# Cost-effectiveness versus treatment effectiveness: A radiation oncologist's dilemma in low-income and middle-income countries (LMIC)



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The article by Prinja and colleagues' in this issue of *The Lancet Regional Health- Southeast Asia* is a good representation of the economic impact of radiotherapy treatments (RT) in patients with 1-3 positive nodes. Markov modelling was used in the study which predicts the future statistics based on the present time data. It is also believed to be an accurate predictor of the financial burden of a particular health intervention. However, there are a few points of debate regarding the radiotherapy suggestions for women with 1-3 positive axillary nodes.

Cost-effectiveness of 2-dimensional (2D) RT is a well-known factor as compared to computed tomography (CT)-based RT.² However, it should not lead to ineffective treatments in this subgroup of patients who are expected to have a longer survival and thereby an increased contribution to society. CT-based radiation treatments like 3-dimensional radiotherapy (3DCRT) and intensity modulated radiotherapy (IMRT) lead to reduced doses to organs at risk and improved coverage of the target as compared to conventional 2D RT for post-mastectomy RT (PMRT).³ Although high-end treatment delivery with IMRT or respiratory gating are not always needed, 3DCRT can result in better treatment outcomes as compared to 2D RT alone.

Early breast cancer trialists' collaborative group (EBCTCG) meta-analysis has clearly mentioned the need for PMRT in this subset of patients to reduce the locoregional recurrence, overall recurrence, and breast cancer mortality. Systemic treatments have evolved today as compared to the time these trials were conducted, but there is no doubt about the benefit of PMRT in these women.

Nowadays, schemes like Ayushman Bharat and Chief Minister schemes in different states have made CT-based RT planning and treatment delivery possible for patients who are unable to afford the high costs of treatments.<sup>5</sup> Patients must come to or can be referred to the centres or hospitals that offer treatments under

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these schemes to avail maximum benefit of such treatments

Although the article has considered various hidden costs and out of pocket expenditures for this analysis, there are a few more points to be focussed upon. Most of the patients come from remote villages or towns and must stay near to the hospital to have daily RT. This adds on to the overall costs of treatments. With the recent favourable results of the Fast Forward Trial where only 5 fractions of RT can be given for suitable patients, this problem can also be mitigated.<sup>6</sup> But for delivery of hypo-fractionated RT in 5 days, 2D RT would not be suitable or safe, but such treatment requires CTbased planning and delivery with either 3DCRT or IMRT based on adequate dose distribution. In such a setting, the comfort of completing the planned RT in 5 days would outweigh the cost-effectiveness as compared to completing the same course of RT in 3-5 weeks.

Finally, there is the cost of long-term toxicities like cardiac and lung morbidity and contralateral breast cancer.<sup>7</sup> These concerns have been adequately addressed in the article. However, the impact on the patient's psychosocial aspect cannot be measured by any model.<sup>8</sup>

So, in conclusion, where and when resources are limited, 2D RT is a viable option for PMRT in patients with 1-3 positive nodes. But it should not stop or limit us from striving to offer the best possible treatments in this subset of patients if we have the means for it.

### Contributors

This paper was researched, developed, and written by PI.

## **Declaration of interests**

None.

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# Comment

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