

# Frozen section analysis for breast cancer could save time, anxiety

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Mammograms showing a normal breast (left) and a breast with cancer (right).  
Credit: Public Domain

When diagnosed with breast cancer, women may have thousands of questions running through their minds, but one they may not have immediately is: Will my choice of provider save me time and money?

Mayo Clinic researchers have answered this question with what they believe are compelling statistics that may encourage women and their

doctors—and the [health care](#) system at large—to consider a different way of doing business, specifically with respect to lumpectomies as a treatment for [early-stage breast cancer](#).

The different way would be to use intraoperative frozen section analysis to determine whether the tumor was removed completely during the first surgery. Doing this in a widespread manner could save untold hours of lost work, anxiety and more for women and tens of millions of dollars. The full study was published online today in the *Journal of Oncology Practice*.

## **Mayo's use of frozen section analysis**

Frozen section analysis, which was pioneered at Mayo Clinic more than 100 years ago, is used in various surgeries at Mayo, including breast cancer lumpectomies. In a study published in 2014, Mayo Clinic patients having had frozen section analysis conducted were much less likely to require a second operation than those at other institutions using traditional surgery with post-surgical pathology reports.

"With the routine use of frozen section analysis of margins on Mayo Clinic's Rochester campus, we rarely—in only 3 to 5 percent of cases—require a second operation for margin re-excision," says first author Judy Boughey, M.D., a breast surgeon in the Mayo Clinic Cancer Center. "So, for over 95 percent of patients undergoing lumpectomy, only one operation is required."

The researchers identify a number of benefits to this approach. Having one surgery and being able to move on to follow-on treatments, such as chemotherapy or radiation, is preferable to waiting weeks for a pathology report and then needing another surgery 15 to 50 percent of the time.

Even if a woman does not require an additional surgery, she must wait for the final pathology results to know for sure. This creates unnecessary anxiety. A second or more surgeries add cost and potential complications for the patient. More surgeries add time and financial burdens on families and employers. Reducing the number of second operations enables surgeons to see more patients and lowers the cost of care across the health care system.

"Our surgery and pathology teams intrinsically knew that this relatively unique practice was not only best for patients but also saves costs", says co-author Elizabeth Habermann, Ph.D., scientific director of the Surgical Outcomes Program in the Mayo Clinic Robert D. and Patricia E. Kern Center for the Science of Health Care Delivery. "This research shows how the whole care episode must be considered when determining total cost and value of a health service."

## **How much is it worth?**

"Just how much could be saved?" was the question the researchers sought to answer in this study. They used a baseline assumption that an average of 35 percent of initial lumpectomies without frozen section analysis require reoperation. Coupled with some complex analyses, the researchers determined that the potential annual cost savings would be \$18.2 million to payers and \$400,000 to providers if frozen section margin analysis would be used in 20 percent of breast lumpectomies.

If all facilities providing lumpectomies adopt the use of frozen section margin analysis, the potential annual cost savings (using an average 35 percent reoperation rate) is \$90.9 million to payers and \$1.8 million to providers. These figures do not calculate lost income, productivity and other direct or indirect costs for the patient and her community.

For patients, the research team thinks the answer is obvious: Choose a

provider who offers intraoperative frozen section margin analysis. Currently very few centers have this capability, but the researchers hope this will change. For surgical centers, they recommend considering adding this capability.

"The addition of intraoperative frozen section margin analysis at institutions not already incorporating it could be cost effective for the center and decrease the societal cost of care for breast cancer—a triple win for patients, providers and payers," says Dr. Habermann.

"We all want the optimal outcome for the patient," says Dr. Boughey. "With the lowest reoperation rates, frozen section margin analysis is a game changer for [breast cancer](#) patients."

Provided by Mayo Clinic

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