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Participation in early mammography screening

Enduring benefits at a population level

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Globally, one in 20 women will have a diagnosis of breast cancer made in their lifetime, with an estimated 2.3 million new cases and 670 000 deaths in 2022.[1] The incidence is projected to increase by 38% to 3.2 million and the mortality to increase by 68% to 1.1 million by 2050, if the current trend continues.[1] Breast cancer was diagnosed at a later stage in about 40% of patients, which significantly contributes to breast cancer related deaths.[2,3] Mammograms can detect breast cancer early, often before a lump can be felt, which improves the chances of successful treatment and survival. Mammography is reported to be associated with a 15% relative reduction in breast cancer mortality for women aged 40-74 years.[4] However, debate continues about the long term benefits of mammography screening in public health and clinical practice.[5-7] Concerns remain regarding overdiagnosis, false positives, psychological distress, cumulative radiation exposure, and the extent to which population level survival benefits outweigh these harms. Thus, the balance of risks and benefits, as well as the appropriate screening intervals and target populations, remain important areas of ongoing evaluation and discussion.

In a linked study (doi:10.1136/bmj-2025-085029), Ma and colleagues constructed a large population cohort study design with 432 775 women in the Swedish Mammography Screening Program, linking them to multiple Swedish national registers and following them up to 25 years.[8] The authors present compelling evidence that women who did not attend their first screening were persistently less likely to participate in future screenings. These women were also more likely to have symptom detected, advanced stage breast cancer diagnosed and experienced significantly higher breast cancer mortality. This study, notable for its extended follow-up and robust cohort design, carries important practical implications for patients, clinicians, and health systems.

For patients, especially women approaching the recommended age for breast cancer screening,[9] the message is clear: participating in early mammography screening can have a lasting benefit. This study supports the general recommendation of starting screening at the designated age (women between 40 and 75 years of age). Many women (32.1% in this report) decline or delay screening owing to lack of awareness or family history, fear of harms from screening, or misunderstanding of risks and benefits.[10] This study highlights that the decision to attend that first appointment is far more than a short term health check—it is a long term investment in breast health and survival. The long term reduction in mortality should mitigate the fear of risk or potential overdiagnosis, at least in a population based mammography screening program. Patients should discuss their individual risk factors, including family history and genetic predisposition, with their healthcare providers.

For clinicians discussing the potential benefits and drawbacks of mammography screening,[11] this study provides concrete evidence that initial screening reduces mortality, which should enable healthcare providers to move beyond short term cancer detection rates and instead emphasize the enduring long term effect on mortality during their interactions with patients. Clinicians should also be aware of any psychological and social barriers that may prevent women from attending their first screening. These include anxiety about the procedure, mistrust of medical systems, cost, cultural beliefs, and logistical problems such as transportation or time off work.[10] Understanding and overcoming these barriers can help to improve initial screening uptake and long term outcomes. Furthermore, clinicians should take a personalized approach when discussing screening with their patients. Personal risk factors, comorbidities, and patients' values should be considered to make a personalized and informed decision. This ensures that screening recommendations are tailored to each patient's unique health profile, even as this study reinforces the broader, population level benefits of early screening.

From a public health policy perspective, this study underscores the effectiveness of population based mammography screening programs. Public health outreach campaigns, culturally competent education materials, and system level support that can increase the initial participation rates in mammography screening should be a public health priority.[12,13] The findings also support maintaining public investment in mammography infrastructure, given that the mortality benefits extend for decades; even a modest increase in first round participation could yield substantial long term gains in population health.

Policy makers should also consider strategies to reduce disparities in screening participation. Targeted interventions, supported by geospatial analytics that use local data and community input, are crucial for ensuring equitable access and outcomes for women of lower socioeconomic status or in minority groups or rural areas. Furthermore, program evaluations should include both short term indicators, such as cancer detection rates or interval cancer rates, and long term mortality reductions as key measures of success.

Breast cancer screening is a decision point with lifelong consequences. Ensuring that women are

informed, supported, and empowered to participate in their first screening should be a shared goal across the healthcare system. Population based public health interventions, such as mammography, save lives and should be a public health priority.

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