

## Improving Early Detection of Breast Cancer



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I first became interested in early detection of breast cancer as a child when my aunt died of it at age 60 after initial diagnosis at age 40. Eight years later, my mother was diagnosed with it when I was in high school. She had nipple retraction. Her mammogram was normal and she had dense breasts. The surgeon had her admitted to the hospital, telling the admissions desk "CA breast". That was the first she realised she had cancer. She awoke the next morning without her breast and two lymph nodes were involved. My much-older brother was a cancer researcher and found out about the first clinical trial of adjuvant chemotherapy for breast cancer, led by Bonadonna in Milan. My mother was able to have this (CMF) treatment at Stanford, which later became the standard of care for many years, and my mother's cancer never recurred. My interests in breast cancer screening were self-serving as I felt I would be next.

Just as I finished residency in radiology in 1992, breast core biopsy technique was being evaluated. This allowed much more precise correlation of imaging findings with pathology and meant that one didn't have the barrier of surgery just to obtain a diagnosis. As part of the RDOGV clinical trial of core biopsy led by Drs. Pisano and Fajardo, women recommended for biopsy were randomised to ultrasound or stereotactic guidance. I was surprised at how often I was able to find the lesion using ultrasound (US). I then worked on assessing disease extent with US and was again impressed by its capabilities, even compared to MRI. Drs. Paula Gordon, Tom Kolb, Stuart Kaplan, and others were publishing their favourable experience with screening ultrasound. It seemed to me and others that it was time for prospective multicentre validation of such an approach. After much discussion and obtaining necessary supplemental funding from the Avon Foundation, [ACRIN 6666](#) launched in 2004. With great help from Dr. Ellen Mendelson, we developed standardised technique and interpretive criteria for breast US. Over 100 investigators at 20 centres in three countries participated, and we showed that physician-performed US added detection of 3-5 (nearly all stage I) invasive cancers per 1000 women screened with mammography, and this added yield was observed each year. MRI was even better at detecting early breast cancer in a subset of these women, but many women did not want to have screening MRI even if done at no cost to them. Technologist-performed US has also been proven to improve detection of early stage breast cancer and, importantly in the randomised Japanese J-START trial, to reduce interval cancers (those found clinically in the interval between screens). The Italian [ASTOUND](#) trial and the [DBTUST](#) study I am leading now are assessing US and tomosynthesis in women with dense breasts.

Guidelines have suggested that women discuss screening options with their physicians. I have found there are knowledge gaps about screening and options for both women and their healthcare providers. When I wanted to have supplemental screening due to my own dense breasts, my well-educated provider was unaware of risk models to determine need for MRI screening and unfamiliar with outcomes from US or MRI. Ironically, my own breast cancer did not show on tomosynthesis but was found because of screening MRI and did show easily on ultrasound; it was caught early, and treated without need for chemotherapy. This experience prompted me to work with JoAnn Pushkin (founder of DENSE-New York) and Cindy Henke-Sarmento (entrepreneur and mammographic technologist) to develop the online educational resource

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[www.DenseBreast-info.org](http://www.DenseBreast-info.org). I am also thrilled to be working with the [Dr. SusanLove Foundation](#) and others to implement low-cost portable ultrasound in developing countries.

**What is your top management tip?**

Give people a sense of control and reward initiative.

**What would you single out as a career highlight?**

Being invited to participate in multinational discussions with the Austrian government to design their breast screening program

**If you had not chosen this career path you would have become a...?**

Jewellery and/or fabric designer

**What are your personal interests outside of work?**

Gardening, photography, baking, sewing, travel, and being a citizen of the world

**Your favourite quote?**

"Those who cannot remember the past are condemned to repeat it"-George Santayana. For me this includes respecting the scientific literature and contributing to it, even when results are not favourable, so that one is building for future generations. This sentiment can be extended to include the importance of challenging current dogma.

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