

POLICY OPTIONS

Economic evaluation alongside a cluster-randomised-controlled trial of intensive management by Indigenous Health Workers of Indigenous people with poorly controlled type 2 diabetes in remote Australia.

Was “Getting Better at Chronic Care” cost-effective? It depends on what outcomes you measure.

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Policy context

Diabetes and associated complications are extremely high among Aboriginal and Torres Strait islanders in far north Queensland, especially in remote communities where access to specialist services is poor. The existing service model in these communities remains focussed on acute care (fee-for-service) rather than a chronic team-based care model. High turnover of itinerant health staff result in lack of continuity of care.

Evidence suggests that much of this risk can be mitigated in the primary health care (PHC) setting with better use of culturally appropriate support for clients, by trained indigenous health workers (IHWs) based in the community.

We examined the cost-effectiveness of a health-worker led model of care for adults with established poorly controlled diabetes, alongside a cluster randomised trial in far north Queensland, from 2011 to 2015. The health-worker-led model of care implemented in this trial resulted in modest improvements in glycemic control and substantial reductions in diabetes-related complications requiring hospitalisation. However overall hospitalisation rates did not differ between sites and there were no significant changes in quality of life scores. This trial took place amid a major service reduction instigated by a new state government policy in 2012, which resulted in substantial failure to implement key aspects of the planned service model, thus diluting the impact of the intervention.

Another important contributor to implementation failure in this trial was the lack of a PHC information system which supported registers, recall and team care planning.

We initially conducted a standard cost-effectiveness evaluation where the outcome measures included disease progression modelling, all-cause and “avoidable” hospitalisations, and changes in quality of life scores. This approach concluded that the costs were very high compared to the modest improvement in outcomes in the intervention sites compared to controls.

An alternative evaluation looked only at those hospitalisations which would be expected to be impacted by the IHW model, based on a previous trial in the same location a decade earlier, namely acute infections and diabetes-related complications. Using this approach, we found that the IHW-led model resulted in 40% fewer such admissions compared to controls, and that the “number needed to treat” (NNT) to avoid each such episode was three.

Policy options examined in this review

We looked at two approaches to the economic evaluation of a complex PHC-based Health-worker led model of care,

- The standard approach, which counted all hospitalisations as similar, and included quality of life scores and modelling of disease progression, concluded that the cost-effectiveness was low.
- The more targeted evaluation, which was based more on the logic of what the IHW model could achieve in a short time (and based on a previous trial in the Torres Strait), found that IHWs were highly effective in reducing acute severe diabetes related complications and infections.

We also conducted workshops at the end of the trial to understand the experiences of different service providers during the trial, and gather their views on what worked and didn't work, and how the model might be improved.

Despite an equivocal finding from our study from a clinical effectiveness and cost-effectiveness perspective, there remains strong support by the community-controlled sector for a health-worker led care model which supports family-based care and outreach services, rather than the individual fee-for-service funding model.

Other policy options include

Generally in this trial we found more support for the IHW model from the community-controlled health sector compared to state government services. One option would be to encourage the transfer of state-run PHC services in remote Indigenous communities to community control, provided sufficient resources were in place to support the chronic care model, including a leading role for Indigenous Health Workers.

Key findings

Economic evaluations of these types of complex interventions should be planned to capture those outcome measures which could be expected to be produced in the time frame of the trial. In this case, despite low implementation, the IHW model was able to demonstrate a significant reduction in acute complications of diabetes in this high risk population.

In spite of the modest clinical impact otherwise of this trial, service providers reported a positive experience and had the view that the investment in IHW training and role support would have ongoing positive benefits for clients. Please refer to Tables 1, 2, and 3 attached.

There is greater support for the IHW led model of chronic care from Community-controlled services than from state government services in far north Queensland.

Table 1. Hospitalization episodes by condition group, intervention and control groups (N=617)

Diagnosis groups	Control group n=351		Treatment group n=266		Total n=617	
	Before	After	Before	After	Before	After
1. Diabetes	28	24	29	13	57	37
2. Infections	50	57	45	30	95	87
3. Injury, arthritis	17	17	13	11	30	28
4. Mental, neurological	4	2	7	7	11	9
5. Obs & Gynecology	7	4	1	1	8	5
6. Respiratory	4	2	1	0	5	2

Table 2. Incident hospital admissions by condition groupings

	Control group		Intervention group	
	Before	After	Before	After
Episodes (All)	177	174	134	132
Person days	137990	128717	111715	95825
Episodes (Groups 1-4)	91	120	93	77
Incidence Rate (Groups 1-4) / 100,000 person days (95% CI)	65.95 (53.10 – 80.97)	93.23 (77.30-111.48)	83.25 (67.19-101.98)	80.35 (63.42-100.43)
Episodes (Groups 5-11)	86	54	41	55
Incidence Rate (Groups 5-11) / 100,000 person days (95% CI)	62.32 (49.85-76.97)	41.95 (31.52-54.74)	36.70 (26.34-49.80)	57.40 (43.24-74.71)
Episodes (Groups 1 and 4 only)	78	81	74	43
Incidence Rate (Groups 1 and 4 only) / 100,000 person days (95% CI)	56.5	62.9	66.2	44.9

Table 3. Cost-effectiveness estimates (95% CI) for the CHW intervention

Additional total cost (\$) per patient	AUS \$10,060
Control event risk/population expected event risk for admission for diabetes acute complication and acute severe infection complication	0.42
Relative risk of hospital admission for diabetes acute complication and acute severe infection complication (Groups 1 and 4, 95% CI)	0.59 (0.38 – 0.91)
Number of patients Needed to be Treated (NNT)	3
Cost per hospital admission for diabetes acute complication and acute severe infection complication prevented	AUS \$30,180

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