

# What's the best way to treat women with stage 0 breast cancer?

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Dr. Shelley Hwang, MD, MPH, specializes in the diagnosis and treatment of early-stage breast cancer.

Active surveillance could be a viable alternative to surgery and radiation for select patients with ductal carcinoma in situ, or DCIS, according to a mathematical model developed by researchers at Duke University.

The watch-and-wait approach shows particular relevance to [older women](#) and those with additional serious health problems.

Publishing in the Dec. 16, 2015, issue of the *Journal of the National Cancer Institute*, the Duke researchers noted that accurate staging at the time of diagnosis would markedly improve any [active surveillance](#)

approach for DCIS.

"We currently lack the ability to determine whether the clusters of cells diagnosed as DCIS will remain harmless or progress," said senior author E. Shelley Hwang, M.D., chief of breast surgery at Duke Cancer Institute. "As a result, we treat them all upon diagnosis as if they are [invasive cancer](#), using a combination of surgery, radiation and hormonal therapy.

"There is growing concern that we may be causing harm by using aggressive procedures for some conditions that may never cause illness or death," Hwang said. "Our study was designed to provide some guidance for an alternative approach."

More than 50,000 women a year in the United States are diagnosed with DCIS, which is considered the earliest form of breast [cancer](#), and most women who are diagnosed - 97 percent - undergo aggressive treatment. It is unknown how many of those diagnoses would have progressed to invasive cancer had they not been treated; estimates range from 20 percent to 50 percent.

The biggest hurdle to understanding that risk is a lack of [clinical trials](#) in which women diagnosed with DCIS are randomly assigned to either receive current treatment or active surveillance.

To fill that void, at least partially, the Duke team set about building a [mathematical model](#) to determine when active surveillance might be a viable alternative, using data from the Surveillance, Epidemiology, and End Results (SEER) Program of the National Cancer Institute.

Hwang and colleagues, including mathematicians and biostatisticians, created a risk projection model for mortality from all causes among women in different age groups, presenting their results for ages 39-41;

54-56; and 69-71.

The researchers used the projection model to evaluate how active surveillance would compare to usual treatment as a risk for death, relying on current estimates of disease progression, screening accuracy and other variables.

Active surveillance for DCIS added no heightened risk of death for women ages 69-71 compared to current cancer treatment of DCIS, and it was nearly six times less lethal than other competing health conditions in this age group. As a result, active surveillance could be especially beneficial to older women who have serious health conditions such as heart disease.

For younger women - those between the ages of 39 to 41 - active surveillance did pose a substantial risk over usual care.

Women in the 54-56 age group were found to have a small elevated risk of breast cancer death with an active surveillance approach compared to usual care, but active surveillance posed no greater risk than other potential causes of death.

The findings could be used to help design a clinical trial in which active surveillance is tested against the usual treatment.

"In the absence of clinical trial data, the best we can do is aggregate relevant available evidence to develop mathematical models to calculate best-possible estimates for the outcomes of active surveillance," said lead author Marc Ryser, Ph.D., a visiting scholar at Duke. "Our model suggests that active surveillance may be a rational trade-off for carefully selected patients with DCIS. We hope that this model will help provide additional support for a clinical trial to test whether this is true for some patients."

Hwang added that the projection models depend on screening frequency, diagnostic accuracy, and screening sensitivity.

"The ability to rule out concurrent invasive cancer at diagnosis is most critical for reducing mortality," Hwang said. "We need more accurate biopsy techniques and improved imaging modalities, and these will increase the effectiveness of all treatment approaches."

**More information:** Marc D. Ryser et al. Outcomes of Active Surveillance for Ductal Carcinoma in Situ: A Computational Risk Analysis, *Journal of the National Cancer Institute* (2015). [DOI: 10.1093/jnci/djv372](https://doi.org/10.1093/jnci/djv372)

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