

Summary from Jan. 2000 *Lancet* article

## *Is Screening for Breast Cancer with Mammography Justifiable?*

(Includes an analysis of all eight identified Breast Cancer Mammography  
Trials)

by Peter C Gtzsche, Ole Olsen

### "Background

A 1999 study found no decrease in breast-cancer mortality in Sweden, where screening has been recommended since 1985. We therefore reviewed the methodological quality of the mammography trials and an influential Swedish meta-analysis, and did a meta-analysis ourselves.

### Methods

We searched the Cochrane Library for trials and asked the investigators for further details. Meta-analyses were done with Review Manager (version 4.0).

### Findings

Baseline imbalances were shown for six of the eight identified trials, and inconsistencies in the number of women randomised were found in four. The two adequately randomised trials found no effect of screening on breast-cancer mortality (pooled relative risk 1.04 [95% CI 0.84-1.27]) or on total mortality (0.99 [0.94-1.05]). The pooled relative risk for breast-cancer mortality for the other trials was 0.75 (0.67-0.83), which was significantly different ( $p=0.005$ ) from that for the unbiased trials. The Swedish meta-analysis showed a decrease in breast-cancer mortality but also an increase in total mortality (1.06 [1.04-1.08]); this increase disappeared after adjustment for an imbalance in age.

### Interpretation

Screening for breast cancer with mammography is unjustified. If the Swedish trials are judged to be unbiased, the data show that **for every 1000 women screened biennially throughout 12 years, one breast-cancer death is avoided whereas the total number of deaths is increased by six.** If the Swedish trials (apart from the Malm trial) are judged to be biased, **there is no reliable evidence that screening decreases breast-cancer mortality."**

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Footnote: To appreciate the importance of the *Lancet* article on breast cancer and mammography, it needs to be pointed out that ***Lancet* is one of the most conservative and respected medical journals in the world.** The editors of *Lancet* would not have published the study if they did not believe the conclusions were valid. A previous breast cancer study concluded the benefit of mammography screening exceeded the risk only for women between 50 and 65 years of age. The new *Lancet* study analyzed that data, plus all previous risk/benefit mammography studies and concluded, **"there is no reliable evidence that screening decreases breast-cancer mortality."** (We assume this means at any age. We must also assume that the editors of *Lancet* believed this study superseded previous studies.) Thomas Kuhn, in his book *The Structure of Scientific Revolutions*, refers to this kind of a shift in science, as a "*paradigm discovery*" - a theory that replaces previously held beliefs, usually with *much* resistance.

