
BioJet System

Initiative Type

Technology

Status

Close

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<https://clinicaexcellence.qld.gov.au/improvement-exchange/biojet-system>

Summary

BioJet fuses magnetic resonance imaging (MRI) and real-time ultrasound (US) during biopsy of the prostate for the diagnosis of prostate cancer. BioJet allows information from MRI to direct biopsy needles under ultrasound guidance to more accurately target lesions of interest. BioJet performs the biopsy of the prostate transperineally (through the skin of the perineum between anus and base of scrotum). Traditional biopsy of the prostate for the diagnosis of prostate cancer has been via

transrectal ultrasound (TRUS) guidance. This approach has a 20-30 per cent false negative rate and a 2-3 per cent risk of post biopsy sepsis.

Key dates

Sep 2015

Jun 2018

Implementation sites

Following from the NTFEP, a world first study utilising BioJet system has commenced at the Princess Alexandra Hospital.

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Aim

To assess the clinical impact and cost-effectiveness of BioJet.

Benefits

Allows more accurate localisation of lesions and better access to anterior zones with decreased potential infectious complications.

Background

This technology was funded through the New Technology Funding and Evaluation Program (NTFEP), which 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.

Evaluation and Results

Using BioJet, significant cancer was identified in 48 per cent patients compared with 21 per cent using the technique, Cognitive Fusion biopsy. An additional two transperineal ultrasound probes were required to maximise throughput and clinical utility. 61.5 per cent of patients on active surveillance have been upstaged (move to a higher, more extensive stage of cancer) resulting from BioJet. Cost savings of BioJet are a result of no repeat biopsies, higher identification of significant cancer and no cases of post op sepsis. Zero cases of sepsis or post-operative infections occurred with BioJet compared to seven per cent in Cognitive Fusion biopsy. No serious complications and no patients required repeat procedures