



Understanding INTRABEAM Intraoperative Radiation Therapy for Breast Cancer

A patient guide

A diagnosis of breast cancer is never easy, but today there are more treatment options than ever before.



A breast cancer diagnosis can be stressful and emotional. It may feel like events are happening quickly and you have not had enough time to prepare for what's to come. This guide is to help you understand your options and facilitate discussions with your physician.

During this time, it is important to have the advice and support of your breast care team along with information you need to make an informed decision.

If you have been diagnosed with early stage breast cancer, your doctor may recommend breast-conserving surgery, also known as lumpectomy.

The purpose of a lumpectomy is to remove the diseased breast tissue and a small surrounding margin of unaffected cells. This contrasts with the more radical full breast removal, or mastectomy.



Typically, doctors may prescribe whole-breast radiation therapy after a lumpectomy. Breast-conserving surgery followed by whole-breast radiation therapy (WBRT) has been shown to be an effective alternative to mastectomy for women with early stage breast cancer. Radiation is administered to destroy any remaining cancer cells, to help reduce the chances of a cancer recurrence.

For the past 20 years, whole-breast radiation therapy has been the conventional treatment prescribed after a lumpectomy.

Today, radiation can be delivered during breast-conserving surgery

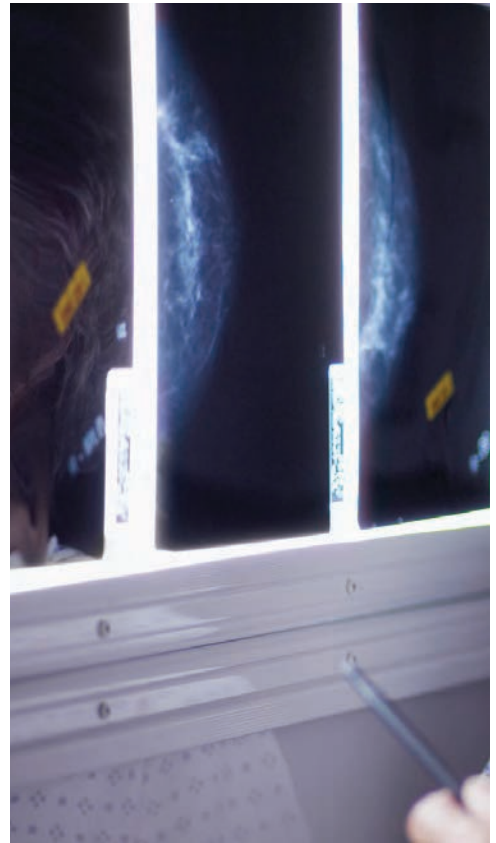


Figure 1. Linear accelerator used to deliver conventional external beam radiation.

Conventional radiation therapy (*figure 1*), generally referred to as whole-breast radiation therapy (WBRT), is delivered using a linear accelerator. This radiation delivery method produces a beam of high-energy radiation directed toward the entire breast. Patients are typically treated five days a week during a five or six week period, starting about a month after cancer surgery.

While WBRT has been shown to be highly successful in keeping cancer from returning, the benefits can be associated with a range of potential side effects. The most common side effect can be fatigue. You may also experience some dryness, itching, swelling and skin color changes in the area receiving the radiation. There is also radiation delivered to nearby healthy tissue and organs. Ask your radiation oncologist to explain what symptoms may occur when receiving WBRT.



Today there is a single-fraction radiotherapy option.

You may have the option to receive an important new radiation treatment option called INTRABEAM® intraoperative radiation therapy or IORT (*figure 2*). This innovative therapy is administered at the time of lumpectomy, following tumor removal. INTRABEAM IORT is delivered using a miniaturized radiation device inserted into the lumpectomy incision. Therapeutic radiation is then directed immediately and precisely right where it is needed most – the location where the cancer was removed. Localizing the radiation inside the breast is effective because this is where the cancer is most likely to recur. INTRABEAM IORT is delivered as a 20- to 30-minute treatment during surgery. This treatment option also minimizes radiation exposure to healthy tissue and organs.



Figure 2. INTRABEAM system used for delivery of intraoperative radiotherapy.

Intrabeam Targeted Intraoperative Radiation Therapy

How effective is INTRABEAM IORT?

In 1998, a group of international researchers began investigating this method of radiotherapy delivery for breast cancer. The primary study tested the effectiveness of an intraoperative dose of radiation delivered using the INTRABEAM System compared with up to six weeks of conventional external beam radiation treatment (EBRT) for early stage breast cancer. The results of the trial were first presented in 2010 and show the overall number of cancer recurrences for both the EBRT and IORT patients were very similar.^{1,2} Ask your physician about the significant results from the trial named TARGIT-A, including complications.

How is INTRABEAM radiotherapy administered?

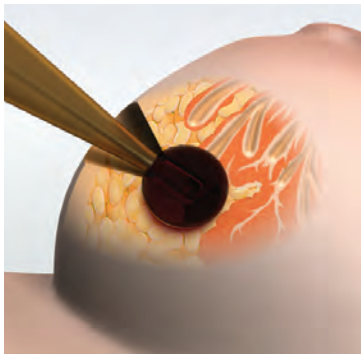
INTRABEAM IORT is delivered during breast-conserving surgery in the operating room while the patient is still asleep. Radiation is typically delivered for 20- to 30-minutes. The treatment is delivered inside the lumpectomy cavity which minimizes radiation exposure to healthy tissue and organs.

Is INTRABEAM IORT right for me?

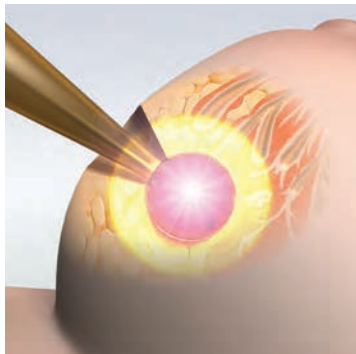
For many women, INTRABEAM IORT is a viable treatment option. The physicians coordinating your breast conservation therapy will determine whether INTRABEAM radiotherapy is an appropriate treatment for your type of cancer.

What if I have been prescribed whole-breast radiation?

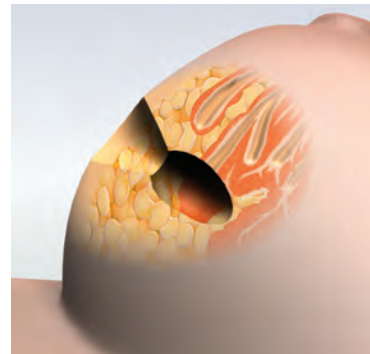
Some women undergoing conventional radiation treatment may have the choice of receiving INTRABEAM radiotherapy as a boost dose during cancer surgery, before the start of external radiation. This initial boost dose of radiation can be used in conjunction with standard course of external breast radiation.



STEP 1. After the surgeon removes the cancer, the radiation oncologist positions the INTRABEAM applicator within lumpectomy incision.



STEP 2. Radiation is delivered locally, resulting in less damage to healthy tissue.



STEP 3. Following a 20- to 30-minute treatment, the applicator is removed. The surgeon then closes the incision, and the patient is brought to the recovery room.



A growing number of patients with small, early stage tumors are eligible to receive INTRABEAM IORT. Talk to your physician about radiation therapy delivered during surgery. It could help you get back to your normal routine.

For more information, contact Sutter Cancer Center Patient Navigator at (916) 459-6913 or go to sutterccancer.org.

¹ Vaidya JS, Wenz F, Bulsara M, et al. Targeted intraoperative radiotherapy for early breast cancer: TARGIT-A trial—updated analysis of local recurrence and first analysis of survival Abstract S 4-2, published in: *CancerRes*; 72(24 Suppl.) December 15, 2012 100s.

² Vaidya JS, Joseph DJ, Tobias JS et al. Targeted intraoperative radiotherapy versus whole breast radiotherapy for breast cancer(TARGIT-A trial): an international, prospective, randomized, non-inferiority phase 3 trial. *Lancet*. 2010;376:91-102



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