



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

[www.kidney.org.au](http://www.kidney.org.au)  
[vic@kidney.org.au](mailto:vic@kidney.org.au)  
Telephone 03 9674 4300  
Facsimile 03 9686 7289

**KIDNEY  
HEALTH  
AUSTRALIA**

## **The Impact of Increased Power Costs on Home Haemodialysis Tasmania**

---

### **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 Tasmania.

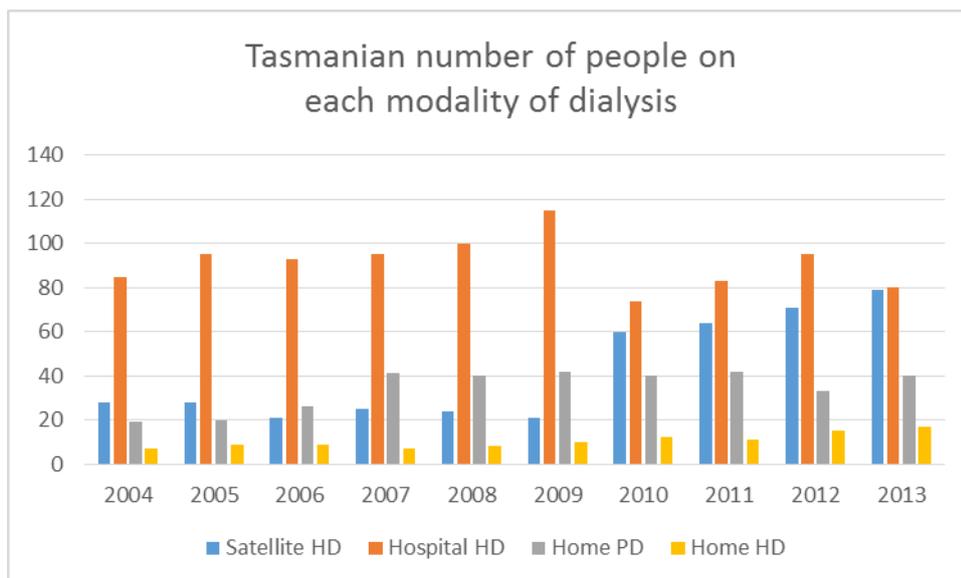
### **2. Background**

Increases in the cost of electricity continue to contribute to the situation where home haemodialysis patients face significant out-of-pocket costs of up to approximately \$859 per annum (refer attached analysis – Appendix B). Figure 1 illustrates the number of Tasmanian dialysis patients by mode of dialysis between 2004 and 2013 (Source – ANZDATA).

Points worth noting from Figures 1 includes:

- The total number of dialysis patients in Tasmania increased 52% from 147 in 2004 to **216** in 2013.
- The total number of home dialysis (haemodialysis and peritoneal dialysis) patients rose from 34 in 2004 to 57 in 2013.
- The percentage of people dialysing at home increased from 23% to 26% of the total Tasmanian dialysis population between 2004 and 2013.
- During this period home haemodialysis patients increased from 7 to 17, an increase that is only 14% of the overall patient number that commenced dialysis.

**Tasmania has a low rate of home haemodialysis and shows a very marginal increase not synonymous with the growth of total dialysis patients during the same timeframe. An important step to improve the uptake of patients choosing to dialyse at home would be to alleviate some of the significant out of pocket electricity costs they are currently facing.**



**Figure 1 – Number of Tasmanian patients undergoing dialysis by mode**

As at December 2013, there were 17 home haemodialysis patients in Tasmania (ANZDATA). It can be calculated that the 17 patients who have chosen home haemodialysis instead of satellite dialysis currently reduce health budget costs by nearly \$275,026 annually in Tasmania (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 prices), the likely costs to the Tasmanian 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.

Since 2004, an additional 69 people or 47% are now undertaking dialysis. The 2013 numbers show a total of 216 patients on dialysis with 159 of those on satellite or hospital dialysis. Tasmania has a low rate of low cost home based dialysis. Tasmania is currently dependent upon the more expensive modalities of satellite and in-centre haemodialysis. Changing this mix of modalities, and increasing home-based treatments would deliver savings estimated at \$825,078 per annum based on a 50% split of home based to in-centre based dialysis (an additional 51 people moving to home based dialysis).

The impact of increasing electricity prices continues to inflict a considerable burden on patients who have chosen to undertake home haemodialysis. The cost burden can be approximately \$500-\$800 per annum depending on dialysis modality<sup>1</sup>.

<sup>1</sup> Refer to Appendix B for further analysis

### 3. Discussion

It is well recognised that home haemodialysis provides the best outcomes for appropriate patients and is also the most cost effective.

For a patient to take up home haemodialysis there are many considerations, including personal competence, availability of a carer, convenience, set up costs and running cost for power and water. 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.

The Tasmanian State Renal Plan 2010-2020 identified that the increase in home based home dialysis could provide a cost saving:

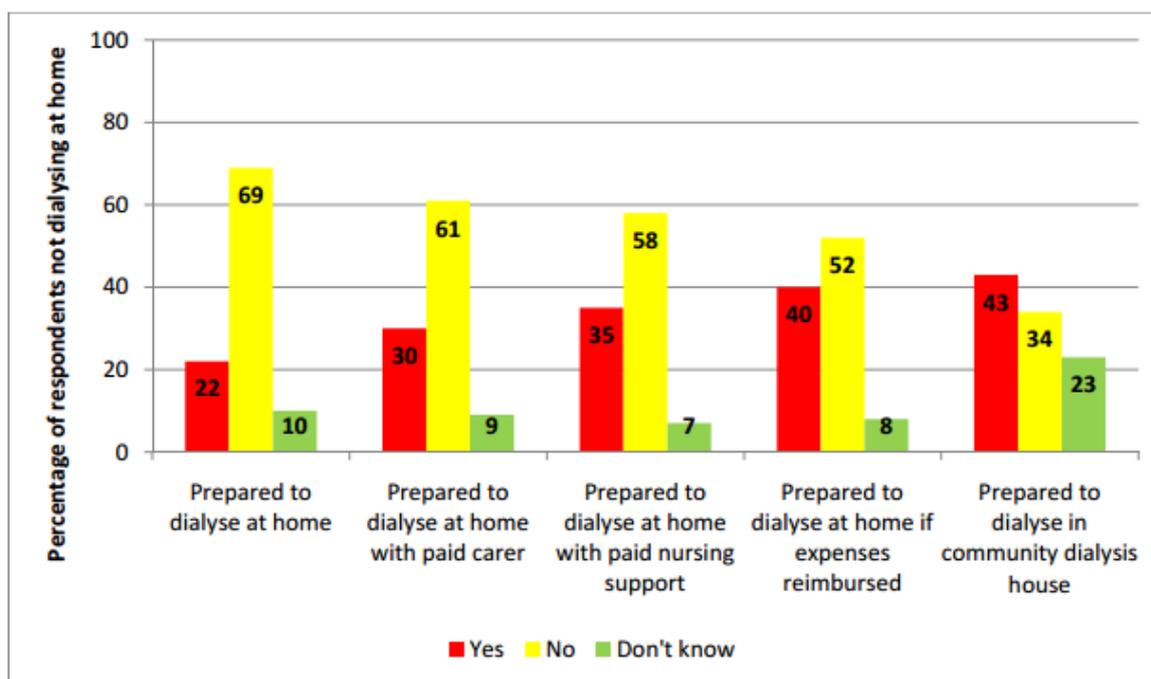
The current mix of treatment modalities for dialysis patients in Tasmania is very dependent upon the more expensive modalities of satellite and in-centre haemodialysis, with lower than national rates of use in the less expensive home-based therapies. Changing this mix of modalities and increasing home-based treatments would deliver savings estimated at \$16.2m and would likely be associated with improvements in quality of life.<sup>2</sup>

In 2011 Kidney Health Australia published its *“Report on Consumer Perspectives on Dialysis – First National Census.”* Analysis of the data from Tasmania about the willingness of those not currently dialysing at home to change to home dialysis was surveyed and the results are shown in Figure 2. There are a considerable number of respondents who indicated their willingness to consider home dialysis if expenses were reimbursed.

---

<sup>2</sup>

[http://www.dhhs.tas.gov.au/\\_\\_data/assets/pdf\\_file/0010/57178/State\\_Plan\\_Renal\\_Services\\_January\\_2010.pdf](http://www.dhhs.tas.gov.au/__data/assets/pdf_file/0010/57178/State_Plan_Renal_Services_January_2010.pdf)



**Figure 2 – Willingness of Tasmanian patients to dialyse at home.**

The Tasmanian Renal Health Plan (*State Plan for Renal Services 2010-2020*) had clear recommendations and objectives listed in order to oversee a renal service in Tasmania that will deliver solutions for future challenges. Notably, the document mentions:

Ensure patients undertaking self-care therapies are not ‘out of pocket’ as a result of minor infrastructure changes to homes or increased recurrent costs related to essential services. Renal Services should undertake the necessary liaison with councils, power and water authorities to facilitate concessions and provide reimbursements where necessary.<sup>3</sup>

Despite each home haemodialysis patient reducing the cost to the Tasmanian Health budget \$16,000 up to \$30,000 annually by their choice of modality, they are currently bearing considerable out-of-pocket costs as a result of increased power costs compared to satellite or hospital patients. This is an inequitable situation and is certainly not a smart choice regarding costs and benefits. It is also clearly creating an increasing demand for satellite dialysis infrastructure.

As a corollary to the argument that the cost of providing dialysis would rise as a result of patients rejecting the option of home haemodialysis because of the costs involved, if more patients were to choose home haemodialysis as a result of removal of financial barriers, the dialysis associated costs would fall.

<sup>3</sup>

[http://www.dhhs.tas.gov.au/\\_\\_data/assets/pdf\\_file/0010/57178/State\\_Plan\\_Renal\\_Services\\_January\\_2010.pdf](http://www.dhhs.tas.gov.au/__data/assets/pdf_file/0010/57178/State_Plan_Renal_Services_January_2010.pdf)

#### 4. Comparison between satellite and home haemodialysis

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.

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

It is obvious that, if financial constraints are paramount, then the choice of modality is weighted heavily against home haemodialysis in the current climate.

#### 5. Conclusions

Current subsidies for power usage for home dialysis patients are inadequate and inequitable and are leading to a growing number of current home dialysis patients being unable to sustain home haemodialysis and a reduction in the number of patients electing this modality.

This is contrary to the aims of the Tasmanian Renal Health Plan (*State Plan for Renal Services 2010-2020*).

Unaddressed, this situation is clearly leading to increased costs in the Health budget and a greater demand for hospital and satellite dialysis services.

#### 6. Recommendations

For several years now, Victoria has had in place a successful arrangement which offers:

- A \$1,990 per patient per annum payment for home haemodialysis (CPI indexed).
- A \$755 per patient per annum payment for home peritoneal dialysis (CPI indexed).
- A 17.5% discount on annual energy bills for concession card holders.
- Concession card holders may also be eligible to receive a rebate of up to \$277 per year.

- Life Support machine concession – the discount is equal to the cost of 1,880 kilowatts per year.

We would strongly advocate that the Victorian model be considered, or at very minimum, the rates under the current arrangement be commensurate with the Victorian rates as listed above. Kidney Health Australia willingly offers to assist collaboratively in providing further analysis to demonstrate the potential savings such an incentivising model would ultimately deliver.

### **Reference**

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

**Analysis Explanation:**

Calculation of the potential financial impact that low rates in home haemodialysis has had over the last three years on the health system

<i>Patient modality</i>	Hospital Haemodialysis	Satellite Haemodialysis	Home PD	Home Haemodialysis	Total
Ave Annual Cost of treatment <sup>4</sup>	\$79,072	\$65,315	\$53,112	\$49,137	
<b>2010</b> Actual Patients	74	60	46	12	192
Cost of Actual 2010 Treatment	\$5,851,328	\$3,918,900	\$2,390,040	\$589,644	\$12,749,912
<b>2013</b> Actual Patients	80	79	40	17	216 (a 12.5% increase on 2010 )
Cost of Actual 2013 Treatment	\$6,325,760	\$5,159,885	\$2,124,480	\$835,329	\$14,445,454
<b>Calculation of potential 2016 patient numbers (based on 12.5% increase proportionately)</b>	90	89	45	19	243
Cost of treatment calculation	\$7,116,480	\$5,813,035	\$2,390,040	\$933,603	\$16,253,158
Anticipated increase from 2013 actual to calculated 2016 dialysis delivery costs if modalities rates stay the same					<b>\$1,807,704</b>
<b>It is suggested that action on the impact of increasing electricity costs and the associated out of pocket expenses for home patients could reduce cost barriers for modality choice and positively impact projected financial outcome.</b>					

<sup>4</sup> 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 Tasmania**

## **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 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**

For the purpose of this exercise, residential power costs on the following distribution grid has been used:

- Aurora Energy

## **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 x 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 x 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 Tasmania. 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 Tasmania**

	Aurora Energy	
	6 hour dialysis	9 hour nocturnal dialysis
Hours per annum	1,095	1,642
Power cost/kWh	0.24717	0.24717
Power usage kW/hr	2.40	2.40
Annual power usage kWh	2,628	3,941
Annual power cost	\$649.56	\$974.09
Annual dialysis rebate	\$114.23	\$114.23
Net annual cost to user	<b>\$535.33</b>	<b>\$859.86</b>

## 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 regional and rural 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 heating or cooling and the use of television during the dialysis time.