition pre-operatively, our influence over the risk they bring is limited. Likewise we do not cause the surgical risk to the patient but we are partly responsible for managing it. Each individual, each professional group and each organisation has a group of risks over which it can be thought to exercise control. The people who might be affected, who are told about it, are the ‘consumers’ of that risk. Consumers are often, though not always, lay people. This term implies a lack of scientific or professional knowledge, but it is quite possible that experts in

one type of risk will also be consumers of many others. Thus, a ‘lay person’ is not strictly the opposite of an ‘expert’ but is used in this sense for the rest of this discussion.

Doctors and their patients may approach the subject of risk in very different ways. One could almost say that they form two distinct ‘tribes’ with two ways of looking at the world.<sup>6</sup> The sciences – including medical sciences – have adopted a statistical approach to the world about them. Their questions are, (a) how far a given individual is representative of a larger population, and (b) how significant is any variation that may result from sampling. Ordinary people may understand the idea of risks as defined in relation to large populations, but seldom see them as applying directly to themselves. Their question is ‘what is the chance of this affecting me?’ Doctors may try to answer that question by making direct inferences from group statistics to individual risks. However, this process makes two assumptions: first, that the individual is entirely representative of the population, and second, that the distribution of risk is truly random. Neither will be literally true. If the statistics can be broken down to show how a risk depends on age, sex, place of work, lifestyle and so on, the gap between the two perspectives narrows.

There are also differences in the responsibility for cause and effect.<sup>7</sup> Most of the time, scientists will accept the existence of a causal link only once there is good evidence for it; until then, links are ‘provisionally rejected’. The lay view is much more likely to entertain a link that seems intuitively plausible, and reject it – if at all – only if there is strong evidence against it. The difference is partly one of values: is it worse to accept an erroneous link or reject a real one? In risk communication, the issue cannot be resolved simply by insisting that the scientific viewpoint is the correct one. Neither risk experts nor lay people have the right to claim that theirs is the only sensible way of looking at risk. In fact, a more practical approach is to acknowledge that both sides are arguing rationally but from different starting points.<sup>8</sup> If not, the two ‘tribes’ remain at loggerheads. The scientists condemn the public for their apparent inability to grasp what seems self-evident; lay people in return dismiss the experts as having lost sight both of common sense and human feelings. Mismatches lead to the two points of view becoming entrenched and then further debate is difficult.

### 4 Risk communication: possibilities and limitations

#### Trust

The nature of the doctor patient relationship is thrown into the sharpest focus when risk is discussed. Trust is one of the prerequisites for successful risk communication. This sounds self-evident, but no matter how perfect the message which risk experts wish to convey, if the recipients do not trust them, the communication is ineffective. An American expert on risk communication strategies has developed a hierarchical model showing how risk communication strategies evolve as organisations become more mature and clued-up in their approach.<sup>9</sup> He emphasises that discussion about risks can be simply a symptom of a deeper problem. ‘People often get bogged down in controversies over risk when they have concerns over process, that is they are either mistrustful of the way that an organisation does its business, or because they feel they have been treated shabbily. They discover that whilst being disgruntled does not have legal standing, complaining about risks

does. After some period of complaint and friction, the ensuing controversies can take on a life of their own.<sup>9</sup> Debates about risk then become surrogates for other concerns. We suggest that the current desire for risks of medical care to be ‘brought out into the open’ springs partly from concerns over the nature of the doctor patient relationship in general. If this is so, then it is not sufficient simply to find and publicise our most accurate estimates of the risks of anaesthesia. Patients may believe that anaesthesia is inherently unsafe. We may try to suggest that it is safe. As this neither fits in with their perceptions of anaesthesia, nor is really ‘true’, this is unfortunate. One possible way of dealing with this is to acknowledge that anaesthesia does carry risks, but describe the strategies which anaesthetists use to deal with that. One could argue that the suggestion that things can go wrong, but we are trained to manage them if they do, is preferable to pretending that events always run smoothly. It might however also be useful to put the riskiness of anaesthesia itself into perspective. For instance, anaesthetists’ perception of cigarette smoking is that it increases the risks of anaesthesia and surgery, and is ‘inherently unsafe’ in its own way. Many patients would not share this perception, but it would be appropriate to encourage them to ‘reframe’ their view of the riskiness of anaesthesia by placing it in context of the risks of surgery and such ‘personal’ risks they bring with them when they undergo anaesthesia. This is useful as it can lead into a discussion of what patients can do themselves to reduce the risks.

### Words and their effect on the reader

When someone reads any piece of text, whether it is advertising copy, a newspaper report or a short story, they bring their own experience and this will shape the conclusions which they draw from it. These will also change with time as new aspects of experience are brought to bear on the old. Writers draw on their own experience when writing but this is unlikely to be the same as the reader’s. Hence there may be misunderstanding.

How risk and side effects are discussed in patient information materials is one special case of written communication, but these general principles apply. If the writer is an anaesthetist and the reader a patient, the two will bring very different knowledge and experience to the same text.

Experienced clinicians often have a very good idea of patient concerns, and the questions they are likely to ask. However, trying to guess what the patient may expect from a text is likely to be less accurate than asking a selection of real patients. One recurrent theme throughout this book is the importance of putting the patient at the centre of designing patient information materials and discussing risk is no exception.

### Facts and feelings

Emotional aspects of communication are often neglected, either because doctors are uncomfortable with them, or because they fail to appreciate how important they are. Although the stated, ‘official’ aim of patient information booklets is to convey factual information, the reader will inevitably also respond on an emotional level. Put simply, what we write not only helps patients think about anaesthesia, it also makes them feel. The overall tone of the text can make a powerful impression and if writers are not aware of this, they may create an inappropriate effect.

Some existing patient information materials feature a section about risks and side effects. However, messages about risk and safety, and how they are viewed by the writer, are not transmitted in the risk section alone. Often, the writer’s attitude to risk, or rather the writer’s guess at the reader’s perception of the risks, runs through the whole publication. Although the writer may intend to discuss risks in a discrete section, the way words are used elsewhere in the leaflet may leave an uncomfortable impression.

### Deficiencies of data

A major difficulty in communicating risks is defining how likely they are to occur. Often published sources are old, or give a range of possible incidences which is so wide as to be unwieldy, or deal with risks which are rare and therefore hard to estimate precisely. We have tried as part of this project to gather together recent figures for the side effects and risks of anaesthesia and these form an Anaesthesia Risk Resource on [www.youranaesthetic.info](http://www.youranaesthetic.info). Again these are population-based data and are less revealing about risks to a particular individual. The problem is further compounded by the fact that, for many of our interventions – thoracic epidural anaesthesia for pain relief after laparotomy, for instance, it is difficult to find good numerical estimates of benefit. It is also important to note the denominators used when expressing risk – for instance, when quoting deaths for road traffic accidents, it must be clear whether these figures are deaths per journey or per mile travelled and some idea of the duration of exposure must also be given. These points are illustrated further in Section 6.

### Ways of communicating risks

#### Words

The simplest and most obvious way of expressing probabilities is using words. One potential problem is that, although we may think we know what we mean by a certain verbal expression of probability, someone else may interpret it differently. Beyth-Marom and colleagues<sup>10</sup> presented their subjects with a number of verbal expressions of probability, ranging from ‘not likely’ to ‘certain’ and asked them to assign a percentage value to each. Not surprisingly, there was good agreement as to the meaning of ‘certain’, with most people giving a value of between 98 and 100%. However, phrases such as ‘can’t rule out entirely’ and ‘There is a chance’ produced a range of results from 24–49% and 37–60% respectively. However, when grading side effects and risks, it may be sufficient to group them into a small number of simple categories – for instance, common, unusual and rare. This allows some sense of the relative frequency of different complications whilst avoiding spurious precision. In the information we have produced as part of this project we have defined our terms as follows:

Very common	about 1 in 10
Common	about 1 in 100
Uncommon	about 1 in 1000
Rare	about 1 in 10,000
Very rare	about 1 in 100,000

We have done this for three reasons. First, it is simple. Second, it should give patients a clear enough idea of the frequency of various risks for them to make up their minds whether or not the risk is worth taking. Thirdly, especially for the rarer risks, precise incidence figures are hard to obtain.

### Numbers and visual representations

Understanding of numerical concepts varies widely amongst the general population, and many doctors have difficulty with statistics. Nevertheless, most doctors would recognise the statistical fallacy of opinion poll surveys that show that 85% of the populace believe that they have a better than average sense of humour. Many patients, however, are disturbed to learn that 49% of doctors show below average performance.

One alternative to using pure numbers is to use visual methods. A number were reviewed by Calman and Royston.<sup>11</sup> They included:

- a ‘risk stick’ one metre long (risks are thus represented by distances, a risk of 1 in 1000 corresponding to a distance of 1 km and so on)
- arrays of dots or cubes corresponding to the denominators for risks
- ‘community clusters’ – visualising how many people might live in a town, a city, or a region and so on, and using these as the denominator for risks.

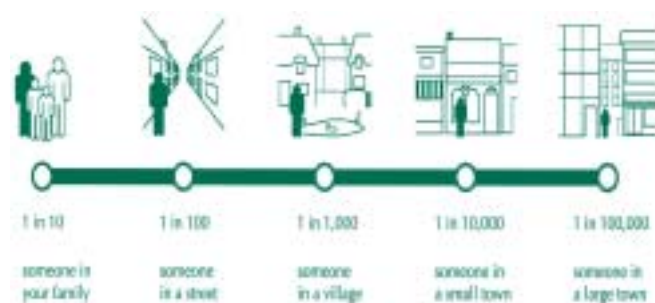
Two versions of this last method of depiction are shown. Figure 1 relates numbers, clusters and non-clinical examples whereas Figure 2 brings together clusters and numbers with their accompanying definitions of rarity as above. A later review updates and expands on visual methods.<sup>12</sup>

**Figure 1** Community risk scale

Risk Magnitude	Expect about one adverse event per	Examples: deaths in Britain per year from
10 (1 in 1)	person	–
9 (1 in 10)	family	–
8 (1 in 100)	street	Any cause
7 (1 in 1 thousand)	village	Any cause, age 10
6 (1 in 10 thousand)	small town	Road accident
5 (1 in 100 thousand)	large town	Murder
4 (1 in 1 million)	city	Oral contraceptives
3 (1 in 10 million)	province/country	Lightning
2 (1 in 100 million)	large country	Malaria
1 (1 in 1 billion)	continent	–
0 (1 in 10 billion)	world	–

**Source: Communicating about risks to public health: pointers to good practice. London: Department of Health, 2001. Also available on-line at [www.doh.gov.uk/pub/docs/doh/pointers.pdf](http://www.doh.gov.uk/pub/docs/doh/pointers.pdf)**

**Figure 2** Community risk, words and numbers



**Source: Dr Mark Withers, Rotherham General Hospital**

There is a body of opinion which holds that public discussion of risk would be much easier if there were one simple and widely understood scale on which any given risk could be placed and compared with others. These are often called ‘risk ladders’ and a number have been published. Ours is shown as Figure 3.

These can be helpful in trying to get over the difficulties of conceptualising very small probabilities – logarithmic scales are usually used for this. Ladders can also be used to show comparisons between different types of risk – for instance, clinical and everyday risks – and so can correct misperceptions about risk. Providing a sense of perspective is one thing, but the danger is that comparing two risks is used to imply acceptability. As we noted in Section 2, people may happily accept numerically greater risks than the risks we might propose for them, but this does not mean they are irrational to refuse ours, as they have their own perceptions of what is going on. We accept certain risks every day and Paling makes use of this in his ‘perspective scale’ (Figure 4). He advocates establishing the risks of daily activities such as commuting to work, smoking or drinking alcohol as ‘risk neutral’ or acceptable and using these as comparators to gauge other risks.<sup>13</sup> Different formats may suggest themselves for different uses. For instance, the risk ladder is relatively complex and it might be more effectively used as part of a face-to-face risk discussion. The pictures in Figure 2 are perhaps more immediately understood, and this might be a preferable format for stand-alone written material.

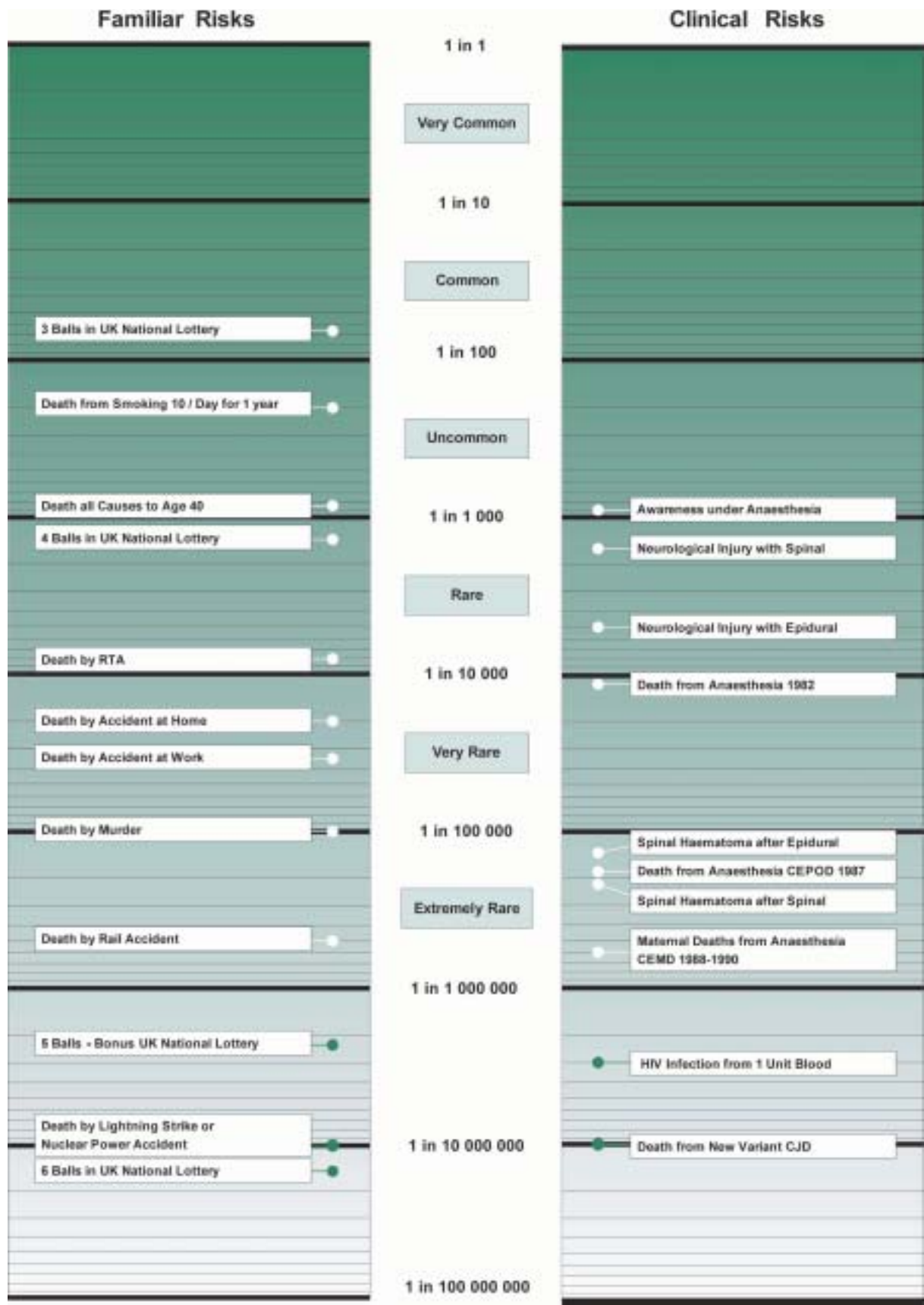
### Adding and tailoring risks

When considering risks, it is important to distinguish between baseline risks (for instance, the baseline risk of natural death which we all carry, though it increases with age) and added risks, which are superimposed on this baseline risk. Smoking increases the likelihood of premature death, as do accidents and murder. So most of the risks on the risk ladder in Figure 3 are to be added to baseline risk, although adding rare risks to baseline risk clearly makes little difference to overall risk.

Turning to clinical matters, the headline figure of death due to anaesthesia alone is about 1 in 185,000. This is the notional figure derived from the National Confidential Enquiry into Perioperative Deaths. However, we know that people are not given anaesthetics without something else being done to them, so this figure is somewhat artificial. Death after surgery is much more common than this, so there are many risks which must be added to the baseline risk of anaesthetic death to give the real risk. As we mentioned in Section 3, there are risks associated with the state of anaesthesia, with a given operation, with the patient and with the particular anaesthetist

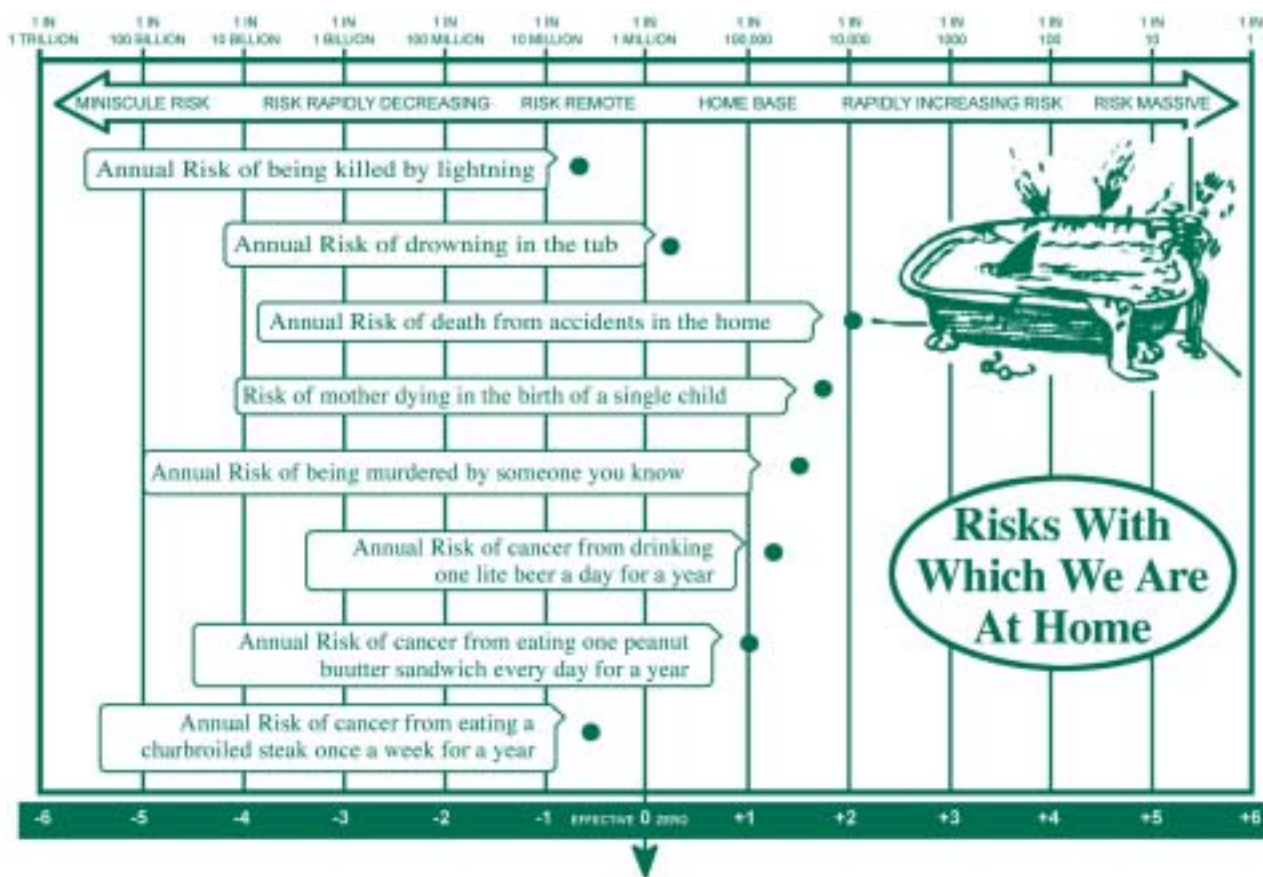
and surgeon. These may not be exactly quantifiable but will all be additive. The more closely we can form a personalised estimate of risk tailored to an individual case, the more the gap between population-based data and the subjective experience of that patient will narrow and the more informed that patient's decision will be.

**Figure 3** Risk ladder comparing familiar and clinical risks



Reproduced with modifications, with permission of Blackwell Scientific Publications

Figure 4 The Paling Perspective Scale® Putting Life into Perspective



Reproduced with permission © John Paling 2000

## 5 Illustrative examples from existing booklets

### 1

#### What does the anaesthetist do?

... during the operation the anaesthetist will stay with you all the time to make sure that, whatever is being done to you, you are kept comfortable and safe.

*Comment: This is not part of the 'risk' section of the leaflet, but illustrates how risk discourse underlies text elsewhere. The writer sees maintaining patient safety as part of the essence of being an anaesthetist, but exactly what patients are being kept safe from is not clear. Is it the surgeon's excesses? or the anaesthetic itself? or some other hazard – electrical or infectious, perhaps? These are the guesses of an anaesthetist so may be better informed than those of the patient-reader. It may not have occurred to the patient that there is anything to be kept safe from – in which case does this sentence reduce or increase anxiety? The clause 'whatever is being done to you' could also sound rather menacing although, again as anaesthetists, we know what the writer means. Also, as it is cast in the passive voice, it reinforces the notion of patient as recipient of care rather than partner in it. Clearly it is nonsense to talk about patient participation in the context of a general anaesthetic, but there is scope for it pre-operatively and the wording of this extract implies that patients are not considered partners in their care. Officially, though, the question that starts a later section, 'Do I get any choices or say in what happens to me?' is countered by the answer 'Of course you do!'*

### 2

#### Are there any risks?

Yes, but there are risks in everything we do in life. When you are advised to have an operation, the balance of risk is always in your favour. Modern anaesthesia is very safe because of continuing improvements in anaesthetic drugs, techniques and equipment. The risk of dying purely as a result of an anaesthetic has been estimated to be as low as 1 in 185,000 (Confidential Enquiry into Perioperative Deaths, 1986). The combined surgical and anaesthetic risk depends on the extent of the surgery and how healthy you are – especially how healthy your heart, lungs and kidneys are. Old age does reduce the body's reserves, but age alone is much less important than how healthy your body is.

Death after surgery is rare. If you put all types of operations together, then 199 out of every 200 people having planned surgery will survive at least 30 days after having their operation (NHS Hospital League Tables, August 2000). For the rare patient who doesn't survive, it is often due to a combination of problems, which led to the surgery being needed, the patient's bad health before the surgery, and complications occurring after the surgery (e.g. chest infections, blood clots and heart attacks).

Bigger operations, and emergency operations, carry greater risk. But even with major vascular and major cancer surgery, the risk of dying is often less than 1 in 20. In other words, 19 out of 20 people having the operation will make it through their surgery. We need your help to help us help you make it through your operation in the best possible shape.

*Comment: This extract shows an attempt to quantify, with references, the risk of death due to anaesthesia. It also tries to tailor the estimate of risk to individual patients, which is commendable. It acknowledges that the risk of anaesthesia is only part of the total risk, albeit the only one that might be under our control. However, the phrase ‘yes – there are risks to everything we do in life’, whilst honest and open, can easily be interpreted as ‘yes – but what do you expect?’.*

*Another good point is the last line, which acknowledges the part patients can play in reducing risks – for instance, by giving up smoking before surgery.*

*However, it also shows how hard it is to find accurate risk data. Is the risk of death after elective surgery really 1 in 200, for instance? If you look at their quoted source, what is actually specified is deaths in hospital within 30 days of surgery. Patients who are still in hospital 30 days after any operation are likely to have suffered some complication, whilst the healthy ones will have recovered and gone home much sooner. So the denominator is heavily skewed and the risk of death overestimated.*

### 3

#### Are anaesthetics safe?

Yes they are, but any operation and anaesthetic carries a slight risk. These days, we have much safer drugs and better equipment to help us look after you. In a recent survey of operations in the UK death due to anaesthesia occurred in about 1 in every 200,000 anaesthetics given. This is obviously a very low risk. Patients who are very ill have a higher risk than those who are fit and well. Please talk to your anaesthetist if you are at all worried about anything.

*Comment: A good start followed by a slight hesitation. In strictly logical terms, if something truly is safe, then it must be fully safe. If it is less than fully safe, it is not safe. So the opening sentence sends conflicting messages and we would not be surprised if this makes patients feel uneasy. Likewise there is a value judgement operating in the sentence ‘this is obviously a very low risk’. Although patients and anaesthetists can agree on the numerical probability of death, they may disagree about its significance.*

*An anaesthetist may consider it a low risk, but that may not be obvious to the patient. The risk presumably is from the same NCEPOD data quoted in extract (2). Does it matter that the denominator in 200,000 and not 185,000? Probably not in the sense that it might affect the patient’s perception of the risk. There is again an attempt to make the point that different individuals undergo different risks. The author has also side-stepped the difficulty of trying to go into too much detail about individual risks by suggesting that patients talk to their anaesthetist. This is fine in principle, but it may be advisable to include at least some, if not all, of the possible risks in the leaflet. This extract also illustrates what we call the ‘faith in science and progress’ approach – that technology and pharmaceutical expertise will ensure a proper outcome. Does this reassure patients? Or is it more about defining our professional status?*

### 4

#### Will I be safe?

Very safe! Britain has some of the highest safety standards, best monitoring and best qualified anaesthetists in the world.

*Comment. Again, does this make the patient or the anaesthetist feel better?*

### 5

#### Are there side-effects?

Yes, but many patients get none. Nausea, vomiting, sore throat, thirst, shivering, headache and drowsiness may occur. Your co-ordination and concentration may be impaired for up to 24 hours after a general anaesthetic – this is why we ask you not to drive or sign important documents during this time.

*Comment: Should side effects be dealt with separately, or as part of a risk section? Strictly speaking, they are all ‘risks’ in the sense that they are all negative outcomes with a particular probability. It is only a matter of degree that separates them.*

### 6

#### Are there any side-effects or risks?

There are no ‘minor’ anaesthetics. Although many possible complications may happen and there are some risks involved, anaesthesia is usually very safe (the risk of a healthy young person dying unexpectedly due to an anaesthetic complication is very small). We do lots of things to prevent serious complications from occurring. An anaesthetist stays with you all the time you are asleep, checking on you. To help your anaesthetist with this important job a number of monitors (equipment to check on you) will be placed on your body at the start of your anaesthetic. The risks you will face depends upon your general health and your anaesthetist will be happy to discuss this with you if you wish.

There may be some minor side effects which are usually of short duration. For example some of these effects may be pain or ‘burning’ when the anaesthetic is injected, bruising at the injection sites, dry or sore throat, muscle stiffness, nausea or vomiting. There are other more serious things that may happen, but only in rare circumstances. For example, some of these complications may be – waking up in the middle of the operation, severe reaction to the anaesthetic drugs, vomiting and inhaling of stomach contents into the lungs, asthmatic symptoms, post operative pneumonia (smokers are more at risk of such complications) and blood clots in the veins and lungs.

Injection of anaesthetic around nerves may cause later nerve pain for a varying period and in extremely rare cases leads to paralysis. Headaches, or more rarely backache or infection, may occur as some of the complications of spinal or epidural anaesthetics. Please ask your anaesthetist if you want to know more about your anaesthesia or the risks involved.

*Comment: This deals quite comprehensively with possible risks, and makes some attempt to outline their relative frequency, but is very sombre in tone. What effect will it have on the patient?*

*It may be necessary to disclose all possible risks, but is this kind? Might there be a less threatening way of conveying this information?*

## 7

### Will I be safe having an anaesthetic?

Unexpected problems are very rare but risk can never be completely removed. If you have other medical problems the anaesthetist and surgeon will discuss these with you. Together you can decide whether to go ahead or not.

*Comment: This is an acknowledgement that sometimes the balance of risk and benefit is shifted so that it is appropriate to reconsider the whole procedure. Even if this does not apply to many patients who might read the leaflet, it will still convey to the rest that their views will be taken into account when decisions are being made.*

## 8

### What are the risks and complications of anaesthesia?

All anaesthesia has some risks and these depend on many factors such as the type of surgery and any medical conditions you may have. These are grouped below into common, infrequent and rare complications:

**Common temporary side-effects** Include bruising or pain in the area where you are injected, dizziness, blurred vision and sickness (these can often be treated and will usually pass quickly).

**Infrequent complications** Include temporary breathing difficulties, muscle pains, headaches, damage to teeth, lip and tongue, sore throat and temporary difficulty in speaking. Although these are uncomfortable, they are rarely dangerous and the anaesthetist will ensure they are treated promptly.

**Extremely rare and serious complications** These include severe allergic reactions and death, brain damage, kidney and liver failure, lung damage, permanent nerve or blood vessel damage, eye injury, damage to the voice-box and infection from blood transfusion. Fortunately these are all extremely rare, and your anaesthetist will take all the necessary precautions to prevent these from happening.

*Comment: A level-headed appraisal of risks, giving some idea of frequency without using numbers. Also suggests that risks can be 'managed' – that something can be done to prevent, or if necessary, to treat them. Does this inspire confidence in the anaesthetist, suggesting that they are in control of the situation?*

## 6 Practical aspects of communicating risks with patients

Communicating risk is difficult. These are some suggestions based on our experience with this project:

- Remember that communicating any message depends critically on trust. The way texts are written encapsulates the implied relationship between doctor and patient and so openness, honesty and maturity are required throughout a patient information leaflet, and not just in the risk section. In particular, referring to anything as 'safe' is to be discouraged.
- Accept from the start that you will never produce a leaflet that everyone is completely happy with. Decide as part of the production process whose instincts and preferences you will follow. Also try out your drafts on as many people from as many different backgrounds as possible.
- Involve patients in the selection of content, particularly in deciding which risks and side effects to mention. Assume that all patients should be told as much as possible about risks and side effects. This may not always be possible, or even desirable, but we should avoid deciding on the patient's behalf what they should be told (this is central to the Department of Health's consent guidance<sup>1</sup>).
- Be aware that the whole 'feel' of the leaflet, from front page to logos to illustrations, can have a powerful emotional effect on the reader even before they start on the text.
- Also be aware that words can convey feelings as well as facts. How do you want patients to feel about their anaesthetist and about themselves as they start to think about undergoing anaesthesia and surgery. Much of the preparation patients need to make is emotional and psychological and we can help with this – and it's not just about reducing anxiety.
- When communicating risks, we need to consider not only the patient's educational background but also their attitudes to risk. It is hard to assess this quickly in the context of preoperative assessment but we hope that what we have written earlier in the chapter may help. Remember too that, although we have touched only briefly on benefits in this chapter, attitudes to risk depend critically on perceived benefits. We should not try to 'second guess' other peoples' values.
- Our personal preference for written risk communication is to set out side effects and risks together as in example (8) above. Another approach is to use the question 'What can go wrong?' for the risks and 'How will I feel afterwards' for the side effects.
- Face-to-face risk communication allows for more personal tailoring of risks and in fact including individual risk estimates tends to make risk communication interventions more effective.<sup>14</sup> The best way is probably to use a combination of words and numbers, supplemented by visual methods.

## Sources for risk ladder data

Familiar risks		Source
Three Balls in UK National lottery	1 in 57	Barclay P, Costigan S, Davies M. Lottery can be used to show risk (Letter). British Medical Journal 1998;316:124. Pubmed ID: 9583931.
Death from Smoking ten a day for one year	1 in 200	The BMA Guide To Living With Risk. Harmondsworth: Penguin, 1990.
Death: all causes age 40 (in any one year in Great Britain)	1 in 850	Calman KC, Royston HD. Risk Language and Dialects. British Medical Journal 1997;315:939-942. Pubmed ID: 9361547.
Four balls in UK National Lottery	1 in 1,032	Barclay P, Costigan S, Davies M. Lottery can be used to show risk (Letter). British Medical Journal 1998;316:124. Pubmed ID: 9583931.
Death by Road Traffic Accident (in any one year in Great Britain)	1 in 8,000	Calman KC, Royston HD. Risk Language and Dialects. British Medical Journal 1997;315:939-942. Pubmed ID: 9361547.
Death by accident at home	1 in 20,000	The BMA Guide to Living With Risk. Harmondsworth: Penguin, 1990.
Death by accident at work	1 in 35,000	The BMA Guide To Living With Risk. Harmondsworth: Penguin, 1990.
Death by Murder in one year (in any one year in Great Britain)	1 in 100,000	Calman KC, Royston HD. Risk Language and Dialects. British Medical Journal 1997;315:939-942. Pubmed ID: 9361547.
Death by rail accident	1 in 500,000	The BMA Guide to Living With Risk. Harmondsworth: Penguin, 1990.
Five balls plus bonus ball in UK National Lottery	1 in 2,330,636	Barclay P, Costigan S, Davies M. Lottery can be used to show risk (Letter). British Medical Journal 1998;316:124. Pubmed ID: 9583931.
Death by lightning strike (in any one year in Great Britain)	1 in 10,000,000	Calman KC, Royston HD. Risk Language and Dialects. British Medical Journal 1997;315:939-942. Pubmed ID: 9361547.
Death by Nuclear Power Accident	1 in 10,000,000	The BMA Guide to Living with Risk. Harmondsworth: Penguin, 1990.
Six balls in UK National Lottery	1 in 13,983,816	Barclay P, Costigan S, Davies M. Lottery can be used to show risk (Letter). British Medical Journal 1998;316:124. Pubmed ID: 9583931.

Clinical risks		Source
Neurological Injury with spinal	1 in 1,693	Auroy Y, Nacchi P, Messiah A, Litt L, Rouvier B, Samii K. Serious complications related to regional anaesthesia. Anesthesiology 1997;87:479-486. Pubmed ID: 9316950.
Neurological Injury with epidural	1 in 5,069	Auroy Y, Nacchi P, Messiah A, Litt L, Rouvier B, Samii K. Serious complications related to regional anaesthesia. Anesthesiology 1997;87:479-486. Pubmed ID: 9316950.
Unintentional awareness under Anaesthesia	1 in 900	Myles PS, Williams DL, Hendrata M, Anderson, Weeks AM. Patient satisfaction after anaesthesia and surgery: results of a prospective survey of 10 811 patients. British Journal of Anaesthesia 2000;84:6-10.
Death from anaesthesia 1982	1 in 11,111	Lunn JN, Mushin WW. Mortality associated with anaesthesia London: Nuffield Provincial Hospitals Trust, 1982.
Spinal Haematoma after epidural	1 in 150,000	Vandermeulen EP, Van Aken H, Vermynen J. Anticoagulants and spinal epidural anaesthesia. Anesthesia and Analgesia 1994;79:1165-1177. Pubmed ID: 7978443.
Death from anaesthesia CEPOD 1987	1 in 185,056	The Report of the National Confidential Enquiry into Perioperative Deaths 1987.
Spinal Haematoma after spinal	1 in 220,000	Vandermeulen EP, Van Aken H, Vermynen J. Anticoagulants and spinal epidural anaesthesia. Anesthesia and Analgesia 1994;79:1165-1177. Pubmed ID: 7978443.
Maternal Deaths from Anaesthesia CEMD 1988-1990	1 in 588,235	Department of Health. Why Mothers Die. Report on Confidential Enquiries into Maternal Deaths in the UK 1994-1996. London: The Stationery Office, 1998.
HIV infection from one unit of blood	1 in 2,000,000	National Blood Transfusion Service Website: www.blood.co.uk.
Death from New Variant CJD	1 in 10,000,000	Bandolier June 1996;28: www.jr2.ox.ac.uk/bandolier/band28/b28-2.html.

## References

- 1 Department of Health. Good practice in consent implementation guide: consent to examination or treatment London: Department of Health, 2001 ([www.doh.gov.uk/consent](http://www.doh.gov.uk/consent)).
- 2 Adams AM, Smith AF. Risk perception and communication: recent developments and implications for anaesthesia. *Anaesthesia* 2001;56:745–755. Pubmed ID: 11493237.
- 3 Malenka DJ, Baron JA, Johansen S, Wahrenberger JW, Ross JM. The framing effect of relative and absolute risk. *Journal of General and Internal Medicine* 1993;8:543–548. Pubmed ID: 8271086.
- 4 Woods D. Coping with complexity: the psychology of human behaviour in complex systems. In: Goodstein LP, Anderson HB, Olsen SE (eds) *Tasks, Errors and Mental Models*. New York: Taylor and Francis, 1988.
- 5 Reason J. Human error: models and management. *British Medical Journal* 2000;320:768–770. Pubmed ID: 10720363.
- 6 Edwards A, Prior L. Communication about risk – dilemmas for general practitioners. *British Journal of General Practice* 1997;47:739–742. Pubmed ID: 9519524.
- 7 Communicating about risks to public health: pointers to good practice. London: Department of Health 2001 ([www.doh.gov.uk/pub/docs/doh/pointers.pdf](http://www.doh.gov.uk/pub/docs/doh/pointers.pdf)).
- 8 Adams J. *Risk*. London: UCL Press, 1995.
- 9 Fischhoff B. Risk perception and communication unplugged: twenty years of progress. *Risk Analysis* 1995;15:137–145. Pubmed ID: 7597253.
- 10 Beyth-Marom R. How probable is probable? A numerical translation of verbal probability expressions. *Journal of Forecasting* 1982;1:257–269.
- 11 Calman KC, Royston HD. Risk language and dialects. *British Medical Journal* 1997;315:939–942. Pubmed ID: 9361547.
- 12 Edwards A, Elwyn G, Mulley A. Explaining risks: turning numerical data into meaningful pictures *British Medical Journal* 2002;324:827–830. Pubmed ID: 11934777.
- 13 [www.johnpaling.com/perspective.html](http://www.johnpaling.com/perspective.html) or [www.healthcarespeaker.com/](http://www.healthcarespeaker.com/).
- 14 Edwards A, Hood K, Matthews E et al. The effectiveness of one-to-one risk-communication interventions in health care: a systematic review. *Medical Decision Making* 2000;20:290–297. Pubmed ID: 10929851.

## Further reading

References 1, 2, 7, 11 and 12 above are particularly useful. Also:

Bogardus ST, Holmboe E, Jekel JF. Perils, pitfalls and possibilities in talking about medical risk. *Journal of the American Medical Association* 1999;281:1037–1041. Pubmed ID: 10086441.

Broadbent DE. Psychology of risk. In: Cooper MG (ed) *Risk. Man-made hazards to man*. Oxford: Clarendon Press, 1985.

Smith AFM. Mad cows and ecstasy: chance and choice in an evidence-based society. *Journal of the Royal Statistical Association* 1996;159:367–383.

Anaesthetic Risk Resource on [www.youranaesthetic.info](http://www.youranaesthetic.info).