

External beam partial breast irradiation most cost-effective treatment

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External beam partial breast irradiation (EB-PBI) is the most cost-effective method for treating postmenopausal women with early-stage breast cancer based on utilities, recurrence risks and costs when compared to whole breast radiotherapy (WBRT) and brachytherapy partial breast irradiation (brachy-PBI), according to a study in the June 1 issue of the *International Journal of Radiation Oncology*Biophysics*Physics*, the official journal of the American Society for Radiation Oncology (ASTRO).

PBI is a newer form of radiation therapy for breast cancer where only part of the breast is treated twice a day for four to five days. Radiation oncologists have been studying different methods to deliver the radiation to the tumor. EB-PBI uses high-energy external [X-rays](#) to deliver radiation to the breast after a [lumpectomy](#) and brachy-PBI delivers radiation through either implanted needles or a small sphere placed into the post-lumpectomy cavity in the breast.

Whole breast radiation therapy is currently the standard of care, but it is a more time-consuming treatment, as it involves five to seven weeks of daily treatments using a linear accelerator to deliver X-rays to the tumor site. While the convenience of receiving radiation for one week instead of five to seven weeks is obvious, the cost-effectiveness of the different methods of treatment has never been analyzed. Doctors are also still examining long-term data to see whether partial breast irradiation is as effective at curing the cancer as whole breast radiation.

In a previous study, researchers at the Harvard Radiation Oncology Program, the Dana-Farber Cancer Institute and Brigham and Women's Hospital Department of Radiation Oncology, and the Massachusetts General Hospital Department of [Radiation Oncology](#), all in Boston, and the Brandeis University Heller School for Social Policy and Management in Waltham, Mass., determined that under most circumstances, the quality-adjusted life expectancy was higher in patients receiving PBI than WBRT. In this study, they sought to determine if PBI is better from a cost standpoint.

"According to the American Cancer Society, almost 200,000 women will be diagnosed with breast cancer in 2009. Given this high prevalence, resource-conscious healthcare systems may want to consider cost-effectiveness when deciding on appropriate adjuvant therapies for patients with early-stage breast cancer," Rinaa Punglia, M.D., M.P.H., senior author of the study and a radiation oncologist at Dana-Farber Cancer Institute and Brigham and Women's Hospital, said.

EB-PBI was significantly more cost-effective than WBRT, although WBRT was clearly found to be more cost-effective than brachy-PBI. In fact, WBRT was associated with a cost-effectiveness ratio of \$630,000 per quality-adjusted life year in comparison to EB-PBI. A ratio of \$50,000 per quality-adjusted life year is considered to be cost-effective.

"In a cost-conscious environment, our results suggest that EB-PBI should be given preference over WBRT for the appropriate patients, and unless the costs associated with brachytherapy are significantly decreased, it cannot be considered a cost-effective treatment." David Sher, M.D., M.P.H., lead author of the study and a radiation oncologist at the Dana-Farber Cancer Institute, said. "Partial [breast irradiation](#), however, is still not considered the standard of care for treating [breast cancer](#). I encourage women interested in this treatment to talk to their radiation oncologists about the benefits and risks of these treatments and consider

enrolling in a clinical trial."

Source: American Society for Radiation Oncology

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