

**INTRABEAM** Intraoperative Radiation Therapy for Breast Cancer



Powerful. Immediate. Precise.



## Breast Cancer: Hope...and Decisions

A tiny shadow on a mammogram casts a major shadow on a woman's life. But when breast cancer is the diagnosis, today many women go on to defeat the disease and live long, healthy lives—thanks to a rapidly growing range of advanced new treatments.

With medical science's ever-increasing understanding of the disease, now therapies can be carefully fine-tuned to address a woman's particular cancer profile, maximizing the positive impact while preserving quality-of-life.

If your doctor has shared this brochure with you, likely you are one of the tens of thousands of women diagnosed each year with early stage breast cancer. The good news is that your chance of a complete cure is significant, and you are a candidate for a range of highly effective and targeted treatments.

This brochure will inform you about a new type of radiation therapy which is available to women with your early stage disease who are candidates for breast conserving surgery. A growing number of women eligible for this option choose this innovative, single-treatment radiation therapy—delivered internally while you are still on the operating table—with some important benefits over a six and one-half week course of conventional external radiation therapy.

Your journey with breast cancer will not be easy, and you will face many decisions. Our goal is to make sure you are ready to face this one with accurate information and a sound understanding.



## Breast Conserving Surgery and Conventional External Radiation Therapy

Unlike the more radical surgeries of the past, today early stage breast cancer is frequently treated with breast conserving surgery, often called lumpectomy. This procedure removes only the diseased breast tissue, surrounded by a margin of unaffected cells. Radiation therapy following surgery is typically an important part of this less invasive treatment, helping to destroy any remaining cancer cells and prevent local disease recurrence.



Today, many women have the option to choose between two radiation therapy approaches:

**External radiation**, typically called whole breast radiation therapy (WBRT), is delivered from outside the body to the entire breast and the specific cancer site. This approach requires high-energy x-rays to penetrate exterior tissue to reach the surgical excision site and is typically delivered 5 days a week for a 6-1/2 week period.

**Internal radiation** can be delivered during surgery (intraoperatively) directly to the cancer site in a single, precise, low-energy dose or as an alternative to specific WBRT treatments in your regime.

Traditionally, women receive radiation five days each week for about six weeks, starting about four weeks after their cancer surgery. High energy radioactive rays, delivered externally, must pass through layers of healthy tissue to reach their target deep inside the body in the tumor bed, putting non-diseased tissue and even major organs at some risk.

Conventional radiation treatments are typically delivered in hospitals or specialized cancer centers in lead-shielded rooms using linear accelerators weighing up to 20 tons. Depending on where you live, you may have to travel a long distance to a therapy site. Moreover, many women have reported significant psychological stress waiting for radiation treatments to begin.

For the past 20 years, conventional radiation therapy has proven highly successful in preventing local cancer recurrence. However, the benefits come with possible side effects, including damage to healthy tissue, redness and soreness of the skin, permanent changes in skin color, fatigue, breast fibromas and delayed wound healing.

## INTRABEAM - Internal Radiation Therapy Targeting the Tumor Site

Today, women have an important new option for radiation therapy. INTRABEAM intraoperative radiation therapy administers carefully controlled, low-dose therapeutic x-rays internally—precisely and powerfully—right to the tumor site where it is needed.

INTRABEAM therapy is delivered in a single 20 to 30 minute dose through the surgical incision while the patient is still in the operating room immediately after the tumor is removed. This innovative treatment replaces all conventional external treatments and minimizes or eliminates radiation exposure of healthy breast tissue, the chest cavity and underlying organs.



Many women also are reassured to find that because it is administered on site in the operating room, their breast surgeon will remain an integral part of the therapy, and they need not confront yet another unfamiliar medical facility and treatment team.

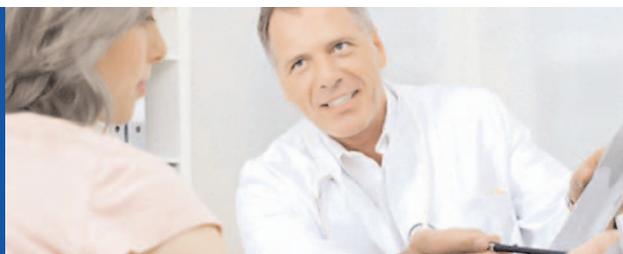
Breakthrough intraoperative radiation is enabled by the new INTRABEAM radiation delivery system that has successfully miniaturized the technology that generates therapeutic radiation and directs it to a precise site within the breast. With INTRABEAM, for the first time, a mobile device can bring radiation therapy right into the operating room. A significant body of research, including a study published in the prestigious medical journal *The Lancet*, demonstrates that this single 20 to 30 minute internal treatment can be as effective in reducing the rate of breast cancer recurrence in certain women as the conventional course of external radiation delivered with a linear accelerator. INTRABEAM received FDA clearance in 1999 and has been in use since that time.

### INTRABEAM – Powerful, Immediate, Precise

- Powerful radiation therapy validated by extensive clinical research.
- Immediate radiation treatment provided during surgery.
- Precisely targeted radiation delivered internally directly into the tumor bed.
- Elimination of post-surgical 6-1/2 week course of external radiation therapy.
- Or, when administered as a boost dose, reduction of treatment time.
- Less risk of radiation exposure to healthy tissue.
- Minimal risk of skin irritation.
- Elimination of treatment delay for patients undergoing chemotherapy.

## INTRABEAM for Women Receiving Whole Breast Irradiation

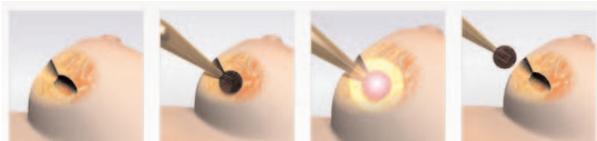
Depending on the profile of your cancer, your physician may feel a course of conventional external radiation treatments may be most beneficial for you. However, you still have the option of benefitting from INTRABEAM's target-



ed internal radiation protocol. Along with a series of external treatments targeting a broader area of the breast, typically conventional radiation therapy includes an external *boost* dose, targeting the tumor

site with strong, focused therapy at the conclusion of your treatment series. Now, women have the option of receiving this boost dose immediately and internally, using INTRABEAM during cancer surgery, before conventional external radiation treatment begins. In this application, INTRABEAM delivers benefits similar to single-dose therapy—immediate, precise tumor targeting with less radiation exposure to surrounding healthy tissue. It also reduces total radiation therapy time by five to eight days. For many women, undergoing WBRT, INTRABEAM boost therapy is an excellent option.

### INTRABEAM — Immediate, Effective Therapy



INTRABEAM therapy is delivered during breast cancer surgery.

After the surgeon removes your tumor, the radiation oncologist positions the INTRABEAM applicator precisely into the excision site.

Low-energy radiation is delivered locally, minimizing exposure of healthy tissue.

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





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