

## Picture this: a new way of seeing risk

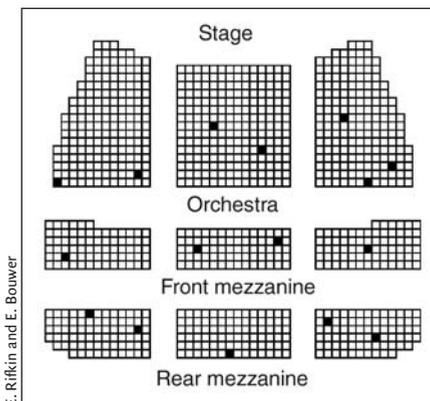
Conveying the statistics of risk is often a classic head butt between patient and doctor. You say: Smokers have a 50% greater chance of dying younger than non-smokers. The patient responds: Yes, but my uncle lived until he was 95 and he smoked his whole life. Well, you say, we are talking about the difference between relative and absolute risk — and patients' eyes not only glaze over, they threaten to dissolve right before you.

The solution is to show patients, as simply and effortlessly as possible, what an act, procedure or drug means in terms their own living and dying. But flashing traditional pie charts or line graphs, which demand considerable statistical sophistication to fully understand, is not going to cut it for most patients.

Enter the risk characterization theatres created by environmental scientists Erik Rifkin and Edward Bouwer to visually express risk in their new book.<sup>1</sup> The theatre graphics are simplicity personified. Rifkin and Bouwer begin by showing the seating plans of a large public performance building, such as a theatre, concert hall or auditorium, that seats 1000 individuals. They then take the seating plan and darken a prescribed number of seats that represent the sick and/or dead, thus depicting, for example, how rofecoxib (Vioxx) use translates into cardiovascular events (Figure 1).

The risk characterization theatre's graphic virtues are instantly obvious. What you get to see is what traditional stats charts never convey: the often random pattern in which diseases or conditions manifest themselves. Seating patterns show that an illness, for instance, may strike one person, while leaving their neighbour, who has the same habits, age and/or sex, alone.

The word that should be underlined is "see." For there is something about looking at what has happened, that allows the viewer to be more emotionally convinced. You see not a nameless



E. Rifkin and E. Bouwer

**Figure 1:** Rofecoxib (Vioxx) risk characterization theatre. The 16 darkened seats represent the number of additional people who will experience cardiovascular events when taking rofecoxib, as compared to the 1000 individuals not taking this anti-inflammatory over a 9-month period. Merck & Co. pulled rofecoxib off the market on Sept. 30, 2004, due to increased risk of heart attack and stroke.

number but instead see the afflicted — or at least the seats they would occupy.

The theatre seating plan was almost an afterthought when writing the book say the authors. "We were in a meeting one day and we said we should have some graphic that people could look at without having to go through numbers," says Rifkin.

But when they started looking they couldn't find a figure that let people easily see what might happen to them. Then they chanced upon the notion of using the seating charts. Initially they thought they might pick a well-known Broadway theatre for their exemplar, but that didn't work. Nonetheless, Rifkin and Bouwer, who is a professor at Johns Hopkins University, agree it might be possible personalize the graphics to fit a specific audience — say a sports stadium if the patients are mostly men.

The obvious visual impact of risk characterization theatres raises a medical communication issue central to

21st century medicine. In this era where many people are compulsively surfing the Internet to find out the latest about their condition, wouldn't it make sense for all medical papers to include a risk characterization theatre graphic to express the meaning of their findings to a lay audience? Authors wouldn't have to include the seating plan in the body of the published article directly, where the numerate medical and scientific community could readily grasp the necessary figures, stats and probability ratios. However, for patients and lay people, the journal could also post a risk characterization diagram online.

Not only would risk characterization theatres be simple for authors to generate, it would also provide a graphic standardization both lay people and the medical community could share when discussing courses of action.

In an age where computer visualization has made a picture worth a google of words, isn't it time that 21st century medicine moved from a communications model of "doctor tell" to "doctor tell *and* graphics show and tell"? And isn't it time for those graphics to be as standardized as a passport or a dollar bill?

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### REFERENCE

1. Rifkin E, Bouwer, E, Sheff B. *The Illusion of Certainty: Health Benefits and Risks*. London (UK): Springer Science & Business Media; 2007.

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