

# Ignoring the Science on Mammograms

By David H. Newman, M.D.

Last week The New England Journal of Medicine published a study with the potential to change both medical practice and public consciousness about mammograms.

Published on Thanksgiving Day, the research examined more than 30 years of United States health statistics to determine, through observation, if screening mammography has reduced breast cancer deaths. The researchers found that, as expected, the introduction of mammogram screening led to an increase in the number of breast cancers detected at an early stage.

But importantly, the number of cancers diagnosed at the *advanced stage* was essentially unchanged. If mammograms were really finding deadly cancers sooner (as suggested by the rise in early detection), then cases of advanced cancer should have been reduced in kind. But that didn't happen. In other words, the researchers concluded, mammograms didn't work.

This is a bold claim for an observational study. There are countless reasons why conclusions from such studies are commonly fraught with error. What if, for instance, the lion's share of advanced cancers occurred among women without access to screening mammograms- a fact often not available in health statistics? Or what if mammography successfully prevented a major increase in advanced cancers, leaving the health statistics unchanged?

Hippocrates, the father of medicine, called experience "delusive". He recognized that uncontrolled observations may lead to faulty conclusions. For centuries the flawed logic of observational data seemed to validate bloodletting, an unhelpful and often harmful therapy. But most who were bled eventually improved- no thanks to the bloodletting- an observation that led medical authorities to believe in the practice.

Fortunately, we have learned something about bad logic. Today we seek studies designed to neutralize illusions. By enrolling people in a study and assigning them randomly to treatments, for instance, groups tend to be eventually balanced in every way except one: the treatment. Controlled studies led to the discovery that bloodletting is harmful rather than helpful, and randomized trials of screening mammography would therefore be a worthy gold standard to answer once and for all the question of whether the test saves lives.

It may be surprising, therefore, to learn that numerous trials of mammography have indeed randomly assigned nearly 600,000 women to undergo either regular mammography screening or no screening. The results of more than a decade of follow-up on such studies, published more than 10 years ago, showed that women in the mammogram group were just as likely to die as women in the no-mammogram group. The women having mammograms were, however, more likely to be treated for cancer and have surgeries like a mastectomy. (Some of the studies include trials from Norway, the Netherlands, Sweden, and this major review of the data.)

In other words, mammograms, increased diagnoses and surgeries, but didn't save lives-exactly what the researchers behind last week's observational study concluded.

It is affirming to see the newest study. But it raises an awkward question: why would a major medical journal publish an observational study about the effects of screening mammography years after randomized trials have answered the question? Perhaps it is because many doctors and patients continue to ignore the science on mammograms.

For years now, doctors like myself have known that screening mammography doesn't save lives, or else saves so few that the harms far outweigh the benefits. Neither I nor my colleagues have a crystal ball, and we are not smarter than others who have looked at this issue. We simply read the results of the many mammography trials that have been conducted over the years. But the trial results were unpopular and did not fit with a broadly accepted ideology-early detection-which has, ironically, failed (ovarian, prostate cancer) as often as it has succeeded (cervical cancer, perhaps colon cancer).

More bluntly, the trial results threatened a mammogram economy, a marketplace sustained by invasive therapies to vanquish microscopic clumps of questionable threat, and by an endless parade of procedures and pictures to investigate the falsely positive results that more than half of women endure. And inexplicably, since the publication of these trial results challenging the value of screening mammograms, hundreds of millions of public dollars have been dedicated to ensuring mammogram access, and the test has become a war cry for cancer advocacy. Why? Because experience deludes: radiologists, diagnose, surgeons cut, pathologists examine, oncologists treat, and women survive.

Medical authorities, physician and patient groups, and 'experts' everywhere ignore science, and instead repeat history. Wishful conviction over scientific rigor; delusion over truth; form over substance.

It is normally troubling to see an observational study posing questions asked and answered by higher science. But in this case the research may help society to emerge from a fog that has clouded not just the approach to data on screening mammography, but also the approach to health care in the United States. In a system downing in costs, and at enormous expense, we have systematically ignored virtually identical data challenging the effectiveness of cardiac stents, robot surgeries, prostate cancer screening, back operations, countless prescription medicines, and more.

When Thomas Jefferson described his vision for the institution that would become the University of Virginia, he said:

This place will be based on the illimitable freedom of the human mind. For here we are not afraid to follow truth, wherever it may lead.

As we begin down the arduous path of health care reform, requisite to economic success, the question for policymakers and health care authorities is this: Are we ready to stop ignoring science? If so, the road may be smoother than we imagined for there is, and has been, much truth to follow.

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