

## Analysis of over 10,000 breast cancer patients shows that, following breast conserving surgery, radiotherapy almost halves 10-year-risk of recurrence, and reduces 15-year-risk of mortality by a sixth

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An analysis of 10,801 women with breast cancer shows that, following breast conserving surgery, radiotherapy treatment halves the rate at which the disease recurs over the next 10 years and reduces the breast cancer death rate by one sixth over the next 15 years. The [Article](#) from the Early Breast Cancer Trialists' Collaborative Group (EBCTCG) is published [Online First](#) and in an upcoming *Lancet*. The study was funded by Cancer Research UK, the British Heart Foundation, and the UK Medical Research Council.

The study brings together the histories of all the women who participated in 17 trials of radiotherapy after breast conserving surgery that have been carried out worldwide. The average length of time that each woman was followed was a decade, and this new work is by far the largest study of this topic to date.

The reduction in cancer recurrence is clearly seen within the first year after radiotherapy and lasts throughout the first decade: by 10 years after breast cancer diagnosis, 35% of the women who did not have radiotherapy had a recurrence, compared with only 19% of the women who had radiotherapy. The effect of radiotherapy on breast cancer mortality takes longer to appear than its effect on recurrence but, by 15 years after breast cancer diagnosis, 25% of the women who did not have radiotherapy had died from breast cancer compared with only 21% of the women who had radiotherapy.

Importantly, the authors note that there was no substantial adverse effect of radiotherapy on the 15-year risk of death from the aggregate of all causes other than breast cancer so that, among the women who did have radiotherapy, the 15-year risk of death from any cause was reduced by almost as much as the reduction in breast cancer mortality.

The authors say: "The overall findings from these trials show that radiotherapy after breast-conserving surgery not only substantially reduces the risk of recurrence but also moderately reduces the risk of death from breast cancer. These results suggest that killing microscopic tumour foci in the conserved breast with radiotherapy reduces the potential for both local recurrence and distant metastasis."

They conclude: "Screening, surgery, pathology, radiotherapy, and systemic therapy have all changed substantially since most of these women were randomly assigned, so the absolute recurrence reduction with radiotherapy in future patients might differ greatly from that recorded in these trials...Nevertheless, the finding that radiotherapy roughly halved the recurrence rate after breast-conserving surgery in a wide range of patients with very different absolute risks suggests that it might also roughly halve the recurrence rate in future patients given breast-conserving surgery."

In a linked [Comment](#), Dr Thomas A Buchholz, Head of the Division of Radiation Oncology at the University of Texas MD Anderson Cancer Center, Houston, TX, USA, says: "The data from many thousands of clinical trial patients reviewed by the EBCTCG investigators continue to provide us with crucially important insights. The data reinforce the important role that radiotherapy has in management of breast cancer, and the fact that the benefits of radiation are complementary to the advances in both surgery and systemic treatment is particularly rewarding. The incremental benefits of each component of treatment contribute to the ongoing success in reduction of breast cancer mortality rates."

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