

Cost-effectiveness of a Parkinson's Specialist Nurse position in rural and regional Australia

A pilot retrospective analysis

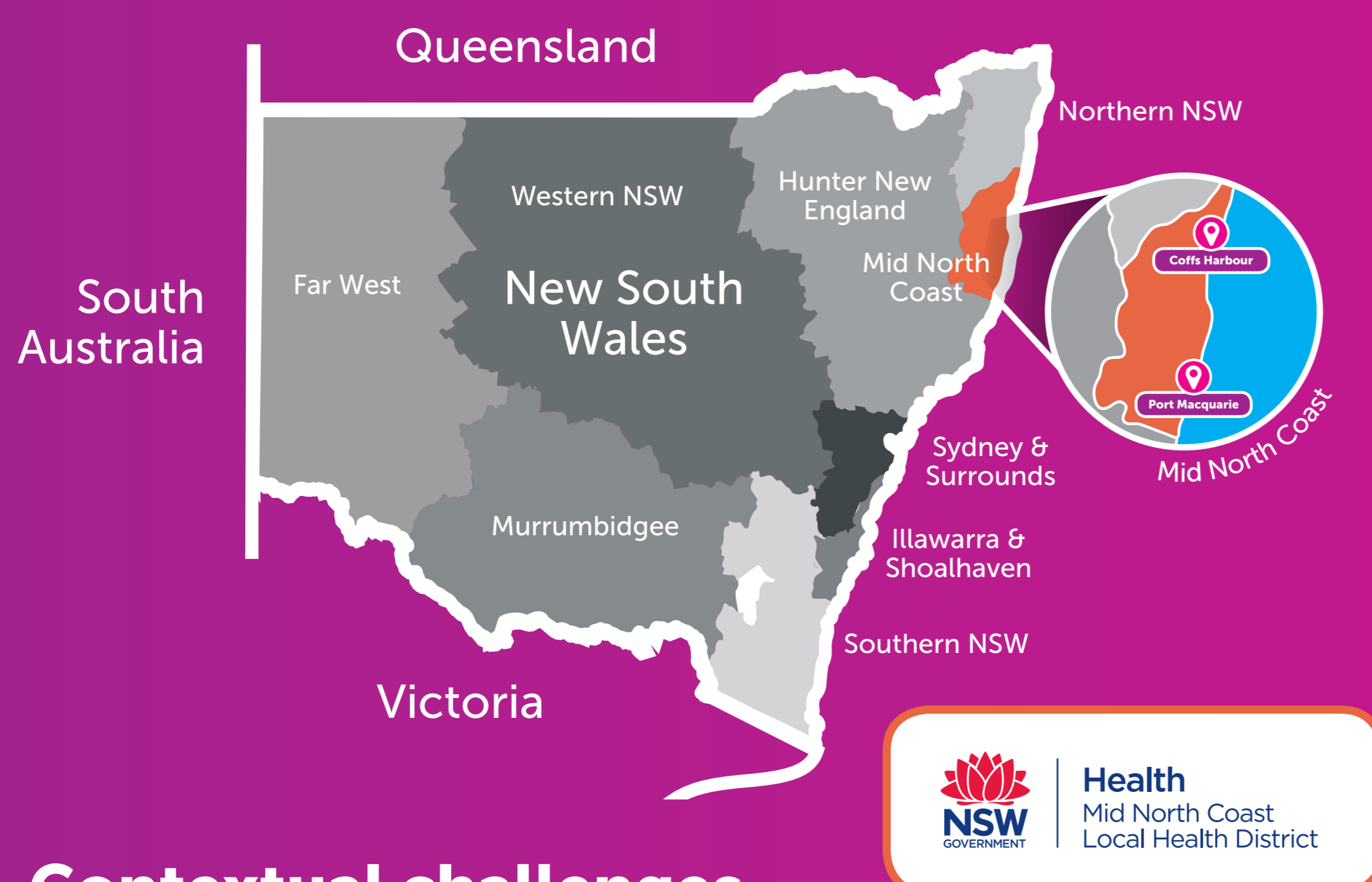
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Why this research?

Limited access to specialist neurological services for people living with Parkinson's disease in rural and regional Australia has been shown to contribute to decreased health-related quality of life.

Parkinson's NSW partnered with nursing researchers from Charles Sturt University and clinicians from the Mid North Coast Local Health District to undertake a staged project. Findings from the integrative literature review(1) and qualitative evidence(2), identified the Parkinson's Specialist Nurse as the 'glue' for the multi-disciplinary team and essential to continuity of care across services. Effective advocacy needs evidence of cost-effectiveness, thus this retrospective cost analysis of the position located in the Mid North Coast Local Health District (MNCLHD).



Contextual challenges

The multi-layered and complex nature of the Australian health system presented significant challenges to identifying total costs associated with people living with Parkinson's disease (PD).

Preliminary Data

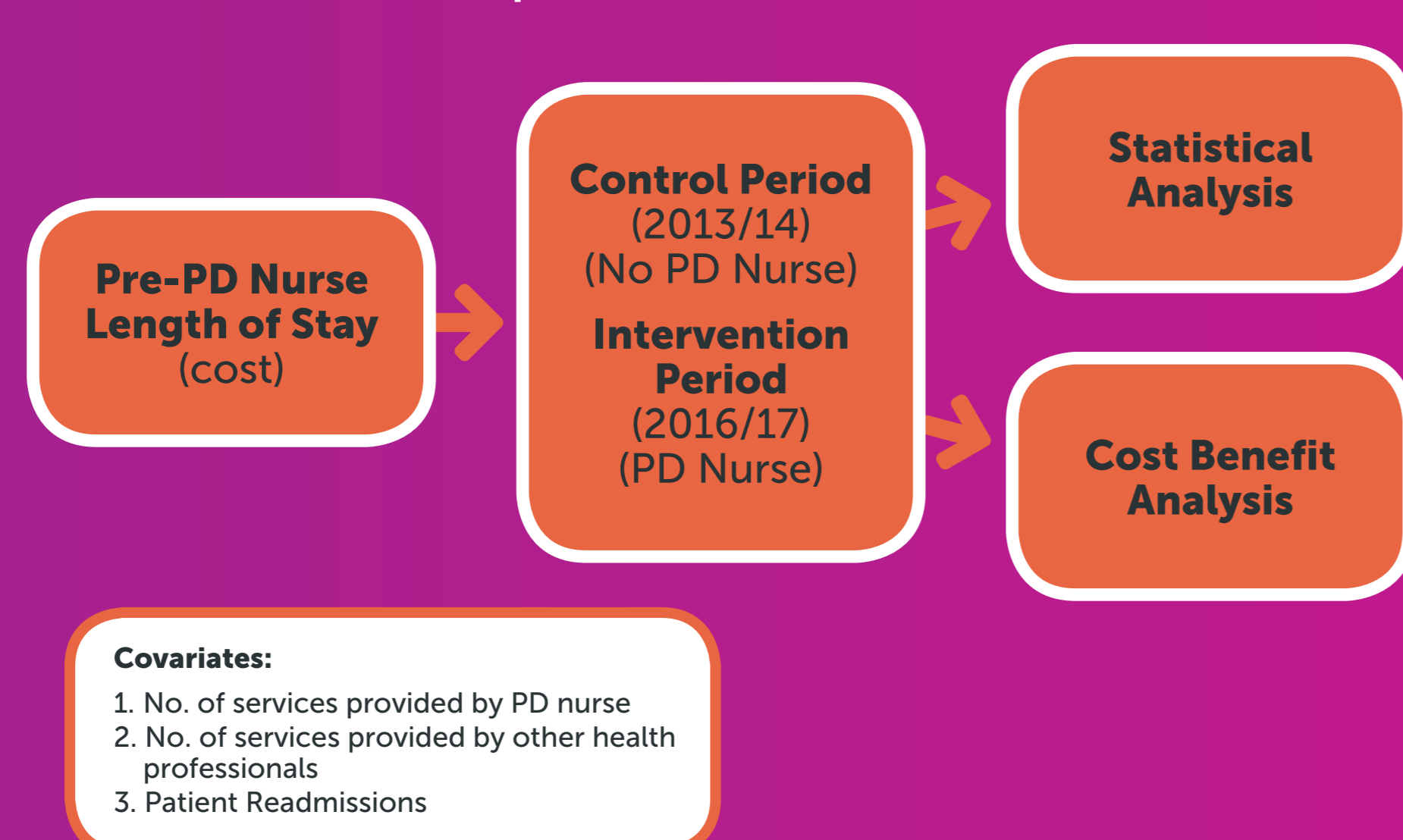
Prior to this study, hospitalisation data found a decrease in length of stay (LOS) post introduction of the specialist nurse in 2015.

Informed by this data and overviews from Deloitte Economics (3,4) this study focused on hospital costs only, as a result of the intervention (Parkinson's Specialist Nurse).

Research Question and Method

Does analysis of service usage data from the MNCLHD describe the economic impact of the Parkinson's specialist nurse position on hospital costs?

Four-year retrospective medical record audit comparing patient outcomes prior to employment of the Parkinson's Specialist Nurse (2013 - 2014) with outcomes post establishment of the position (2016 - 2017).



Results

Demographic data

Diagnosis of Parkinson's (by neurologist and/or geriatrician, rehabilitation, medical physician)	N=128
Gender	M = 65% F = 35%
Age on admission	8.6% (45-64) 2.3% (65-69) 11.7% (70-74) 17.8% (75-79) 25.0% (80-84) 23.4% (85-89) 10.2% (90-94) 1.0% (95-99)
Age > 65 years	91.4% of total
Relationship status	54.7% (Married/de facto) 30.5% (Widowed) 14.8% (Divorced/single)
Country of birth	84.4% (Australia) 15.6% (Outside Australia)
Years since diagnosis	55.6% (within past 4 years) 30.4% (5 to 9 years) 12.4% (10-19 years) 1.6% (20 to 35 years)
Residence at diagnosis	88.3% (Home) 11.7% (Residential Care)
Residence on admission	64.8% (Home) 35.2% (Residential Care)

Statistical Analysis

Statistical findings using multiple regression analysis demonstrate reduction in hospital LOS post establishment of the Specialist Nurse position.

Cost-Benefit Analysis

Identified significant net benefit resulting from employment of the Parkinson's Specialist Nurse.

Cost-Benefit Outcomes for Parkinson's Specialist Nurse intervention

	Example 1 [^]	Example 2 [^]	Example 3 [^]
Total hospital cost per patient*	\$9,793	\$8,047	\$7,041
Total PD Nurse salary cost per patient (1)	\$1,110	\$1,110	\$1,110
Total hospital cost for 500 patients	\$4,896,500	\$4,023,500	\$3,520,500
Total PD Nurse salary cost for 500 patients	\$555,000	\$555,000	\$555,000
Total benefits for 500 patients	\$4,341,500	\$3,468,500	\$2,965,500
Benefit per patient (2)	\$8,683	\$6,937	\$5,931
Net present value	\$21,677	\$17,095	\$14,455
Profitability index	20.53	16.4	14.02
Benefit-cost ratio [(2)/(1)]	7.82	6.25	5.34

*Costings provided by MNCLHD Finance

[^]Examples of costing models as applied in 3 different hospitals

Discussion

Parkinson's Specialist Nurses have a positive impact on people with Parkinson's and their carers. While this study has focussed on cost evaluation, this role is key in leading teams of clinicians to make systemic changes in health care delivery. It is critical to recognise the complexity and degenerative nature of Parkinson's disease and ensure practice is designed to support the person with PD and carer/family across the entire trajectory of this disease.

Conclusion

When combined with the findings from the qualitative data, the findings from this economic analysis can be used to advocate for the implementation of specialist nurse positions in underserved rural and regional locations in Australia. Findings have relevance in the wider Australian context and countries with similar geographical challenges.

References

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