

Study indicates results of many breast biopsies may be in error

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Women who have breast biopsies to diagnose cancer might want to think twice about the results of the procedures, according to a new study led by University of Washington researchers.

Pathologists across the U.S. being tested for their accuracy got the same results as a panel of experts only about 75 percent of the time, a variability in opinion that could have a direct effect on the way women are treated - or not - for potential [breast cancer](#).

About 1.6 million women in the U.S. have [breast biopsies](#) each year, and about 80 percent come back normal. But the remaining results may not be as valid as expected, said Dr. Joann G. Elmore, a UW professor of general medicine and epidemiology who led the study published Tuesday in the *Journal of the American Medical Association (JAMA)*.

"We are perhaps doing some biopsies thinking that it will provide a definitive guidance, and our study shows that might not be the case," Elmore said.

Overall, the [pathologists](#) from across the country were very good at identifying [invasive breast cancer](#) - the most serious diagnosis - agreeing with the [expert panel](#) in about 96 percent of cases.

But when it came to diagnosing ductal carcinoma in situ, or DCIS, a noninvasive condition, they were in line with the experts about 87 percent of the time. And with atypical ductal hyperplasia, in which

abnormal cells are detected, the pathologists matched the experts 48 percent - less than half - of the time.

"I was reassured by the high quality of U.S. physicians in diagnosing invasive cancer," said Elmore. "I was surprised by the high level of disagreement in atypia and DCIS."

The new study provides the first updated analysis of pathologist disagreement since the 1990s.

Elmore and her colleagues, including scientists at Seattle's Fred Hutchinson Cancer Research Center, compared the findings of 115 pathologists from eight states - Alaska, Maine, Minnesota, New Hampshire, New Mexico, Oregon, Vermont and Washington - with the results of an expert panel between November 2011 and May 2014.

The participating pathologists were randomly assigned to review one of four test sets of 60 breast biopsy slides, offering a diagnosis for each case. The slides were weighted to include more than expected cases of atypia and DCIS, cases from women aged 40 to 49 and women with dense breast tissue, because age and density are important risk factors for both benign breast disease and cancer, the study said.

Compared with the experts, the pathologists under-interpreted, or missed, about 4 percent of invasive carcinoma, about 13 percent of DCIS cases and about 35 percent of atypia cases, researchers found. They over-identified atypia in about 17 percent of cases, DCIS in 3 percent of cases and benign breast disease without atypia in 13 percent of cases.

The disagreement was higher among pathologists who interpret fewer cases each week and those who worked in smaller practices or nonacademic settings.

Such inaccurate findings could have direct impact on women's care, said Dr. H. Gilbert Welch, a professor of medicine at Dartmouth University who was not involved in the study. Of the DCIS cases identified by the pathologists, about 18 percent were actually not DCIS, which is typically treated in the same way as [invasive carcinoma](#).

That means that, based on the diagnoses, many women would be advised to undergo lumpectomy, mastectomy and other treatments that weren't actually warranted, said Welch, the author of the new book "Less Medicine, More Health: 7 Assumptions that Drive Too Much Medical Care."

"Pathological disagreement is still a problem in the modern century," Welch said.

The potential for disagreement worries women like Abby Howell, 57, of Seattle, who underwent two biopsies in 2013 after a mammogram suggested atypia. Howell was offered the option of watchful waiting, in which she would have received more frequent mammograms, but like many women wanting quick action, she opted for the needle biopsies.

The results didn't ease her mind, however. After procedures, which were painful and otherwise difficult for her, one test came back clear, while the other showed atypical cells. A surgeon suggested that Howell undergo an excisional biopsy, which would have removed more tissue. She said no-and now wishes she had skipped the procedures entirely.

"If I had to do it all over again, I would never get a biopsy," said Howell, who is cancer-free and has continued to monitor her progress with mammography. "I got a biopsy because I was trying to ease my anxiety and it did the exact opposite."

The new study suggests that [women](#) given the option of watchful waiting

or having biopsies might want to delay, especially for certain diagnoses, Elmore said. It's reasonable to seek a second opinion about whether a biopsy is necessary - or about the results of completed biopsies - before moving forward.

"If you're told that it's atypia or DCIS, there's no need to jump into treatment," Elmore said. "Women should pause, take a deep breath and realize they're lucky they weren't given the diagnosis of invasive cancer."

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