



Cancer radiotherapy modelling

An integrated approach to radiotherapy service planning.

Tyranny of distance leads to close to one in six cancer patients in New South Wales not receiving vital radiotherapy treatment. This project aims to develop an integrated approach for radiotherapy service planning that combines future geographical projections of cancer incidence with the placement of new radiotherapy (RT) services designed to maximise patient uptake rates (due to travel distances).

Researchers have developed a predictive software tool that will help health planners decide the best locations to build future radiotherapy treatment units to more effectively deal with the current and growing need for cancer care.

Rather than focus on raw population numbers and historic cancer rates, the data modelling used three criteria to aid general efficiency, service availability and equality. Efficiency requires a base population of about 250,000 people to justify spending on a radiotherapy unit; availability is the number of people living within 50 kilometres or less from an existing treatment centre; and equity/equality ensures people with fewer financial resources still get treatment.

The economic, social and health benefits of this project include ensuring that critical therapies are available to patients for whom it is clinically appropriate regardless of their location. It will increase future uptake of beneficial and cost-effective treatments by patients who are otherwise disadvantaged by their accessibility. The methods, models and tools developed are also applicable to other areas such as transport, logistics and manufacturing.

It is hoped the project will lead to better patient access to RT treatment services and survival, and informed decisions about the government investment concerning the placement of new RT treatment services.



TEAM

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PUBLICATIONS

- Shukla, N, Wickramasuriya, R, Miller, A & Perez, P 2015, 'An approach to plan and evaluate the location of radiotherapy services and its application in New South Wales, Australia', *Computer Methods and Programs in Biomedicine*, vol. 122, pp. 127.
- Shukla, N, Wickramasuriya, R, Miller, A & Perez, P 2015, 'Population accessibility to radiotherapy services in ew South Wales region of australia: a methodological contribuion', paper presented at the EURO mini Conference on Improving Healthcare: New Challenges, New Approaches, Coimbra, Portugal, 30 March - 1 April.

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