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Making decisions about mammography

Estimates of risks and benefits, should be set out in a straightforward way for patients

Papers p 936

Proponents of breast cancer screening make powerful claims for its role in reducing mortality.[1] The evidence is, however, disputed.[2] Critics argue that the presentation of information about the benefits of screening in terms of the relative reduction in the risk of dying from breast cancer is misleading and that the absolute reduction in overall mortality should be used.[3] Another criticism is that women are given insufficient information about possible harmful consequences.[4] In this issue, Barratt et al present a balance sheet of risks and benefits to help patients make informed choices about screening (p 936).[5]

The figures on the balance sheet are generated by using a mathematical technique known as Markov modelling. A disease is represented as a process with several states (for example, healthy, diagnosed, treated) and the probabilities of possible transitions between them. The model employed by Barratt et al uses statistics from BreastScreen Australia and the Australian Bureau of Statistics to determine the proportion of women who receive interventions and estimates of mortality from breast cancer and from other causes. Using data from research trials, other models, and systematic reviews, the authors show how the probability of each outcome is affected by participating in screening. The reduction in mortality is set against the increased likelihood of intervention.

The figures generated may prove controversial. For benefits, Barratt et al estimate that biennial screening from age 60-70 cuts breast cancer deaths from 8.0 per 1000 to 5.0/1000 over this period. If a woman who was screened throughout her 50s and 60s continues to be screened after the age of 70, her risk of dying of breast cancer by age 80, according to the model, is cut from 8.3/1000 to 6.0/1000. These figures are in line with other estimates.[6] The surprise, perhaps, is that the achieved gain, certainly in this age group, corresponds to small reductions in overall mortality: from 75.5/1000 to 75/1000 in women aged 60-70 and from 205.6/1000 to 204.1/1000 in 70-80 year olds.

The principal possible negative outcome of screening is over-diagnosis—the possibility that a woman might undergo unpleasant treatment without improving mortality or quality of life. Inevitably screening will reveal some cancers that would otherwise have gone undetected, not just for a few years but for the rest of a patient's life. The model predicts that, in the 60-70 age range for example, 24.4 cancers would be detected per 1000 women who decline screening, compared with 38.0/1000 in the screened group. Some of the 13.6 extra cancers in the screening group will be over-diagnosis. The balance sheet metaphor implies that all these extra diagnoses are in some sense the cost that is to be set against the benefit of improved mortality. However, as Barratt et al make clear, a percentage of the extra diagnoses will correspond to the earlier detection of cancers that would otherwise figure in the mortality statistics for the 70-80 age group. The question is how many? Barratt et al report that estimates of over-diagnosis vary from 2% to 30% for invasive cancer. The importance of a diagnosis of non-invasive disease is probably even less certain.

In the light of these uncertainties one would want to test the predictions of the model. Martin et al developed a decision aid for a different application, using similar modelling techniques but very different data and with the aim of advising patients on the impact that smoking cessation could have on their life expectancy.[7] The tool was subjected to a particularly stringent validation process, comparing its predictions with actual outcomes for a cohort of patients who had been followed for 30 years. Given the pace of change in the detection and treatment of breast cancer, identifying an appropriate cohort for a comparable test of the tool described by Barratt et al might be difficult and proving the model's predictions accurate perhaps impossible. Arguably using best available estimates of risks and benefits, set out in the most straightforward way, could help patients make informed choices. This is especially true for women older than 70 who, in Australia and in the United Kingdom, have to make a conscious decision if they want to continue to be screened.

This tool is one of a growing number designed to help clinicians work with patients to choose a course of action, which reflects an individual's preferences and is based on individualised estimates of risk. As our understanding of the risk factors for diseases improves the scope for such tools will extend. A systematic review found such tools to be effective in engaging patients but that evidence of their impact on decisions is variable suggesting that more research into their design and use is required.[8]

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Using pictures in the *BMJ*

We want lots of pictures, but have policies on using them ethically

We encourage authors to include pictures in submissions to the *BMJ* to add useful and relevant information. We also use pictures to help the journal to look good, to be well read, to entertain and stimulate readers, and sometimes to cast different perspectives on familiar subjects. Surveys show that readers may lose interest when faced with slabs of unbroken print, so we include some pictures to make articles more engaging and to draw readers in.

But there are pitfalls in publishing pictures in a medical journal, and we receive a handful of complaints each year about ours. Readers have two main concerns—that publishing pictures of patients may compromise privacy and confidentiality and that pictures may be altered and might thereby mislead.

The *BMJ* has strict policies on preserving privacy and confidentiality. We insist that authors obtain patients' written consent before we agree to publish pictures of real patients taken in a clinical setting. This applies even when an image only shows something that seems unlikely to lead to identification of the patient—for example, a small skin lesion or a single toe. Patients can and do recognise themselves, especially those with unusual or rare conditions.[1] And we know that masking someone's eyes does not prevent them from being recognised, a practice we abandoned years ago.[2 3]

Some authors think we are too pedantic in seeking consent for every clinical image. But our policy on images is just a subset of our general policy, that we need consent from patients for any information that comes from the doctor-patient relationship,[4] and it complies with the General Medical Council's rules on publishing images of patients.[5] Patients may also have rights akin to ownership over an image of themselves and do have the right, we believe, to give consent for photographs to be filed in their case notes while refusing permission for those pictures to be published.[6]

Given this policy on consent for images of patients mentioned in *BMJ* articles, is it inconsistent of us to publish pictures provided by agencies in news items and other articles? We believe that the *BMJ* would be at a disadvantage among other media if we didn't use such images, and pictures can often tell a story more powerfully than words. But we cannot take responsibility for the consent of people who are shown in pictures that we have obtained from agencies, libraries, other publications, and other commercial sources. We state clearly where pictures have come from, and we assume that they and their photographers have obtained relevant permission from models in any images showing people. Reputable picture agencies and other sources are unlikely to take the legal and financial risk of selling sensitive images without appropriate consent. If we doubt that someone photographed could have given consent—owing to severe mental illness, dementia, or learning disability, for example—we use our discretion and try to avoid images that might allow that person to be identified.

So much for protecting patients. What does the *BMJ* do to protect readers from misleading images? And has the advent of digital photography tempted us to use visual trickery? Journals, including the *BMJ*, have been cropping and masking photos for decades, and digital imaging has simply extended the possibilities. We alter clinical images only occasionally, when using them primarily as art rather than information, for example on the *BMJ*'s cover (see box on bmj.com). When we have altered an image substantially, we state this in the legend or cover note.[7] Similarly, when we buy from agencies scans, electron micrographs, scintillograms, thermal images, and other clinical images whose colour has been enhanced or changed, we publish these with explanatory legends.

The other questions we are often asked about pictures are more technical, and are mostly about finding and preparing images for submission, and getting permission and copyright clearance. To find answers to these questions please read our advice to contributors.[8]

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P+ *Some examples of "how not to do it" are on bmj.com*

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