

Early results on 3D breast imaging

Scarcely a month goes by without some media outlet declaring “new hope” for breast cancer treatment or detection. It’s understandable then why Dartmouth radiologist Stephen Poplack, M.D., expresses only *restrained* enthusiasm for a new mammography method he’s studying. “The diagnostic value” of the new technology, called tomosynthesis, says Poplack, appears to be “very impressive.” But, he cautions, “we’re looking at very early results.”

View: Unlike conventional mammography, which produces two-dimensional images, tomosynthesis uses several low-dose x-rays to create a three-dimensional view of the breast. This helps eliminate many of the usual imaging problems—such as shadows and overlapping tissue—that often make diagnosis difficult.

To evaluate the potential of tomosynthesis, Poplack compared the diagnostic mammograms of 98 women with matching tomosynthesis views. (Women have a diagnostic mammogram when their screening mammogram reveals an abnormality.) In 88% of the cases, tomosynthesis provided views equivalent or superior to conventional mammography, according to Poplack. An image was deemed “superior” if it allowed Poplack, and his fellow researcher Helene Nagy, M.D., to see an abnormality better and to gather more information to make a diagnosis. Because the results are “certainly open to bias by the interpreter,” Poplack readily admits, the study needs to be replicated. It’s also worth noting that Hologic, the manufacturer of the tomosynthesis machine used in the study, funded the research.

Poplack, who serves on Hologic’s scientific advisory board, says he doesn’t “stand to gain” if the technology is accepted or not. In fact, for several years he has been working with Dartmouth engineer Keith Paulsen, Ph.D., on several unrelated breast cancer screening and diagnostic technologies (see page 5 in the Fall ’04 DARTMOUTH MEDICINE). Those technologies still hold promise “in terms of getting really new insights into breast disease,” he says. Since tomosynthesis builds off mammography, a well-established and well-studied technology, comparing it with the newer, alternative modalities is a bit like comparing apples and oranges, he adds.

Size: What tomosynthesis can and can’t do will be clearer after the company finishes a larger, multicenter study that includes DHMC and is aimed at gaining FDA approval. For now, the technology’s diagnostic capabilities appear strong. As for its screening merits, Poplack believes tomosynthesis is likely an effective screening tool as well. For example, if tomosynthesis had been used instead of screening mammography on the 98 women in the study, nearly half would not have needed further imaging. But because of the study’s size and structure, “you can’t really translate our results for screening,” says Poplack.

Yet to the extent that small discoveries fuel larger discoveries, perhaps Poplack’s study offers a nugget of “new hope” for improving the detection of breast cancer.

JENNIFER DURGIN



JON GILBERT FOX

When young research subjects took Barbie and Ken shopping in this “grocery store,” alcohol and tobacco often ended up in their carts, found Madeline Dalton, pictured.

Barbie “buys” booze and butts

“Where’s the beer, beer, beer?” That’s no fraternity chant. It’s what a young child wanted to know while “shopping” for an evening with friends as part of a DMS study. The results, published in the *Archives of Pediatrics & Adolescent Medicine*, suggest that preschoolers have already formed attitudes about smoking and drinking.

The study involved a role-playing scenario in which 120 children, aged two to six years, used Barbie and Ken dolls to purchase items from a toy grocery store in preparation for an evening with friends. The store was stocked with 70 different miniature products, including vegetables, meat, fruit, candy, milk, desserts, medicine, cereal, cigarettes, beer, and wine. About 62% of the children bought beer or wine, and 28% bought cigarettes.

Likely: “I didn’t expect such a high percentage of children to buy alcohol or cigarettes,” says study leader Madeline Dalton, Ph.D., a research associate professor of pediatrics at DMS and director of the Hood Center for Children and Families at Dartmouth. “Overall, I think it shows that very young children perceive alcohol and tobacco as appropriate and normal in social situations.” Children were more likely to buy cigarettes if their parents smoked and more likely to buy alcohol if their parents drank more than once a month.

Most studies that examine early attitudes toward smoking and drinking are focused on older children. But this one, which was funded by the Robert Wood Johnson Foundation, suggests that attitudes may form at a much younger age than previously thought.

“It’s difficult to have an impact on middle school-age children with prevention programs if you are getting to them 10 years after they’ve already formed their attitudes,” Dalton points out.

The study certainly suggests that alcohol and tobacco prevention efforts may need to be targeted toward younger children and their parents. But the results need to be confirmed by larger studies.

“I was surprised it received as much media coverage as it did,” observes Dalton, “because it was a pilot study” with a relatively small number of research subjects. “But,” she adds, “I think it opens a lot of doors for future research.”

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