

## Large Study Finds No Evidence for Age-Based Mammography Cut-Off

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### At A Glance

- A study of screening mammography in more than 2.5 million women found no definitive cut-off age for breast cancer screening.
- Over 5.6 million mammograms performed in 150 facilities across 31 U.S. states over a 7-year period were analyzed.
- Based on increasing age, performance metrics demonstrated an upward trend for cancer detection rate and positive predictive values, and a downward trend in recall rates until age 90.

CHICAGO — In the largest-ever study on screening mammography outcomes, researchers found that there is no clear cut-off age to stop breast cancer screening. The findings will be presented today at the annual meeting of the Radiological Society of North America (RSNA). This research adds support for guidelines that encourage screening decisions based on individual patients and their health status.

Mammography is the standard imaging exam for breast cancer screening. Guidelines on what age to stop breast cancer screening have been a source of controversy and confusion in recent years. In 2009, the United States Preventive Services Task Force (USPSTF) released new guidelines which stated there was not enough evidence to assess the balance of benefits and harms of screening mammography in women aged 75 years or older.

"All prior randomized, controlled trials excluded women older than 75, limiting available data to small observational studies," said Cindy S. Lee, M.D., assistant professor in residence at the University of California, San Francisco. "There has been a lot of controversy, debate and conversation regarding the different breast cancer screening guidelines, even among major national organizations, over the past few years."

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*Cindy S. Lee, M.D.*

Using data from the National Mammography Database, Dr. Lee and her research team analyzed data from nearly 5.6 million screening mammograms performed over a 7-year period between January 2008 and December 2014 in 150 facilities across 31 states in the U.S. The research team looked at patient demographics, screening mammography results and biopsy results. Data from 2.5 million women over age 40 were sorted into patient groups by age in 5-year intervals (40-44, 45-49, etc.).

Four standard performance metrics were calculated to evaluate the performance of screening mammography for each age group: cancer detection rate, recall rate, positive predictive value for biopsy recommended (PPV2) and biopsy performed (PPV3). Recall rate is the percentage of patients called back for follow-up testing after a screening exam. Positive predictive value reflects the percentage of cancers found among exams for which biopsy was recommended or performed. Ideal screening performances would have a higher cancer detection rate, PPV2 and PPV3, and a low recall rate.

Overall, researchers found mean cancer detection rate of 3.74 per 1,000 patients, recall rate of 10 percent, PPV2 of 20 percent and PPV3 of 29 percent. Based on increasing age from 40 to 90 years old, these performance metrics demonstrated a gradual upward trend for cancer detection rate, PPV2 and PPV3, but a downward trend in recall rate.

"The continuing increase of cancer detection rate and positive predictive values in women between the ages of 75 and 90 does not provide evidence for age-based mammography cessation," Dr. Lee said.

The findings lend support to the argument that the decision whether or not to stop screening should be informed by an individual's personal health history and preferences.

"We know that the risk of breast cancer increases with age," Dr. Lee said. "With the uncertainty and controversy about what age to stop breast cancer screening, we addressed this gap in knowledge and have collected enough data to make a conclusion."

Co-authors on the study are Debapriya Sengupta, M.B.B.S., M.P.H., Judy Burleson, Mythreyi Bhargaven-Chatfield, Ph.D., Edward A. Sickles, M.D., Elizabeth S. Burnside, M.D., M.P.H., and Margarita L. Zuley, M.D.

Note: Copies of RSNA 2016 news releases and electronic images will be available online at [RSNA.org/press16](https://www.rsna.org/press16) beginning Monday, Nov. 28.

RSNA is an association of more than 54,000 radiologists, radiation oncologists, medical physicists and related scientists, promoting excellence in patient care and health care delivery through education, research and technologic innovation. The Society is based in Oak Brook, Ill. ([RSNA.org](https://www.rsna.org))

Editor's note: The data in these releases may differ from those in the published abstract and those actually presented at the meeting, as researchers continue to update their data right up until the meeting. To ensure you are using the most up-to-date information, please call the RSNA Newsroom at 1-312-791-6610.

For patient-friendly information on mammography, visit [RadiologyInfo.org](https://www.radiologyinfo.org).

Video (MP4):



**Video 1.** Woman with radiologic technologist during screening mammography exam

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**Video 2.** Woman with radiologic technologist during screening mammography exam

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**Video 3.** Radiologic technologist capturing mammography images

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**Video 4.** Radiologist reviewing mammography images

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**Video 5.** Cindy S. Lee, M.D., discusses why this new age-based mammography research is important.

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**Video 6.** Cindy S. Lee, M.D., discusses the findings of her research on age-based breast cancer screening.

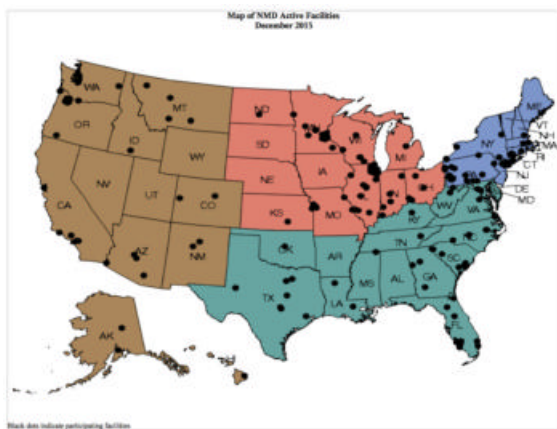
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**Video 7.** Cindy S. Lee, M.D., shares some advice for women approaching the implied “cut-off” age for mammography.

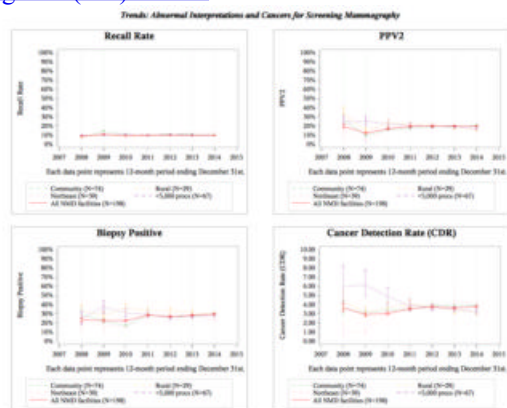
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Images (JPG, TIF):



**Figure 1.** As of December 2015, 410 mammography facilities in 39 states across the United States have already registered to be part of the National Mammography Database (NMD).

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**Figure 2.** An NMD feedback report summarizing recent performance using key metrics such as cancer detection rate, recall rate, and positive predictive values. As participants in the NMD, useful national and regional benchmarking data is received with detailed comparison at the individual and practice levels every 6 months, and shorter feedback reports every 3 months.

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