

Developing Radiation Therapy Satellite Sites in New Zealand



August 2020

Executive Summary

In August 2019, the Government announced plans to fund the replacement of DHB linear accelerators (linacs) and the siting of these new linacs in Hawke's Bay and Taranaki from 2021 onwards. The programme of the government's cancer response is also looking at placing a linac in Whangarei.

As a union APEX represents radiation therapists and medical physicists and has a significant stake both in the success and the safety of the expansion of radiation oncology. In order to provide the sort of expanded service the government, and the public expect, it is our view that from the start we ensure satellite sites are appropriately staffed, and we meet goals to increase intervention rates and the needs of a growing and ageing population in which cancer rates are increasing.

We believe the establishment of satellite sites is an exciting opportunity for the health professionals we represent and patients they serve. However there needs to be strong safeguards around how these satellite sites will operate both around staffing models and numbers.

The regional gap between DHBs in intervention rate demonstrates the sub-optimisation problem with seven separate DHB services for radiation oncology. The challenge of both addressing this gap and ensuring sufficient investment, staffing and expertise are applied to the development of satellite sites and the deployment of new technology cannot be met on a DHB by DHB level. It should be an immediate priority to re-organise radiation oncology as a national service.

Our recommendations are that:

- 1. Radiation Oncology Becomes a National Service;**
- 2. Satellite Site Linacs are Additional to Current DHB Linac Numbers;**
- 3. Staffing of Satellite Sites is by Permanently Located Staff;**
- 4. Safe Staffing of Satellite Sites requires 6 RTs, Physicists and 2 Admin FTE;**
- 5. Workforce Discussions for Satellite Sites at Whangarei, Nelson and Beyond Begins Before December 2020;**
- 6. Lack of Workforce Investment Risks Compromising the Success of the Expansion of Radiation Oncology.**

1. Radiation Oncology Becomes a National Service

The *Health and Disability System Review: Final Report* has set a direction for closer collaboration of DHBs and also points the way to more nationally organised parts of the health system. Radiation oncology would be one obvious candidate for becoming a national service, being one where “consistency, uniformity of service access and delivery is desirable”.¹

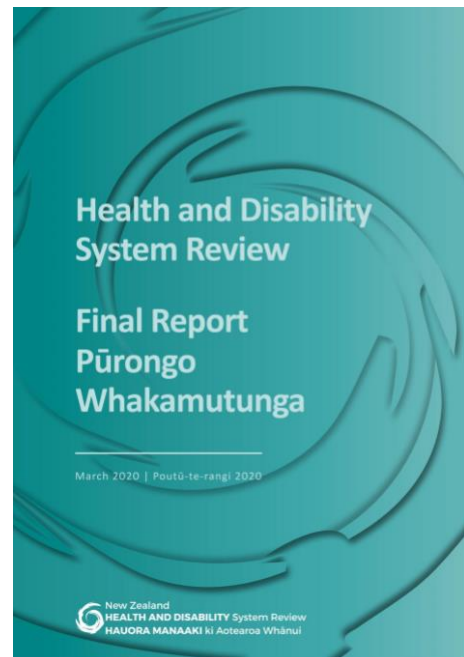
The large differences in intervention rates based on geographic location – the “post code lottery” have become entrenched under DHB-led radiation oncology. There have also been inconsistent standards of care in the past at different DHBs.

A single institution would increase co-ordination between the services currently operating and making decisions about the planning of the future growth of the service. Satellite sites will be very vulnerable to staffing shortages due to parental leave, retirement or other issues and supporting them may require a co-ordination between base sites in terms of who would be available to work there and when.

In order to provide for the co-ordination in workforce development, it makes more sense to have one employer with consistent pay and conditions, shared access to professional development, career path development, and co-ordination of student training.

As we have previously noted in a 2010 paper a national service could also allow for:

- Well planned major expenditure programme;
- Higher international profile;
- Increased research opportunities;
- Increased trial involvement;
- Equitable staff rostering.



There is always a risk with a national service that it becomes vulnerable to capture by bureaucratic or austerity measures from Wellington. However a national service would have greater weight in negotiating with any future agency such as a notional “HealthNZ” as the *System Review* suggests.

One of the future impacts on the service is going to be expanding our uptake of artificial intelligence and machine learning, two processes which will require considerable investment in information technology, and clearly defined ethical standards and rules for use. The resourcing of this will likely require the ability for us to utilise people, data and funding that is currently split across six separate DHBs.

Our view is the Ministry of Health and DHBs should begin planning to re-organise radiation oncology as a single national service with immediate priority.

¹ *Health and Disability System Review: Final Report*, March 2020, available at: <https://systemreview.health.govt.nz/assets/Uploads/hdsr/health-disability-system-review-final-report.pdf>

2. Satellite Site Linacs are Additional to Current DHB Linac Numbers

- The DHB populations served by the Regional Cancer Treatment Service have low radiation oncology intervention rates.
- The *National Radiation Oncology Plan* requires at least five to six additional linacs by 2023.

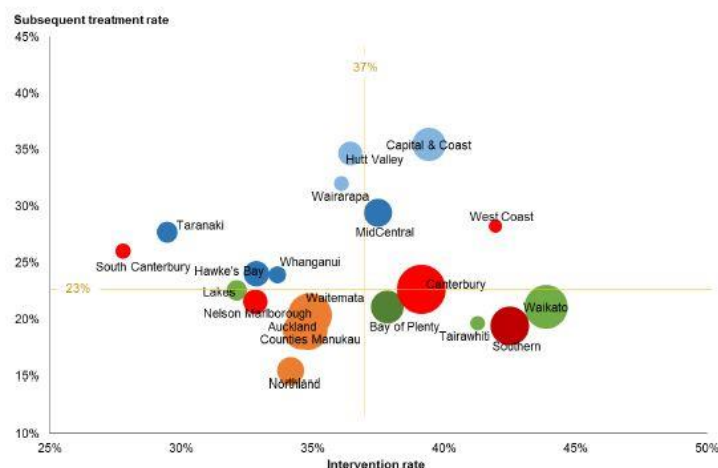


Figure 1: Provisional radiation oncology intervention and subsequent treatment rates by DHB, 2013-2017

As the data above, from the *National Radiation Oncology Plan*, demonstrates - Taranaki, Hawke's Bay and Whanganui all have very low radiation oncology intervention rates. Midcentral has a slightly higher than average intervention rate.

In New Zealand around 37% of cancer patients receive radiation therapy although estimates are that half of all patients would benefit from radiation therapy.²

The installation of linear accelerators in Taranaki and Hawke's Bay DHBs must be in addition to the four linear accelerators at Palmerston North hospital. As the *National Radiation Oncology Plan; 2017 to 2021* states:

Based on current operational parameters (treatment visits per course and treatment times), linac numbers and operating hours, and given no increase in IRs, **New Zealand might need five to six additional linacs by 2023.**

This additional demand will come from the growth in both the overall population and the older population, which together will increase the number of cancers expected and therefore the number of people undergoing radiation treatment. This increased demand is offset a little by the expected fall in incidence of some cancers – for example, in lung cancer through the reduction in tobacco smoking. Note that this prediction assumes the current mix of public and private provision continues, and that each radiation oncology provider maintains its current catchment.

It is our view that the only way of delivering on the *National Radiation Oncology Plan* is for the linacs in the satellite sites to be in addition to the current linacs in Palmerston North hospital and the other current DHB sites.

² Response to Health and Disability System Review, Royal Australian and New Zealand College of Radiologists (RANZCR) Faculty of Radiation Oncology, May 2019, available at: <https://www.ranzcr.com/college/document-library/fro-new-zealand-health-and-disability-review-submission>

3. Staffing of Satellite Sites is by Permanently Located Staff

- We do not support a model of rotating radiation therapists.
- The proposed staffing model of not having on site radiation oncologists, engineers, IT support, radiation oncology nurses is unsafe.

The Radiation Therapy Outreach Sites – Discussion Paper sets out a number of options for how staffing of Hawke’s Bay and Taranaki satellite sites would work. It includes the following assumptions or propositions:

- “There will be no nursing staff or Radiation Oncologists at satellite sites.”
- “With this in mind the number of Radiation Therapists, can be based on the Australian Society of Medical Imaging and Radiation Therapy (ASMIRT) staffing model for treatment only, of 3.42 FTE.”
- Two options for staffing – either by rotating fully or partially RTs and physicists into the satellite sites from the base site.

The RCTS Regional Radiation Project Workforce Project Working Group Terms of Reference states:

The workforce requirements are also informed by the Royal Australasia and New Zealand College of Radiologists (RANZCR) guideline - *Establishing and Sustaining Regional, Rural and Remote Radiation Therapy Centres*. This guidance provides recommendations that have formed the basis of the project implementation plan for the new satellite sites and have significant focus on workforce needs and requirements.

However the Royal Australian and New Zealand College of Radiologists has set out in their *Establishing and Sustaining Regional, Rural and Remote Radiation Therapy Centres* a number of expected standards that have been (emphasis in original), “identified as **minimum standards for the provision of safe and quality radiation therapy services** to be embedded into the centre’s establishment and sustainability programs. **These are not optional considerations.**” These expected standards include having radiation oncologists, radiation oncology trained nurses, engineering staff and IT staff in the ‘business as usual’ model.



Rotation based staffing models are not recommended by RANZCR:

Accessibility of staff: it is recommended that the above staff are majority local residents of the community rather than fly-in/fly-out or drive-in/drive-out staff. During operational hours all relevant clinical staff must be accessible appropriately. A centre should not be treating patients when clinical staff are inaccessible to physically review patients should the need arise.

- a. Dependence on visiting ROs as the primary means of providing service is not recommended as this does not support sustainable or safe practice. It does not support the local workforce, continuity of patient care, department development, trust in the department and consistency of clinical pathways.
- b. Dependence on short-term contracts for RTs for routine staffing does not provide continuity of patient care, allow for development of knowledge and skills in the department, and makes development of working relationships with local staff more difficult.

c. At least one ROMP staff should reside locally. This is essential for the safe and quality operation of the radiation therapy centre. Dependence on visiting ROMPs is not recommended.

As the RANZCR paper makes clear the current discussed workforce models are not safe and an entirely new staffing model for satellite sites needs to be developed which is in accord with the minimum requirements of the paper.

4. Safe Staffing of Satellite Sites requires 6 RTs, 2 Physicists and 2 RTA FTE

The suggestion in the discussion paper on Radiation Therapy Outreach Sites, that the staffing requirements of a satellite site be 3.42FTE is flawed. The number is from a table nestled within an article titled, 'Radiation therapy staffing model 2014' published in the *Journal of Medical Radiation Sciences*.³

The table, based on Australian data, counts the amount of time spent on average by radiation therapists delivering treatment during an eight-hour day for one linac and then divides this total time by eight to reach 3.42FTE. However the 3.42 FTE would have to be available at all times. The table has no cover for leave or absence of any time, and no time allocated to anything other those tasks directly related to treatment. It is neither a logical or a proper way of modelling the RT staffing requirements for a satellite site. The table does not calculate leave relief.

Of course, there are a number of ways of calculating the staffing requirements for the satellite site. The Australian data presents one view.

The American Society for Radiation Oncologists suggests that the correct staffing model for radiation therapists (when planning is done by dosimetrists) is "approximately one per 90 patients treated annually".

Local information is not accurate or up to date on patient treatments per linac however:

[...] RANZCR data indicates that the number of courses per linear accelerator in New Zealand may be 362 per annum compared with 414 in the Australian model, which was an estimate provided by the Radiation Oncology Jurisdictional Implementation Group in response to the Baume Inquiry in 2002.⁴

On the basis of this workforce modelling it would be reasonable to assume $362 / 90 = 4.02$ FTE of radiation therapists per linac are required in the satellite sites. However with many linacs operating at capacity above 8 hours per day five days per week it would seem sensible for there to be at least six radiation therapists per satellite linac.

This would also allow the planning of radiation therapy to be done at the satellite site, removing one of the other potential barriers to access – the need for patients to travel to base sites for scanning and/or rescanning. In effect, having planning as part of the satellite team allows the site to operate as a "one-stop shop" for all parts of a patients' radiation therapy journey. Consideration of planning and radiation oncology availability at the satellite sites will need to strike a balance between accessibility and maintaining specialism. It may be more difficult to maintain skill across planning all techniques at a satellite site however access remotely to the planning system, particularly for treatment of Category A patients and urgent palliative cases, will be important.

Logistically with the patient care path and timeframes there would need to be a very efficient process between the satellite site and main site to collaborate on plans and re-plans with patients on treatment with contour changes or bladder, small bowel issues. In the age of adaptive planning work has to be turned over reasonably quickly as the patient cannot pause their treatment. Treatment and pre-treatment expertise, critical thinking, and experience will be key at the satellite sites to provide patient equity of treatment for any sites that will be treated there.

The staffing requirements of satellite sites will be impacted by what type of linac are installed especially if a Halcyon is chosen.

³ 'Radiation therapy staffing model 2014', *Journal of Medical Radiation Science*, December 2016, available at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5167329/>

⁴ *The Radiation Oncology Workforce in New Zealand: Projecting Supply and Demand 2012-2022*, RANCR, February 2013, available at: <https://www.ranzcr.com/documents/2242-ro-nz-workforce-projections>

The RANZCR recommendation for a medical physicist FTE of 1.7 -2.3 FTE per linac requires that at least 2 medical physicist FTE be allocated to each satellite site.

The RANZCR guidelines on remote and regional sites suggest a need for dedicated administration FTE, noting:

The administration team is the front face of a radiation therapy centre. Adequate administrative staffing is essential to provide operating proficiency and contribute to patient safety. However, they may often not have their own advocacy and usually are a small portion of the department workforce, and it is important that the full-time equivalent (FTE) requirements are not underestimated.

We would suggest satellite sites operate with at least 2 FTE of radiation therapy assistants to allow for administrative requirements to be fulfilled.

5. Workforce Discussions for Satellite Sites at Whangarei, Nelson and Beyond Begins Before December 2020

The Ministry of Health's promises of expansion of radiation therapy into the regions, in Hawke's Bay, Taranaki, and Whangarei, but also eventually to other provincial centres currently without local linear accelerators such as Nelson and Queenstown, have significantly raised expectations in local communities.

In our view, there is a need to convene a broader discussion, at a national level with DHBs and workforce representatives to ensure the support is in place for our workforce to deliver radiotherapy at satellite sites. This is going to require rather than expanding our linear accelerator capacity piecemeal – we work to a unified plan and a set timetable so communities, workforce planners and the workforce can have certainty about when new sites will be established, and what moving to new locations would entail for them and their families.

The current situation where expectations have been raised, but there is little to no planning – creates a large measure of uncertainty both for the workforce and patients and whanau. The sector would benefit from having the workforce discussion now, so the planning and requisite workforce development can be put in place as soon as practicable. In as many respects as possible the planning and development of the workforce should be taking place at a national level rather than being left to local DHBs to operate in isolation.

For example, the current thinking is that Taranaki and Hawke's Bay satellite sites will complete radiotherapy in breast, prostate and limited palliative circumstances only. It is our view that a wider range of cancers could be treated at satellite sites including brain and chest, but that there may be a need to screen patients for co-morbidities that make radiotherapy potentially more dangerous. There needs to be a robust clinical discussion on what sorts of treatment is offered and why.

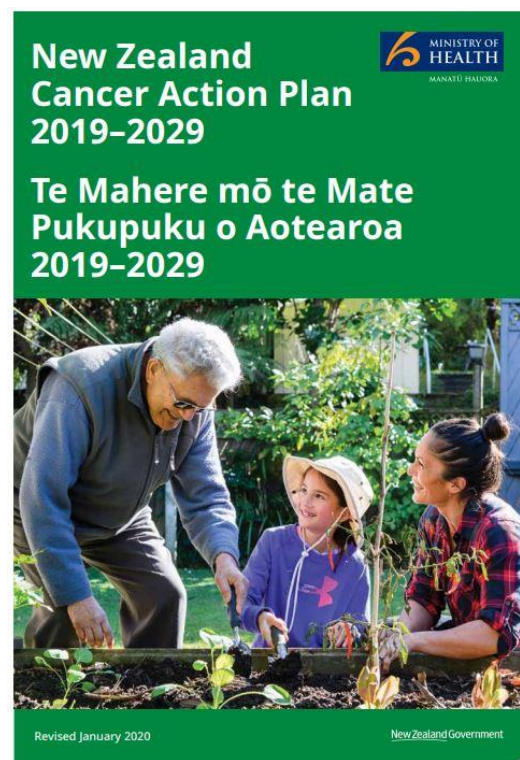


6. Lack of Workforce Investment Risks Compromising the Success of the Expansion of Radiation Oncology

Expanding our cancer treatment system through the outfitting of satellite sites and increasing the number of linacs will require a large investment in the radiation oncology workforce, particularly radiation therapists and medical physicists.

As the *New Zealand Cancer Action Plan 2019-2029* sets out the sector has been plagued by shortages in the past including:

- There are overall shortages in many areas of the workforce, including medical, nursing and allied health.
- Workforce requirements need to be accurately modelled and forecasted to support delivery to an increasing number of people with cancer and align with new models of care, including Māori health models.
- There are insufficient numbers of trained Māori and Pacific health care professionals to provide appropriate care for these priority populations. The Government will need to consider future investment in growing and developing the Māori and Pacific workforce to better meet the needs of Māori and Pacific peoples.
- There is a requirement to strengthen and support the current health workforce.⁵



The current planning for satellite sites in Hawke’s Bay, Taranaki, and Northland has not been accompanied with the sort of workforce planning and investment necessary to ensure we have the right people in the right place to deliver the right care.

The sector needs to ensure we have a workforce plan to expand the radiation therapy workforce through increased students, attractive remuneration, options for part-time work, and that there is nationwide co-ordination in the upskilling of the radiation therapists. Similar considerations will apply to other radiation oncology workforces.

If we are to succeed in achieving improved cancer treatment in the regions and a reliance on RTs to work to the top of their scope of practice, we would need to develop an in-house training course for RTs working in satellite sites, which will equip RTs for working in an environment where they will be expected to do more with less. If there is an expectation for advanced practice RTs at satellite sites, this will need to be clearly set out in the job description as being a “specialist”, with excellent training provided, and the remuneration required of specialist RTs – step 10 of the MECA.

Unless we accompany the investment in buildings and machines with the appropriate investment in workforce we are not going to be in a position to deliver on the expectations of the *Cancer Action Plan*.

⁵ *New Zealand Cancer Action Plan 2019–2029*, Ministry of Health, February 2020, available at: <https://www.health.govt.nz/publication/new-zealand-cancer-action-plan-2019-2029>

