American College of Radiology Imaging Network (ACRIN) Announces Results of Major Breast Cancer Screening Trial

Women with Dense Breasts, Women Younger than 50, and Those Who Are Premenopausal or Perimenopausal May Benefit from Digital Mammograms

Philadelphia, Pa. — Digital mammography detected significantly (up to 28%) more cancers than screen film mammography in women 50 and younger, premenopausal and perimenopausal women, and women with dense breasts, according to results from the ACRIN Digital Mammographic Imaging Screening Trial (DMIST). However, the ACRIN trial, one of the largest breast cancer screening studies ever performed, showed no difference between digital and film mammography in detecting breast cancer for the general population of women. The results were reported September 16, 2005 in a special online publication of the New England Journal of Medicine.

The trial was funded by the National Cancer Institute (NCI) and conducted by the American College of Radiology Imaging Network (ACRIN) and included researchers at 33 sites across the United States and Canada. “The groups of women who may benefit from digital technology are those in which standard mammography has been less effective. These results will give clinicians better guidance and greater choice in deciding which women would benefit most from various forms of mammography,” said study principal investigator and senior author Etta Pisano, M.D., Kenan Professor of Radiology and Biomedical Engineering at the University of North Carolina at Chapel Hill, Director of the Biomedical Research Imaging Center at the UNC, and member of the UNC-Lineberger Comprehensive Cancer Center. “Of particular interest, the cancers detected only by digital mammography are the types of cancers that must be detected early to save more lives through screening.”

The Center for Statistical Sciences at Brown Medical School developed the study’s statistical design and analyzed the results. Starting in October 2001, DMIST enrolled 49,528 women at 33 sites in the United States and Canada who had no signs of breast cancer. Women in the trial were given both digital and film mammograms. Mammograms were interpreted independently by two different radiologists. Breast cancer status of DMIST participants was determined through available breast biopsy information within 15 months of study entry or through follow-up mammography 10 months or later after study entry.
Bruce Hillman, MD, Network Chair of ACRIN, said, “I am very proud of the accomplishments of the DMIST researchers. The DMIST team of clinicians and scientists did a truly miraculous job in completing this complex trial quickly and producing these important results. This landmark trial, along with others currently being conducted by ACRIN, will influence the appropriate care for women everywhere.”

Digital mammography takes an electronic image of the breast and stores it directly in a computer, allowing the recorded data to be enhanced, magnified, or manipulated for further evaluation. The electronic image also can be printed on film. Film mammography units use film to both capture and display the image. The sensitivity of film mammography is somewhat limited in women with dense breasts, a population at higher risk for breast cancer. General Electric Medical Systems, Fuji Medical Systems, Fischer Imaging, and Hologic digital mammography systems were tested in the trial. Of these, all except for the Fuji system are already U.S. Food and Drug Administration-approved and available for clinical use in the United States.

“This digital mammography study demonstrates how new technologies are expanding our ability to detect breast cancer earlier in more women. The study corroborates NCI’s commitment to exploring advanced technologies in a wide range of clinical applications and the critical role they can play in making cancer a manageable disease,” said NCI Director Andrew C. Von Eschenbach, M.D.

According to the NCI, in the United States breast cancer is the most common non-skin cancer, and the second leading cause of cancer-related death in women. An estimated 211,240 women will be diagnosed with breast cancer and an estimated 40,410 women will die of the disease in the United States in 2005.

# # #

ACRIN is an NCI-sponsored clinical trials cooperative group made up of investigators from over 100 academic and community-based facilities in the United States, as well as several abroad. ACRIN’s mission is to develop information through clinical trials of diagnostic imaging and image-guided therapeutic procedures that will result in the earlier diagnosis of cancer, allay the concerns of those who do not have cancer, and increase the length and improve the quality of life for cancer patients. ACRIN administration is headquartered at the Philadelphia office of the American College of Radiology and is under the leadership of Network Chair Bruce J. Hillman, MD, and Constantine Gatsonis, Ph.D the Network Statistician. The ACRIN Biostatistics Center is located at Brown University in Providence, RI.

At Brown's Center for Statistical Sciences, faculty, students, and staff develop biostatistical methodology and conduct interdisciplinary research in medicine, public health, and the biosciences. The Center is well known for its expertise in diagnostic test evaluation and is home to the Biostatistics Center of ACRIN.

The American College of Radiology (ACR) is a national professional organization serving more than 32,000 diagnostic radiologists, radiation oncologists, interventional radiologists, nuclear medicine physicians, and medical physicists, with programs focusing on the practice of radiology and the delivery of comprehensive health care services. Further information on the ACR can be found at www.acr.org.