



Victoria
125 Cecil Street
South Melbourne VIC 3205
GPO Box 9993
Melbourne VIC 3001

www.kidney.org.au
vic@kidney.org.au
Telephone 03 9674 4300
Facsimile 03 9686 7289

**KIDNEY
HEALTH
AUSTRALIA**

The Impact of Increased Power Costs on Home Haemodialysis Northern Territory

1. Purpose

The purpose of this discussion paper is to illustrate the potential impact of increased power costs on the number of people choosing to undertake or remain using home haemodialysis within the Northern Territory (NT).

2. Background

The Northern Territory has the highest prevalence rate of dialysis patients in Australia.¹ This is comprised of a significant number of Aboriginal and Torres Strait Islander renal patients, with a rate of 743 per million population (pmp). The treatment option most utilised is haemodialysis, through stand-alone renal units in Darwin, Katherine, Tennant Creek, and Alice Springs or satellite centres in remote communities offering closer to home nurse-lead or self-dialysis models of care.

Renal units and satellite centres in the Northern Territory are operated by the Northern Territory Government or in some cases an Aboriginal Community Controlled Health Service.

The Northern Territory has a small number of renal patients that undertake home haemodialysis. A combination of remoteness, socioeconomic factors, physician preferences and availability of local training facilities are all likely reasons for differences in dialysis treatment location rates.

3. Modality & Costs in Northern Territory

In cases of home haemodialysis patients, increases in the cost of electricity contribute significantly to a situation where they face costs of up to approximately \$870 per annum.

Appendix B provides a Home Dialysis Power Usage Analysis for Northern Territory for a 6 hour dialysis session and a 9 hour nocturnal dialysis session. It finds that there is annual power cost of \$1008.90 for a 9 hour nocturnal dialysis. While there is an annual dialysis rebate of \$140, there is a differential **shortfall of \$868.90** per annum to the patient/household for home haemodialysis.

While, the Northern Territory has a low rate of home haemodialysis there is a real out of pocket electricity cost to undertake dialysis at home.

¹ ANZDATA 2013 Annual Report – 36th Edition

4. Modality & Savings

Figure 1 illustrates the number (expressed as a %) of Northern Territory dialysis patients by mode of dialysis between 2004 and 2013 (Source – ANZDATA).

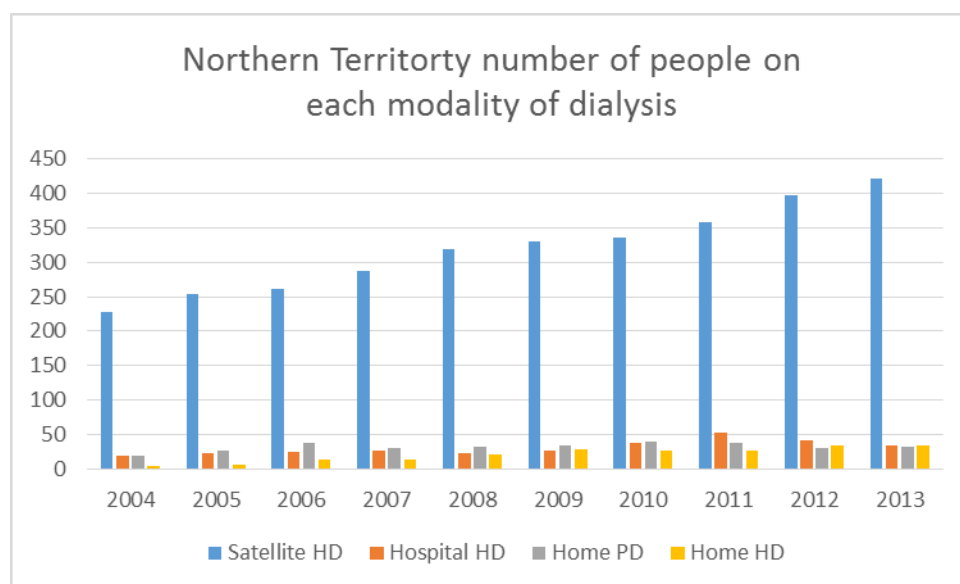


Figure 1 – Number of NT patients undergoing dialysis by mode

Points worth noting from Figure 1 includes:

- The total number of dialysis patients in NT increased 88% from 277 in 2004 to **521** in 2013.
- The percentage of people dialysing at home increased from 11% to 13% of the total population between 2004 and 2013.
- The total number of home dialysis patients rose from 30 in 2004 to 67 in 2013.
- During this period home haemodialysis patients increased from 4 to 34.

As at December 2013, there were 34 home haemodialysis patients in Northern Territory (ANZDATA). It can be calculated that the 34 patients who have chosen home haemodialysis instead of satellite dialysis currently **reduce health budget costs by nearly \$550,052** annually in Northern Territory (based on a \$16,178 cost difference in modalities explained below).

Using the annual costs of **\$65,315 for satellite haemodialysis patients** and **\$49,137 for home haemodialysis patients** (KHA 2010 national prices), the likely costs to the NT Health budget as a result of either existing home patients switching to satellite dialysis or potential new home patients choosing satellite dialysis because of the power costs associated with home dialysis can also be calculated.

This is a conservative calculation as the average national annual cost of **hospital haemodialysis is \$79,072** and while some hospital haemodialysis supports acute patients, it also provides dialysis to patients who would be suitable for satellite or potentially home haemodialysis. According to the Central Australia Renal Study, the specific costs within the Northern Territory are even greater.

Hospital haemodialysis costs the territory **\$101,189**, satellite dialysis costs **\$75,980** and home haemodialysis is the lowest cost at **\$54,017²**.

Since 2004, an additional 225 people or 81% are now undertaking dialysis. The 2013 numbers show a total of 521 patients on dialysis with 454 of those on satellite or hospital dialysis. The Northern Territory has one of the lowest rates of home haemodialysis in the country at 6%. The national average is 9%, and New South Wales holds the highest rate, with 12%.

5. Discussion

Within other jurisdictions, home haemodialysis can provide the best outcomes for appropriate patients and is also the most cost effective. Kidney Health Australia understands that there are low rates of home haemodialysis patients in the Northern Territory. However, the reasons for low rates of home haemodialysis in the Northern Territory may be due to a higher proportion of Indigenous patients who face complex barriers to access, higher rates of infections or adverse health outcomes, or they may have a preference for in-centre dialysis or self-dialysis.

Where it is appropriate for a patient to take up home haemodialysis in the Northern Territory there are many considerations. These can include patient preparedness such as personal competence, availability of a carer and convenience; physical set up including access and costs for power and water and cultural factors including understanding, acceptance and spirituality around kidney illness. All these factors need to be weighed up against transport time and transport costs to available satellite or hospital centres, where utility costs and incidentals are all covered, food provided and professional medical staff are available.

If it is appropriate for a patient to undertake home haemodialysis, there are out of pocket expenses. A summary of the issues facing a person who is currently eligible for home dialysis, but is also considering satellite or hospital dialysis, is presented in the following Table.

²[http://www.health.gov.au/internet/main/publishing.nsf/Content/B442C16562A8AC37CA257BF0001C9649/\\$File/Executive%20summary%20-%20Central%20Australia%20Renal%20Study.pdf](http://www.health.gov.au/internet/main/publishing.nsf/Content/B442C16562A8AC37CA257BF0001C9649/$File/Executive%20summary%20-%20Central%20Australia%20Renal%20Study.pdf)

Issue	Satellite / Hospital Dialysis	Home Haemodialysis
Set up costs	Nil	Includes chair, storage for consumables, plumbing and electrical alterations. May cost up to \$3,000
Training requirements	None	Patient and carer training required, which can necessitate travel and accommodation for the duration of training
Running costs	Nil	Electricity up to about \$1,000 per annum. Water up to about \$250 per annum
Ongoing Transport costs	Variable cost and time. May require assistance with transport.	Nil
Convenience	Has to fit in with the satellite centre's schedule. May require assistance with transport.	Can dialyse on days / times that suits the patient. May require carer assistance.
Medical outcome	Good	Better

The Northern Territory Renal Services Framework 2012-2017 outlines the future direction and priorities for the service and focuses on six priority areas. These six priorities are fundamental to the development of the dialysis home therapies program and of particular relevance is the priority to enable renal patients to have treatment closer to home. The Department of Health NT states:

The goals for the Home Therapies program as outlined in the Renal Services Framework 2012-2017 is reflected in the adoption of a "Home Therapies First Policy" and responds to client related demand drivers such as loss of health independence, limited options of care and the burden of dislocation from their home community.³

The Northern Territory Implementation Plan 2014-2016 promoted strategic directions to assist with the development of service plans. Notably, the document mentions:

- Reducing health disparities amongst different population groups with regard to conditions and chronic disease (including Chronic Kidney Disease);
- Maximise the wellbeing of those living with chronic conditions;
- Improved access to chronic conditions services closer to home.

The Central Australia Renal Study also supports these plans, and in particular in discussing home dialysis options states:

Protocols for dialysis treatment closer to home in the particular circumstances of the CA [Central Australia] region must be agreed and formalised – Safe and sustainable renal service provision in remote communities requires specification of a broad range of

³ http://www.health.nt.gov.au/Renal_Services/Work_for_Us/Dialysis_Home_Therapies/index.aspx

well-documented environmental factors, including location, services, design, construction, water, electricity, drainage and management of bio-hazardous waste.⁴

Despite each home haemodialysis patient reducing the cost to the NT Health budget by between \$21,000 and \$47,000 annually by their choice of modality, patients are currently bearing considerable out-of-pocket costs as a result of increased power costs compared to satellite or hospital patients.

This lack of uptake for home haemodialysis patients is also contrary to the stated aim in the Northern Territory Implementation Plan of promoting adequate health services closer to patient homes:

“Improve access to health services for all Territorians: many people have difficulty in accessing health services. Barriers include health literacy, language and distance...Promoting delivery of chronic conditions care closer to home is key”⁵

Haemodialysis patients should be subsidised at an increased rate due to the significant out of pocket expenses incurred. The cost to subsidise such few patients would have a minimal financial impact to the Government, but would allow significant cost savings within the Northern Territory Health Budget.

6. Conclusions

Current subsidies for power usage for home dialysis patients are inadequate leaving a shortfall of some \$868.90 per annum. This is a disincentive and may create unintended financial hardship for current home haemodialysis patients, resulting in a return to hospital-based or satellite renal dialysis.

Both the Northern Territory Implementation Plan 2014-2016 and the principles stated in the Northern Territory Renal Services Framework 2012-2017 support the use of home therapies.

There are greater savings to the Health system in the Northern Territory by enabling home haemodialysis, where appropriate. Those small number of home haemodialysis patients should not be financially disadvantaged by their choice of modality to dialyse at home rather than hospital and satellite dialysis services.

7. Recommendations

There are a range of concessions and subsidies which could be implemented in the Northern Territory to assist.

These include:

⁴[http://www.health.gov.au/internet/main/publishing.nsf/Content/B442C16562A8AC37CA257BF0001C9649/\\$File/Executive%20summary%20-%20Central%20Australia%20Renal%20Study.pdf](http://www.health.gov.au/internet/main/publishing.nsf/Content/B442C16562A8AC37CA257BF0001C9649/$File/Executive%20summary%20-%20Central%20Australia%20Renal%20Study.pdf)

⁵http://digitallibrary.health.nt.gov.au/prodjsui/bitstream/10137/608/1/NT%20Implementation%20Plan%20014-2016_FINAL.pdf

- Annual payment to patients for home haemodialysis (CPI indexed). For example, in Victoria patients are eligible for \$1,990 per year in direct payments
- Discount on Annual Energy Bills – For example in Victoria, there is a 17.5% discount on energy bills for concession card holders.⁶
- Rebates –Discounts offered on life saving equipment in Victoria is equal to the cost of 1,880 kilowatts per year. Victoria also offers discounts on usage such as water, and provides a special dispensation rebate on water bills equal to the cost of 168 kilolitres of water per year.

We strongly advocate exploring options to assist with alleviating the financial burdens on home HD patients in NT.

Reference

Kidney Health Australia, 2010, *The Economic Impact of End-Stage Kidney Disease in Australia: Projections to 2020*, p. 27.

⁶ The Northern Territory Pensioner and Carer Concession Scheme provides general concessions on some utility costs for holders of various concession cards. This rate can be variable and determined by Centrelink (Department of Human Services)

Analysis Explanation:

Calculation of the potential financial impact that low rates in home haemodialysis has had over the last two years on the health system using average national data

<i>Patient modality</i>	Hospital Haemodialysis	Satellite Haemodialysis	Home PD	Home Haemodialysis	Total
Ave Annual Cost of treatment ⁷	\$79,072	\$65,315	\$53,112	\$49,137	
2010 Actual Patients	38	335	39	27	439
Cost of Actual 2010 Treatment	\$3,004,736	\$21,880,525	\$2,071,368	\$1,326,699	\$28,283,328
2013 Actual Patients	33	421	32	34	520
Cost of Actual 2013 Treatment	\$2,609,376	\$27,497,615	\$1,699,584	\$1,670,658	\$33,477,233 (an 18% increase from 2010)
Calculation of potential 2016 patient numbers (at 18% increase proportionately)	39	497	38	40	613
Cost of treatment calculation	\$3,083,808	\$32,461,555	\$2,018,256	\$1,965,480	\$39,529,099

⁷ Kidney Health Australia, 2010, *The Economic Impact of End-Stage Kidney Disease in Australia: Projections to 2020*,

Appendix B:
Home Dialysis Power Usage Analysis
for Northern Territory

1. Purpose

This analysis seeks to quantify current electricity usage by home haemodialysis patients at the present time with present rates. Even though a conservative approach has been applied to this new analysis (rates of electricity have been selected based only on a two person household) it still demonstrates considerable out of pocket costs.

2. Input Data for Power Costs

The Northern Territory has one main electricity provider, Jacana Energy. Rates were taken directly from Jacana Energy's website.

3. Current Home Dialysis Practice

Although home dialysis practices vary somewhat the current recommended practice is for 5 hours dialysis every second day. Allowing for 1 hour for setup and cleanup that totals 1,095 running hours per annum ($6 \times 365/2$).

Due to the improved health outcomes, a number of dialysis patients are opting for nocturnal dialysis every second day which entails minimum 8 hours dialysis. Again, allowing 1 hour for setup and cleanup that totals 1642 running hours per annum ($9 \times 365/2$).

4. Dialysis Machine Power Usage

Dialysis power usage averages approximately 2,000 watts/hour for the dialysis machine and 400 watts/hour for the reverse osmosis (RO) unit (data supplied by Sydney Dialysis Centre), totalling 2400 watts/hour.

5. Dialysis Machine Power Costs

Table 1 illustrates usage calculated for a power meters in Northern Territory. It clearly demonstrates that there is still considerable burden to patients choosing to dialyse at home and that all the arguments of the original analysis are sustained.

Table 1 – Cost for Dialysis in Northern Territory

	Jacana Energy	
	6 hour dialysis	9 hour nocturnal dialysis
Hours per annum	1,095	1,642
Power cost/kWh	0.2560	0.2560
Power usage kW/hr	2.40	2.40
Annual power usage kWh	2,628	3,941
Annual power cost	\$672.77	\$1008.90
Annual dialysis rebate	\$140	\$140
Net annual cost to user	\$532.77	\$868.90

6. Conclusion

From the data presented above, the impact of increasing electricity prices continues to inflict a considerable burden on patients who have chosen to undertake home haemodialysis. The cost burden exceeds \$800 per annum for those patients undertaking nocturnal dialysis using a conventional power meter in remote and very remote areas, and it should be considered that that scenario has an assumption that town water is available and that additional electricity isn't being used towards running water pumps on tanks.

Similarly, throughout this analysis, consideration has only been for the delivery of the dialysis, not for the typical scenario that a dialysis patient will likely also be consuming additional power through secondary requirements such as personal air conditioning and the use of television during the dialysis time.