

## Frequently Asked Questions

### 1. How does radiation kill cancer?

Cancer is made of abnormal cells that tend to grow without control. Because cancer cell DNA is more sensitive to radiation than normal cells, radiation can kill cancer cells directly when the cells attempt to multiply and grow. Normal, healthy cells on the other hand are better able to repair and recover from any radiation exposure.

### 2. What is Brachytherapy?

The prefix “brachy” is the Greek word for “short” distance. Brachytherapy is a form of radiation treatment where radioactive sources are placed in or near cancerous tissues.

### 3. What is High Dose Rate (HDR) Brachytherapy?

HDR brachytherapy is a technically advanced form of brachytherapy. A high intensity radiation source is delivered with millimeter precision under computer guidance directly into the tumor killing it from the inside out while avoiding injury to surrounding normal healthy tissue.

### 4. How successful is HDR Brachytherapy?

Our data has shown that accelerated partial breast irradiation is a safe and effective form of breast cancer treatment. Local control rates of breast cancer are equivalent to those of patients who received whole breast radiation and better than those who have received lumpectomy alone.

### 5. Why is HDR less well known than other forms of cancer treatment?

HDR brachytherapy is an advanced form of radiation technology. There are fewer physicians that have been trained to perform HDR procedures compared to external beam radiation. CET is proud to be one of the few centers that is solely dedicated to the development of HDR brachytherapy.



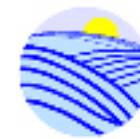
Barnaba, NP    Demanes, MD    Hill, MD



## CET Cancer Center

- California Endocurietherapy Cancer Center (CET) is the first brachytherapy only center in the United States.
- Founded by D. Jeffrey Demanes, M.D. in 1981.
- Dedicated solely to High Dose Rate (HDR) brachytherapy since 1991.
- Most experienced HDR brachytherapy center in the country.
- Over 8,500 implants performed and over 17,000 treatments delivered.
- A training destination for physicians and residents.
- Innovations in HDR brachytherapy equipment design and protocol development.
- Dedicated to long-term patient follow-up, outcome studies, and publications in medical journals.

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## CET Cancer Center

Founded by D. Jeffrey Demanes, M.D. in 1981

High Dose Rate Brachytherapy Specialists  
26 years of brachytherapy experience

## Breast Cancer Treatment



Know all your options...

# Breast Cancer and HDR Brachytherapy

## Know all your options....

Increasingly, women are deciding to have treatment of breast cancer using a safe and effective form of radiation therapy known as “breast brachytherapy”. This method of therapy, which delivers radiation directly into a tumor site from the inside out, has many substantial benefits:

- **Effective** treatment with a proven **high success** rate.
- **Saves** most of the normal breast tissue.
- **Preserves** the cosmetic appearance of the breast.
- **Avoids** the physical and emotional trauma of extensive breast removal surgery.
- Provides the **quickest** (1 wk vs. 7 wks with EBRT), and most **precise** way to deliver radiation to the target.
- **No hospital stay** is required (treatment is given on an outpatient basis).

Traditionally, radiation has been administered to a patient’s “entire” breast (whole breast radiation) via external beam radiation therapy (EBRT). EBRT treatment is delivered to the tumor site via a radioactive beam from outside the patient’s body on a daily basis over an approximate 7 week time period. Recent studies have however shown

that in most cases, partial breast irradiation (PBI), which limits radiation to just part of the breast, is equally effective and gives less radiation to surrounding healthy breast tissue.

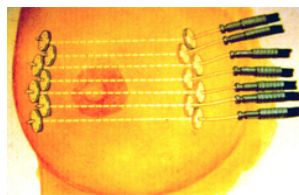
High dose rate (HDR) brachytherapy is a highly successful treatment modality for PBI. It is usually administered as a complete course given twice a day for a total of 5 days on an outpatient basis. There are two methods of brachytherapy. One is known as Tube and Button and the other is referred to as Balloon Catheter or Mammosite.



## What to expect during the HDR Brachytherapy breast treatment?

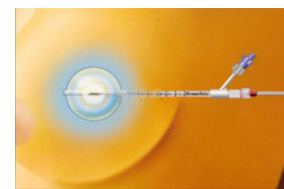
While each procedure will be tailored to the individual patient’s needs, the following is a typical sequence that a patient can expect during her treatment.

- The illness must first be diagnosed by biopsy of a breast lump or abnormal area on a mammogram. Then, instead of a mastectomy (surgical removal of the entire breast), treatment begins with a more limited surgical procedure (lumpectomy) to remove only the abnormal tissue.
- Next, comes a selection of the type of local radiation therapy and determination whether other measures such as hormones or chemotherapy are needed. If the tumor is small (3 cm or about an inch and a half or less), only the area where the tumor was removed needs to be treated.
- Depending upon the size and location of the tumor in relationship to the size and shape of the breast, your physician will recommend which method of brachytherapy (tube and button or balloon catheter/mammosite) is best suited for you.



is connected to a radiation treatment machine (afterloader) that directs a tiny radioactive source through the tubes and exposes the tissue with radiation according to a pre-determined dose plan. This method is technically applicable to virtually any patient who is a candidate for partial breast radiation.

**Tube and Button:** a series of thin tubes or catheters are placed temporarily through the breast tissue in and around the lumpectomy site. Each catheter



### Balloon Catheter/Mammosite:

a small soft balloon attached to a thin catheter tube is placed inside the lumpectomy cavity. The catheter is attached to a radiation

treatment machine (afterloader) that directs a tiny radioactive source with millimeter precision into the center of the balloon, just as with the tube and button device. The balloon catheter method is most applicable to patients with smaller breast cancers. The balloon must fit correctly into the region of the lumpectomy and not come too close to the skin’s surface.

- In either case, after the applicator is properly inserted into the region of the tumor, treatment is delivered on an outpatient basis over 5 days. Upon completion the applicator is removed in the office and therapy is complete.

## Who’s a Candidate for HDR Brachytherapy?

There are 3 types of breast cancer patients who qualify for HDR brachytherapy:

1. Patients who have early stage breast cancer.
  - Tumor is 3cm or less.
  - 0 to 3 lymph nodes positive for disease.
  - Invasive cancer or DCIS (ductal cancer in situ).
2. Patients who have locally more advanced breast disease (no metastasis; Tube and Button Only).
  - No prior history of radiation treatment for breast cancer.
  - Tumors may or may not be fixed to the chest wall.
3. Patients who have recurrent breast cancer to the chest wall (Tube and Button Only).

## What are the acute side effects?

Side effects are generally limited. Some women have experienced bruising, redness and some discomfort. These side effects are common in breast surgery and radiation treatment and are usually gone 2-4 weeks after treatment. More detailed information will be provided during consultation.