

## Monitoring Response to Neoadjuvant Systemic Therapy for Breast Cancer

When a patient has a confirmed diagnosis of invasive breast cancer, the patient may receive chemotherapy ahead of surgery. This is called neoadjuvant therapy and is used to shrink tumors before they are removed surgically. It also treats cancer that has spread (metastasized). Imaging tests before and during neoadjuvant treatment can help guide treatment decisions.

- Mammography (<https://www.radiologyinfo.org/en/info/mammo>) , digital breast tomosynthesis (DBT) (<https://www.radiologyinfo.org/en/info/tomosynthesis>) , and breast ultrasound (US) (<https://www.radiologyinfo.org/en/info/breastus>) are used together to determine tumor size at the beginning of neoadjuvant treatment, changes in tumor size during treatment, and at the end of treatment. US is more accurate than mammography and DBT at determining tumor size after treatment, especially if the remaining tumor is larger than 7 mm. US is also used to determine if cancer cells have spread to the lymph nodes near the breast (the axilla). During and after neoadjuvant treatment, US can be used to see if cancer in the lymph nodes is responding to chemotherapy.
- MRI (<https://www.radiologyinfo.org/en/info/breastmr>) without and with intravenous contrast media is used before treatment to evaluate for multiple tumors in dense breast tissue and to evaluate response to neoadjuvant chemotherapy. MRI can also assess for tumor-containing lymph nodes in the chest.
- Fluorodeoxyglucose PET with CT (<https://www.radiologyinfo.org/en/info/pet>) or CT of the chest, abdomen, and pelvis with intravenous contrast and a bone scan are used when there is suspicion that cancer has spread outside the chest.

For more information, see the Breast Cancer Treatment (<https://www.radiologyinfo.org/en/info/breast-cancer-therapy>) page.

— By Casey Quinlan and Jennifer W. Uyeda, MD. This information originally appeared in the *Journal of the American College of Radiology*.

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