# ACS Responds to Study Saying Mammography Benefit Limited

## Expert Says Study's Conclusions Misplaced and Misleading

In the current issue of BMJ, Jørgensen and colleagues challenge the results of a 2005 study published in the journal that showed a 25% breast cancer mortality reduction among Copenhagen women invited to mammography screening. Comparing two metropolitan areas (including Copenhagen) with breast cancer screening programs with the rest of Denmark, which does not have a screening program, Jørgensen and colleagues report that they were unable to find an effect of the Danish screening program on breast cancer mortality, and argue that observed reductions in breast cancer deaths are more likely due to changes in risk factors and improved treatment. However, Robert Smith, PhD, American Cancer Society director of screening says the underlying logic and design of the new study succumbs to a number of basic, but common errors in the interpretation of observational data, and thus the conclusions are misplaced and misleading.

"Not surprisingly, this study does not credibly refute Olsen, et al's 2005 study showing fewer breast cancer deaths among women exposed to mammography in Copenhagen, nor does it seriously challenge the proven benefits of mammography in reducing deaths from breast cancer.

"In particular, in the period of evaluation, the authors do not distinguish breast cancer deaths attributable to diagnosis before the screening program started and breast cancer deaths that were due to diagnoses after the initiation of the screening program. Experience has shown that more than half of all breast cancer deaths occurring within a 10 year period of observation are associated with diagnoses that occurred before the period began. The authors argue that the periods of observation are sufficiently long to overcome this problem, but without validation their assurance is not persuasive, especially since the higher mortality in Copenhagen compared with the rest of Denmark would have led to greater contamination from the pre-screening fatal breast cancers in the evaluation period.

"Second, the authors depart from convention by defining a period when the benefit of screening is expected to be observed, which they begin in 1997 (approximately 4-6 years after the initiation of screening) rather than just measuring the benefit from the year the program began. The year screening was introduced (1991) also is included in the pre-screening period.

"Third, while their age-specific comparisons give the impression of comparing a group exposed to screening with one not exposed, the authors do not acknowledge that not all women are invited to screening, or that among those, not all attend screening. Mammography participation rates in Denmark are quite low, and if a woman does not attend screening after an invitation, she is not invited again. Further, a recent study in the International Journal of Cancer (2007) showed that women in Copenhagen were 3 times less likely to attend screening compared with rural-urban Funen.

"Fourth, the authors argue that women ages 50-54 are unlikely to benefit from mammography due to some deaths occurring due to a diagnosis before age 50, and thus they are included in the control group. While this is partially true, the proper approach would have been to censure the breast cancer deaths attributable to a diagnosis before the initiation of the screening program, and include the age groups invited to screening in the nominally 'screened' group.

"The analysis of population trends in breast cancer mortality in the presence of screening is complicated by the inability to measure exposure to screening, and the long period of follow-up required. Studies such as this one by Jørgensen et al obscure whatever benefit may be present with crude, insensitive methodology. While we expect to see a range of benefits from mammography, some small and some large, based on the design and quality of the screening program, its duration, and the participation rate of the target population, to argue that there is no benefit from modern mammography on the basis of such flawed methods means this paper contributes nothing of substance to the on-going debate."

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