

AIM

To demonstrate that the SentiMag system is well suited in rural settings due to its logistical benefits

INTRODUCTION

- Sentinel lymph node biopsy (SLNB) is utilised for the staging and prognosis in breast cancer patients with a clinically and radiologically negative axilla
- Current gold standard involves the use of blue dye and radioactive colloid injection
- A promising alternative is the use of the SentiMag: A platform for delivering radiation-free SLNB and wire-free localisation
- Increasing evidence SentiMag use is non-inferior to radioisotope technique, however limited use across Australia and New Zealand¹⁻⁴



Gisborne Hospital

- Population of 48,000 people
- Isolated city surrounded by difficult terrain
- Nearest active nuclear medicine department is three and a half hours drive away

METHODS

125 Cases

Operated on by a single surgeon where the patient required either a SLNB or localisation of an impalpable tumour from Jan 2013 to Jan 2020 (SentiMag introduced in 2016)

Data collected retrospectively from patient notes which included basic demographics, staging, lymph node status and detection rates, mode of localisation, and complications

Financial data collected from administrative staff via receipts and invoices of purchases to the hospital

RESULTS

Table 1: Estimated financial cost per 100 patients in Gisborne

Tumour	SentiMag available	Cost/patient (NZD)	Cost/100 patients (NZD)	Difference (NZD)	Overall estimated savings
Palpable/ Mastectomy (67%)	Yes	\$557.10	67 x 557.10	\$37325.70	+\$57680.30
	No	\$1418.00	67 x 1418.00	\$95006.00	
Impalpable (33%)	Yes	\$2115.10	33 x 2115.10	\$69798.30	-\$7824.30
	No	\$1878.00	33 x 1878.00	\$61974.00	

Figure 1: Staging of Cancer

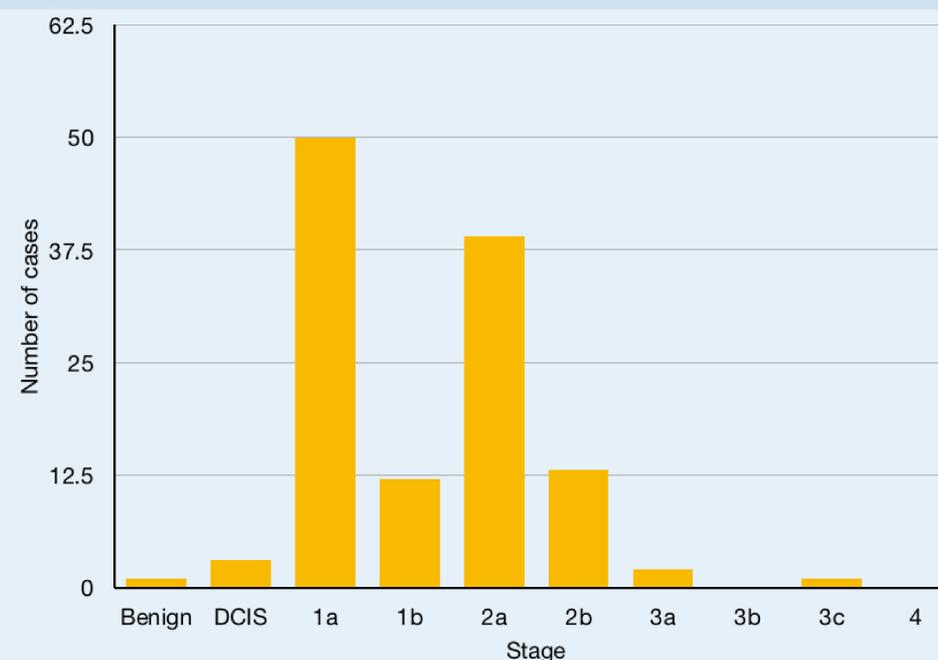
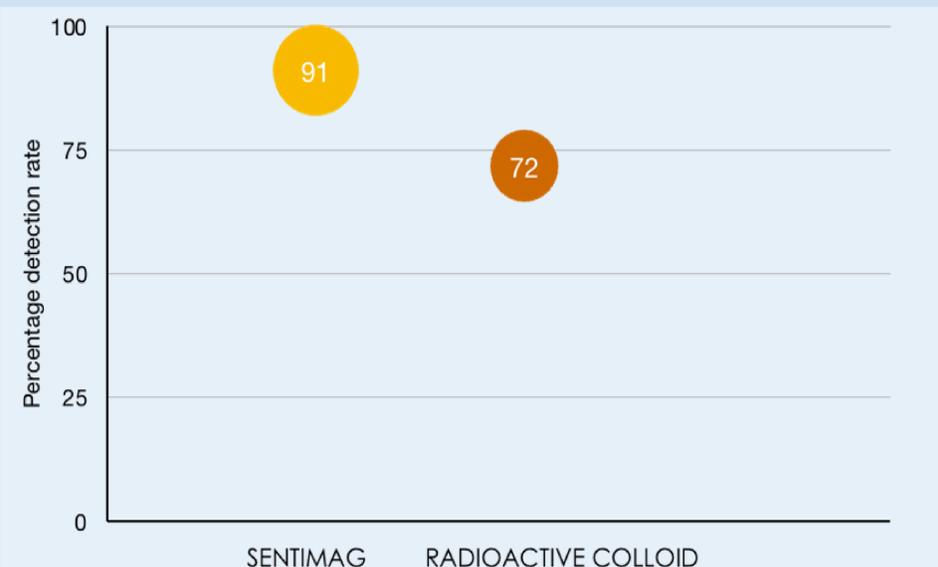


Figure 2: Detection rates of 2 or more nodes



DISCUSSION

- Use of SentiMag comes with several benefits both for patient outcomes and costs
- This study showed a significantly higher detection rate with the SentiMag compared to radioactive colloid use which agrees with literature¹⁻⁴
- SentiMag use in this setting negates scheduling and logistical issues as the injectable magnetic tracer can be given up to 47 days prior to surgery and does not require a three and a half hour drive to the nearest active nuclear department in Hawke's Bay Hospital
- We have demonstrated that when comparing the combined cost of travel and use of lymphoscintigram, the SentiMag proved itself to be cost efficient
- With localisation, our study demonstrated that re-excision rates and complication rates were not significantly different between the hookwire and magnetic seed group. Literature shows that the use of magnetic seed can achieve positive margins of 15% or less compared to 20% or greater with hookwires

CONCLUSION

The SentiMag system has definite advantages in a rural setting over more traditional techniques. Hookwire and lymphoscintigram was able to be replaced in the majority of cases with the SentiMag system. We found these techniques had good clinical outcomes and were more convenient for patients, associated with fewer logistical difficulties

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