Mammography benefits overestimated, review says

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An in-depth review of randomised trials on screening for breast, colorectal, cervical, prostate and lung cancers, published in the *Journal of the Royal Society of Medicine*, shows that the benefits of mammographic screening are likely to have been overestimated.

This overestimation results from the use of an unconventional statistical method which differs from that used for other cancer screening trials, concludes the paper co-authored by researchers at King's College London and the University of Strathclyde Institute of Global Public Health at iPRI, France.

Started in the 1960s and 70s, the Swedish randomised trials suggested that mammography screening could reduce breast cancer mortality by 20 to 25% in populations where screening is widespread. These findings were, and remain, extremely influential in decisions taken to establish population breast cancer screening programmes using mammography.

The goal of cancer screening is principally to reduce the mortality from the disease in question by enabling cancers to be found at an early stage. Early detection reduces the risk of being diagnosed with an advanced cancer that is often deadly. In 2002, WHO recommended that when population screening for breast cancer was implemented in any region, the rate of advanced breast cancers should be monitored: if the programme is successful, these rates should show a fall over time indicating that mammography screening is contributing effectively to reducing breast cancer mortality. Moreover, with increased screening,

more rapid and more pronounced falls in breast cancer mortality would be expected in countries that implemented mammography screening programmes at end of the 1980s than in countries that implemented programmes ten to fifteen years later.

"Contrary to expectations, numerous studies in North America, Europe and Australia have shown that the rates of advanced breast cancer have not declined in countries where most women regularly attend mammography screening" observed Professor Philippe Autier, lead author from University of Strathclyde Institute of Global Public Health at iPRI. He went on to note that "other studies have shown that declines in breast cancer mortality were the same in countries that implemented mammography screening end of the 1980s as those that did so ten to twenty years later. The absence of differences in mortality reductions could not be explained by differences in access to modern therapies."

Professor Richard Sullivan, from the Institute of Cancer Policy, King's College London observed that "these findings were in sharp contrast with screening for cervical and colorectal cancers, two cancers for which studies have clearly shown the capacity of screening to reduce the numbers of advanced cancers in populations. This has major implications for policy-makers in middle income countries who are now making decisions about where to prioritise cancer screening efforts".

These discrepancies led Professor Autier and his colleagues to undertake an in-depth review of all randomised trials of cancer screening. Professor Autier concluded that "if the Swedish trials had used similar statistical analyses to other cancer screening trials, reductions in the risk of breast cancer death associated with mammography screening would have been much smaller, probably less than 10 per cent."

"The reduction seen in the mortality from breast cancer in many countries is one of the major contributions to Cancer Control in recent

times" noted Peter Boyle, Professor and Director of the University of Strathclyde Institute of Global Public Health at iPRI. "Many factors have contributed to this success including earlier presentation and better diagnosis, as well as major improvements in the organisation of care (multidisciplinary teams) to specifc improvements in surgery, radiotherapy and chemotherapy/endocrine therapy. Currently, assessment of the impact of mammographic screening programmes cannot be made without taking advances in breast cancer treatment into account."

Provided by King's College London