What is IORT?
Intraoperative radiation therapy (IORT) delivers a concentrated dose of radiation therapy to a tumor bed during surgery. This advanced technology may help kill microscopic disease, reduce radiation treatment times or provide an added radiation "boost."

How is intraoperative radiation therapy used to treat breast cancer?
In treating breast cancer, IORT is used in patients who have had a lumpectomy (removal of a tumor from the breast), rather than a mastectomy (removal of the entire breast). The IORT device delivers low-energy, high-dose radiation directly to the tumor bed (the cavity left after the tumor has been removed from the breast) in the operating room, right after the tumor has been removed.

After the lumpectomy, a spherical applicator on the IORT device is placed directly into the tumor bed and delivers a smaller dose of x-rays than is delivered in standard radiation therapy. The IORT treatment usually takes about 30 minutes.

Advantages of IORT
Typically, standard radiation therapy involves five days of treatment per week, for a total of five to six weeks for some patients. With IORT, our radiation oncologists can deliver a similar dose of radiation in a single treatment session, while also preserving more healthy tissue. This helps to reduce side effects and the time spent going back and forth to the hospital for radiation treatments.

IORT offers some of the following advantages:

• **Maximum effect.** IORT delivers a concentrated dose of radiation to a tumor site immediately after a tumor is removed, helping to destroy the microscopic tumor cells that may be left behind. The tumor site is typically at high risk for recurrence and traditional radiation therapy requires a recovery period after surgery, which leaves microscopic disease in the body for longer.

• **Spares healthy tissues and organs.** During IORT, a precise radiation dose is applied while shielding healthy tissues or structures, such as the skin, that could be damaged using other techniques. This allows a higher radiation dose to be delivered to the tumor bed, while sparing normal surrounding tissues. Critical organs within the radiation field, such as the lungs or heart, can also be protected.

• **Shortened treatment times.** IORT may help some patients finish treatment and get back to their lives quicker by reducing the need for additional radiation therapy, which is typically given over five to six weeks. The IORT treatment itself takes about four to five minutes.

• **A "boost" for traditional radiation patients.** Patients who must receive additional radiation therapy following surgery can receive a boost of radiation during IORT. After they have recovered from the surgical procedure, they can continue with their radiation treatments, with typically fewer complications.

Side effects of treatment are similar to those of whole breast radiation and can include skin redness and irritation in the treated area, which often improves after treatment is complete.

Who is a candidate for IORT?
IORT is not the best option for everyone. Patients who may most benefit from IORT for breast cancer are over the age of 60 (or age 50 -60 based on individualized discussion) and have early stage breast cancer that has not spread. Your doctor will discuss whether IORT is an appropriate treatment option for you, based on your individual diagnosis and preferences.