

# Surgery may offer survival advantage in certain metastatic breast cancers

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Surgery, in addition to treatments like chemotherapy and radiation therapy, may increase the length of survival for metastatic breast cancer patients, according to Penn State College of Medicine and Penn State Cancer Institute researchers. They studied nearly 13,000 stage four breast cancer patients and found that those who had surgery in addition to their other treatments had a survival advantage over those who had other treatments alone.

Stage four [breast cancer](#) accounts for 6% of newly diagnosed breast cancer cases. Systemic [therapy](#), which may include treatments like chemotherapy, hormone therapies and immunotherapies, is routinely part of treatment plans for those patients. The benefits of surgery to remove the primary breast cancer are currently only recommended for relieving symptoms of advanced breast cancer such as pain and bleeding.

Surgery is the standard of care for some other types of cancers that have spread from the site of origin to another part of the body, known as metastatic cancers. Dr. Kelly Stahl, surgical resident and lead author of the study published in

the *Annals of Surgical Oncology*, said that previous studies evaluating surgical interventions for metastatic breast cancer had conflicting results which has led to a lack of consensus among clinicians and researchers.

"Results from previous trials evaluating surgical benefit in metastatic breast cancer patients have been questioned because of the small number of participants or the fact that patients weren't also receiving chemotherapy or other systemic therapies," Stahl said. "We felt another key factor missing from those studies was whether the biologic subtype of breast cancer affected the survival rates in relation to surgical intervention."

Stahl worked with Dr. Daleela Dodge and Chan Shen to identify 12,838 stage four breast cancer patients from the National Cancer Database from 2010-2015 and whether these patients' cancer cells had a growth-promoting protein called HER2 and [hormone receptors](#) for estrogen and progesterone, which can fuel cancer growth. The researchers said knowing these characteristics of a cancer's biological subtype can help determine which treatment plans may be effective.

Stahl studied patients who either had systemic therapy alone, had systemic therapy and surgery, or had systemic therapy, surgery and radiation. She and her coauthors then evaluated whether certain biologic subtypes and timing of chemotherapy were associated with survival advantages.

"We evaluated whether the hormone status had an influence on surgical benefit in these treatment-responsive breast cancer patients," said Dodge, an associate professor of surgery and humanities. "Some types of breast cancer, especially like triple negative, where the cancer is hormone receptor and HER2 negative, are not very responsive to treatment. So our goal was to see if surgery made a difference in metastatic breast cancers that were responsive to treatment."

The researchers excluded patients who died within six months of their diagnoses, in order to ensure that treatment-responsive cancers were being studied. They found that patients with a surgical intervention tended to have a longer length of survival compared to patients with other treatment plans. Patients whose cancers were HER2 positive especially saw prolonged survival when their treatment plan included surgery.

Provided by Pennsylvania State University

Stahl and her coauthors further analyzed the patients who received surgery to see whether receiving chemotherapy before or after surgery had an impact on their length of survival. They found that regardless of hormone receptor or HER2 status, patients who received systemic therapy—including chemotherapy and targeted treatments—before surgery tended to live longer than those who had surgery before systemic treatment.

"Not only did we find that surgery may be beneficial for treatment-responsive metastatic breast cancer patients, we also uncovered that getting chemotherapy before that surgery had the greatest survival advantage in patients with positive HER2 and estrogen and progesterone receptor status," said Shen, associate professor of surgery.

The researchers said that randomized, controlled trials evaluating the role of surgery after systemic therapy in a younger demographic with minimally metastatic cancers could be used to confirm their results, but said that patient resistance to randomization in trials like this have resulted in poor study recruitment. Therefore, they encourage clinicians to evaluate real-world evidence, including their study, to choose optimal treatment for [metastatic breast cancer](#) patients.

"Stage four [breast cancer patients](#) who are responsive to [systemic therapy](#) may be able to benefit from the addition of [surgery](#) regardless of their biologic subtype," Stahl said.

**More information:** Kelly Stahl et al, ASO Author Reflections: Surgery Offers Survival Advantage in Treatment-Responsive Metastatic Breast Cancer, *Annals of Surgical Oncology* (2020). DOI: [10.1245/s10434-020-09286-9](https://doi.org/10.1245/s10434-020-09286-9)

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