

Calypso® 4D Localisation System

This technology was funded through the New Technology Funding and Evaluation Program (NTFEP). The NTFEP funds the introduction and evaluation of new technologies that:

- ✓ Are safe and effective
- ✓ Provide better health outcomes
- ✓ Provide value for money
- ✓ Provide greater access to care.

NTFEP funding supports the cost of the technology, consumables, training, maintenance, licenses and evaluation staff. The evaluation findings will inform recommendations regarding the future use and/or investment of the technology within Queensland.



Innovation

What is the technology?

Internal organs, such as the prostate, can shift during radiation treatment due to normal internal movement. The Calypso® 4D Localisation System (Varian Medical Systems, USA) allows for prostate location in near real-time during treatment delivery. Prostate position is determined through the implantation of three small electromagnetic transponders (about the size of a grain of rice) in the prostate, prior to radiation therapy planning. Where out-of-tolerance prostate motion is detected, treatment delivery is halted. This allows for greater accuracy in delivery of radiation to cancerous tissue, and reduction of irradiation to adjacent healthy tissue.

What were the evaluation findings?



Calypso was found to have high measurement accuracy ($<0.2\text{cm}$), and transponder placement in the prostate remained stable.



Calypso detected out-of-tolerance prostate motion during 13% of fractions delivered, pausing treatment delivery until safe to proceed.



Treatment can be delivered with reduced treatment margins around the prostate, lowering potential for radiation-induced toxicity.



Hypofractionation of treatment courses allowed delivery in 4-5 weeks, compared to standard treatment of 8-9 weeks.



No adverse events have resulted from the use of the Calypso system with 33 patients.



Limitations such as unfavourable body habitus, pacemakers, and metallic implants in the pelvis reduce patient eligibility.

Where was it evaluated?

Radiation Oncology Princess Alexandra Hospital Raymond Terrace, Metro South Hospital and Health Service (Completed in 2018).

Funding provided

\$234,626 (excl Calypso system)

Want more information?

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