

Explaining risks: turning numerical data into meaningful pictures

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The way in which information is presented affects both how health professionals introduce it and how patients use it

The “information age” has profound implications for the way we work. The volume of information derives from biomedical and clinical evaluative sciences and is increasingly available to clinicians and patients through the world wide web.¹ We need to process information, derive knowledge, and disseminate the knowledge into clinical practice. This is particularly challenging for doctors in the context of the consultation. Information often highlights uncertainties, including collective professional uncertainty, which we address with more and better research; individual professional uncertainty, which we address with professional education and support for decisions; and stochastic uncertainty (the irreducible element of chance), which we address with effective risk communication about the harms and benefits of different options for treatment or care.

In this article we discuss whether the shift towards a greater use of information in consultations is helpful and summarise the current literature on risk communication. We also explore how information can be used without losing the benefits that are traditionally associated with the art, rather than the science, of medicine.

Methods

This paper draws on systematic reviews and other key literature in the field.²⁻⁷ We reviewed literature addressing shared decision making for communicating risks, supporting patients’ decisions, and the specific issue of risk communication about cancer.⁴⁻⁷ We also appraised key reviews outside the healthcare setting.⁸⁻¹⁰

Definition of risk communication

Risk communication is defined as the open two way exchange of information and opinion about risk, leading to better understanding and better decisions about clinical management.²⁻¹¹ This definition moves away from notions that information is communicated only from clinician to patient, and that acceptability (or not) of the risk is communicated back. The two way exchange about information and opinion is important if decisions about treatment are to reflect the attitudes to risk of the people who will live with the outcomes.

Summary points

Patients often desire more information than is currently provided

Communicating about risks should be a two way process in which professionals and patients exchange information and opinions about those risks

Professionals need to support patients in making choices by turning raw data into information that is more helpful to the discussions than the data

“Framing” manipulations of information, such as using information about relative risk in isolation of base rates, to achieve professionally determined goals should be avoided

“Decision aids” can be useful as they often include visual presentations of risk information and relate the information to more familiar risks

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The problems of risk language

Terms such as probable, unlikely, rare, and so on have been shown to convey “elastic” concepts.^{12 13} One person’s understanding of “likely” may be a chance of 1 in 10, whereas another may think that it means a chance of 1 in 2. Any one person may also interpret the term differently in different contexts—a “rare” outcome is a different prospect in the context of genetic or antenatal tests than, for example, in the context of antibiotic treatment for tonsillitis.

Interpretation of numerical information is problematic. For example, Yamagishi found that death rates of 1286 out of 10 000 were rated as more risky than rates of 24.14 out of 100.¹⁴ In addition, the interpretation of the probabilistic elements of risk cannot be divorced from the importance of the harm, which includes the meaning of the harm and its implications for lifestyle and health (such as the threat of cancer). But people’s interpretations of a condition and its burden also vary—for example, a stroke may mean different things to people according to their personal

