Results from randomised trials do not necessarily translate into a service screening situation. However, there is accumulating evidence from several national service screening programmes that the effect in terms of breast cancer mortality reduction is at least as good as in the trials [8–10]. Nevertheless, it should be kept in mind that changes in breast cancer mortality due to screening may be difficult to distinguish from other trends in breast cancer mortality related to factors such as therapy and public attitudes to seeking advice early for breast symptoms.

To put the above data in perspective some statistics might be of interest. Breast cancer is a fairly common disease and the incidence has increased substantially in many countries over the last few decades. In Sweden the annual incidence in women aged 50–70 is approximately 33 new cases per 10,000 women. Fortunately, and in stark contrast to the impression often given in the lay press, the risk of dying from breast cancer is much less than the risk of developing breast cancer. In the age group 65–74 the risk is about 7 per 10,000, while all-cause mortality is about 140 cases per 10,000. The figures would be similar in many European countries. A 30% breast cancer risk reduction would mean 2 prevented deaths per 10,000. Thus, relative risks have to be considered in relation to the underlying absolute risk. A 30% reduction in a younger age group is a smaller number in absolute terms. As an example, in the Age Trial the breast cancer mortality reduction corresponded to 1 prevented death in 2,000 women attending the screening after almost 11 years of follow-up.

In addition to strong evidence of benefit a preventive intervention should carry little or no risk. Mammography screening does carry some distinctive risks. The principal negative effects of screening are false positive and false negative screening results as well as overdiagnosis of breast cancer. There is also a loss of quality of life due to the fact that women have to live longer with a diagnosis of breast cancer due to treatment.
the earlier diagnosis. Furthermore, there is a minute radiation hazard. Attempts have been made to quantify in easily understandable terms the pros and cons of screening [11].

In most programs, between 2 and 5% of screened women have to be recalled to undergo additional examination before they can be cleared of the suspicion of breast cancer. This means that during a 20-year period of screening with a 1.5 year interval up to 50% of the screening population run the risk of a false positive screening, resulting in anxiety in most women, albeit usually of short duration.

False negatives refer to breast cancer cases appearing after a normal screening examination before the next scheduled screening, often called interval cancers. There are multiple explanations, such as rapid growth rate, atypical radiographic presentation and, in a minor proportion of the cases, the radiologist overlooking or misinterpreting the cancer signs.

Overdiagnosis may be defined as the detection of breast cancer that would never have been detected, had the screening not been performed [12–15]. The magnitude of this problem has been estimated by several investigators with markedly discrepant results, varying from 3 to more than 30% of screening-detected cancers. In the Malmö Mammographic Screening Trial we had a unique opportunity to study this issue, as the control groups were never invited in the cohort aged 55–69 at entry into the trial. We found 10% higher cumulated breast cancer incidence when we compared the whole invited group (including the non-attenders) with the control group 15 years after the end of the trial. If one looks at the attenders only, which may be more appropriate, the figure is over 20%. We conclude on the basis of our experience that for every life saved between 1 and 2 women were overdiagnosed through screening. The data on overdiagnosis also suggests that the risk of overdiagnosis is age dependent, being greater in the older screening ages (>55 years) and a minor problem in the younger (<50–55 years).

Breast cancer is a frightening disease to most women. The most important way to reduce the risk is regular mammography screening. However, this comes at a price and the balance between benefits and risks is delicate. Therefore, high-quality screening is mandatory. Also, understandable information about benefits and risks should be easily available as a basis for informed decision.

References