Closing the Distance and The Specialist Nursing Optimal Placement Tool (SN-OPT): Strategic Placement of Specialist Cancer Nurses to Achieve Resource and Geographic Equity in Australia

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Background

Cancer workforce planning that enables effective specialist nurse placement is critical for delivering high-quality, patient-centered care. Inequitable access to specialist nursing represents a significant gap in cancer care delivery.

No standardized tools assess specialist cancer nursing resource needs across national healthcare systems. We developed **SN-OPT**, an innovative resource allocation tool, using 30 full time equivalent (FTE) new centrally funded specialist melanoma nurse positions for Australia as a case study.

Methods

A multidisciplinary panel developed SN-OPT via expert consensus, incorporating three data domains (Figure 1). SN-OPT combines cancer incidence data with facility metrics, including clinical complexity to allocate nursing resources operating within a MDT framework.

Equity assessment utilized the Index of Relative Socio-Economic Disadvantage (IRSD) and Travel Time to Hospitals in Australia dataset. Geographical remoteness was measured on a scale of Modified Monash (MM) categories MM 1 to MM 7.

	HIGH	1 pt	MID	0.5 pt	LOW	0 pt
1 Facility Infrastructure						
MDT Structure	Skin-focused		Generalist		None	
Clinical Trials	Extensive trials		Partial / tele-trial		No oncology trials	
Supportive Care	Cancer allied health		Allied Health		Nursing Only	
Mel. Nursing	None		—		Yes (existing)	
MAX.4PTS						
2 Clinical Complexity & Demand						
Med Onc	>75		41 – 75		< 41	
Complex Surg	>95		41 – 95		< 41	
MAX.2PTS						
3 Health Equity						
Regionality	Regional/Remote		—		Metropolitan	
MAX.1PT	MM 2+				MM 1	

 # new patients per facility per year

Weighted Scoring Algorithm → ranked facilities for nurse allocation

Figure 1: SN-OPT three-domain framework and allocation output

Results

SN-OPT evaluated 46 Australian, ranking 33 sites for melanoma nurse allocation from all Australian states and Territories (Figure 2).

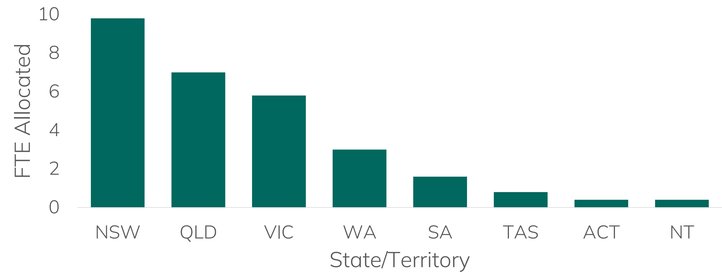

Figure 2: FTE allocation by Australian State and Territory

Facilities receiving allocation were in metropolitan and regional Australia. Metropolitan facilities received a greater proportion of FTE and greater mean FTE per position. Conversely, regional facilities had a reduced projected caseload per FTE (Figure 3).

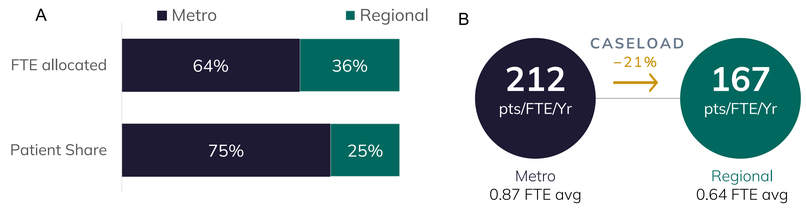

Figure 3: A) Distribution of FTE and Patient Caseload, B) Per position FTE and Projected Patient Caseload

Across facilities receiving nursing, allocations largely aligned with facility-determined resource need, with 58% receiving their requested FTE. Among the remaining facilities, median allocation variance was -0.4 FTE (Figure 4).

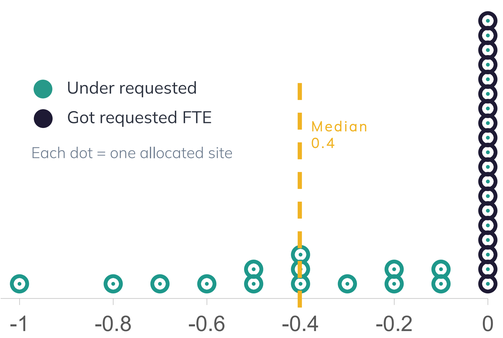

Figure 4: Allocation compared to requested FTE

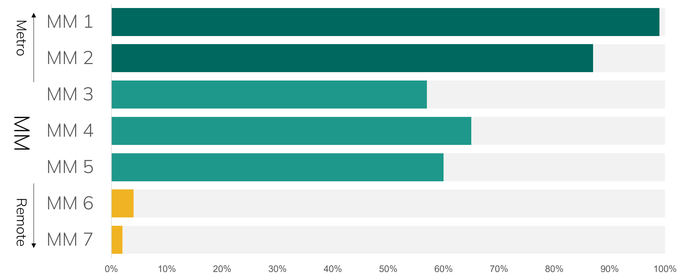

Figure 5: Population access to Melanoma Nursing by geographical remoteness – Modified Monash (MM)

On a population level, 89% of Australians have geographic access to specialist melanoma nursing care, including 54% of those living in regional Australia. Remote regions remain largely uncovered, reflecting the limited number of eligible facilities in remote Australia (Figure 5).

The algorithm demonstrated equitable access across socioeconomic groups, with 81% of the most disadvantaged regions (IRSD quintile 1) within reach of an SN-OPT–allocated facility (Figure 6).

ACCESS DEFINITION 2hr

A region has access if a specialist nurse facility is within a 2-hour drive in the same jurisdiction .

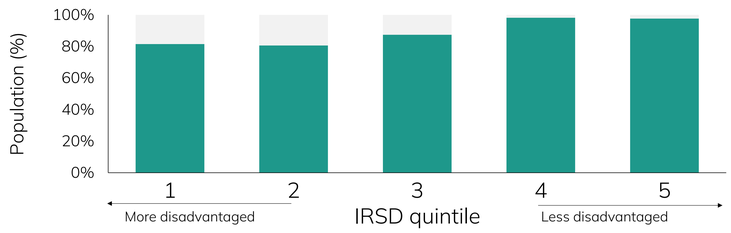

Figure 6: Population access to Melanoma Nursing by socioeconomic disadvantage - Index of Relative Socio-Economic Disadvantage (IRSD)

Conclusions

1. SN-OPT is the first nursing allocation tool to integrate clinical complexity and facility capacity in specialist cancer nurse allocation.
2. SN-OPT demonstrates equitable access to facility-based specialist nursing care, including for regional and socioeconomically disadvantaged populations.
3. SN-OPT offers a reproducible, data-driven framework for specialist cancer nurse allocation
4. SN-OPT is readily adaptable across cancer streams and countries, providing a model for equitable cancer workforce planning globally.

Acknowledgements
Data analysis by Quantium.
Project received funding through Australian Commonwealth Department of Health and Ageing

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