The Impact of Increased Power Costs on Home Haemodialysis
(re-released 2014)

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.

2. Background

Clearly demonstrated since the original analysis was undertaken in 2011, increases in the cost of electricity continue to contribute to the situation where home haemodialysis patients face significant out-of-pocket costs up to approximately $1,000 per annum (refer attached analyses – Appendix B & C).

Figures 1 and 2 illustrate the dialysis modality changes for New South Wales patients between 2004 and 2012 (Source – ANZDATA).

Points worth noting from Figures 1 and 2 include:-

- The total number of dialysis patients in NSW increased 47% from 2,513 in 2004 to **3,707** in 2012.
- The percentage of people dialysing at home decreased from 44% to 37% of the total population between 2004 and 2012.
- The total number of home dialysis patients rose from 1,103 in 2004 to 1,369 in 2012. **Yet during this period home haemodialysis patients decreased from 453 to 445, signalling an increased pressure on in-centre haemodialysis solutions.**

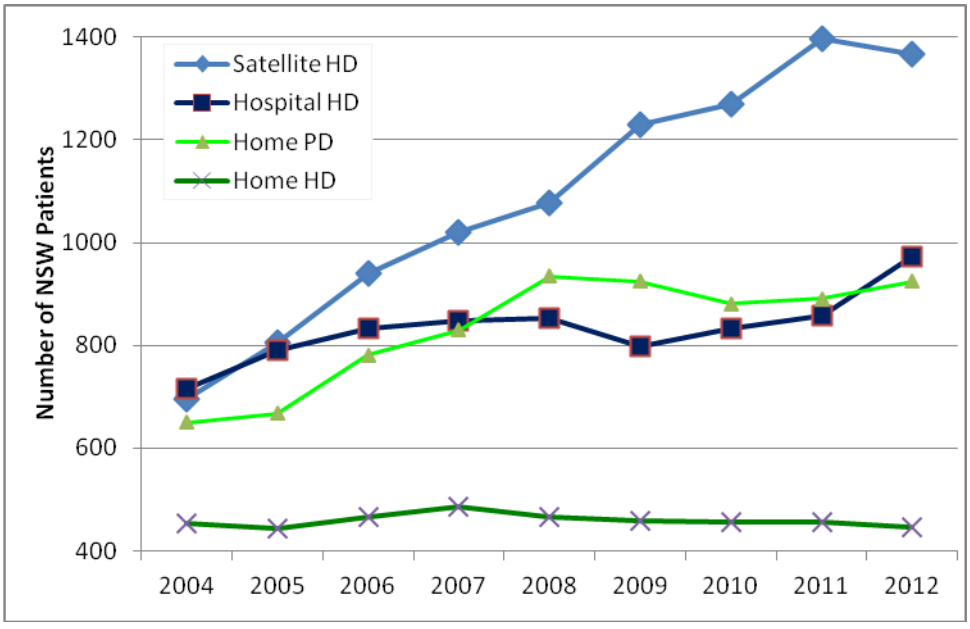


Figure 1 – Number of NSW patients undergoing dialysis by mode

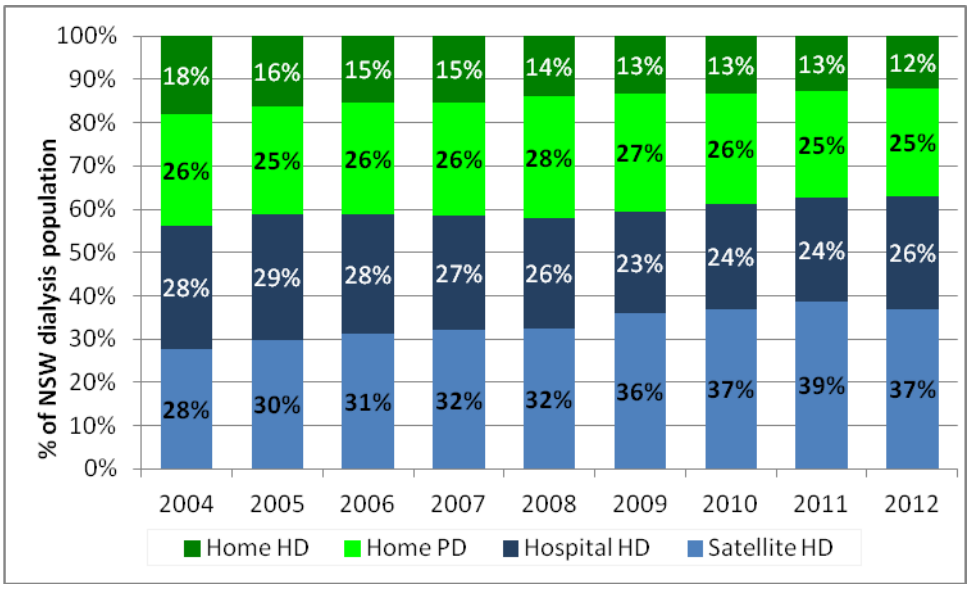


Figure 2 – Dialysis modality as a function of the total dialysis population

As at December 2012, there were 445 home haemodialysis patients in New South Wales (ANZDATA). It can be calculated that the 445 patients who have chosen home haemodialysis instead of satellite dialysis currently reduce health budget costs by nearly $7,200,000 annually in New South Wales (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 NSW 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 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.

When analysis of the impact of increasing electricity costs on people undertaking home dialysis was initially communicated in 2011, the argument was proposed that if 5% or approximately 23 of the current patients in 2010 changed from home haemodialysis back to satellite haemodialysis, it would cost an additional $369,667 (refer Figure 3).

Since the original 2011 analysis an additional 267 people or 7.8% are now undertaking dialysis and as 236 of these are dialysing in a hospital or satellite centre, it could be extrapolated the decrease rather than proportionate increase in home haemodialysis over the last two years has incurred an **additional cost to the state of $2,099,246** (refer Appendix A for analysis explanation)

The annual costs that were calculated would be incurred should existing home patients change to satellite dialysis are demonstrated following in Figure 3.

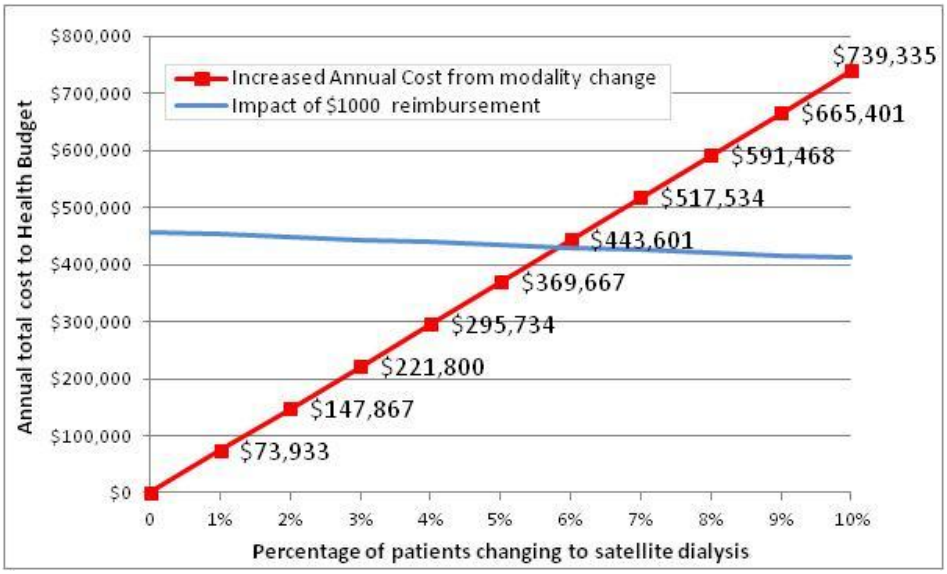


Figure 3 – Potential annual costs to the Health budget resulting from haemodialysis users changing to satellite dialysis

Notes:-

i. The red line shows the increased cost that would result from patients changing from home haemodialysis to satellite dialysis.
(e.g. If 5% or approximately 23 patients change, it would cost an additional $369,667)

ii. The blue line represents the annual cost of reimbursing all home haemodialysis patients (457 at December 2010) for electricity costs at $1000 per home haemodialysis patient.

iii. If 5.82% of home patients (approximately 26 people) changed to satellite dialysis as a result of the impact of power costs and all home patients were paid an annual allowance of $1000 to cover power costs, the increase in cost to the NSW Health budget would be revenue neutral.

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. A modicum of courage is also required. These factors need to 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 NSW Renal Services Plan 2006 to 2011 (Section 5.2) identified appropriate benchmarks for the distribution of modalities as 50% home based dialysis, consisting of 30% peritoneal dialysis and 20% home haemodialysis. Home based dialysis in New South Wales has fallen from 44% in 2004 to 37% in 2012; with home haemodialysis falling from 18% to 12%.

In 2011 Kidney Health Australia published its *"Report on Consumer Perspectives on Dialysis – First National Census."* Analysis of the data from New South Wales about the willingness of those not currently dialysing at home to change to home dialysis was surveyed and the results are shown in Figure 4.

There are a considerable number of respondents who indicated their willingness to consider home dialysis if expenses were reimbursed.

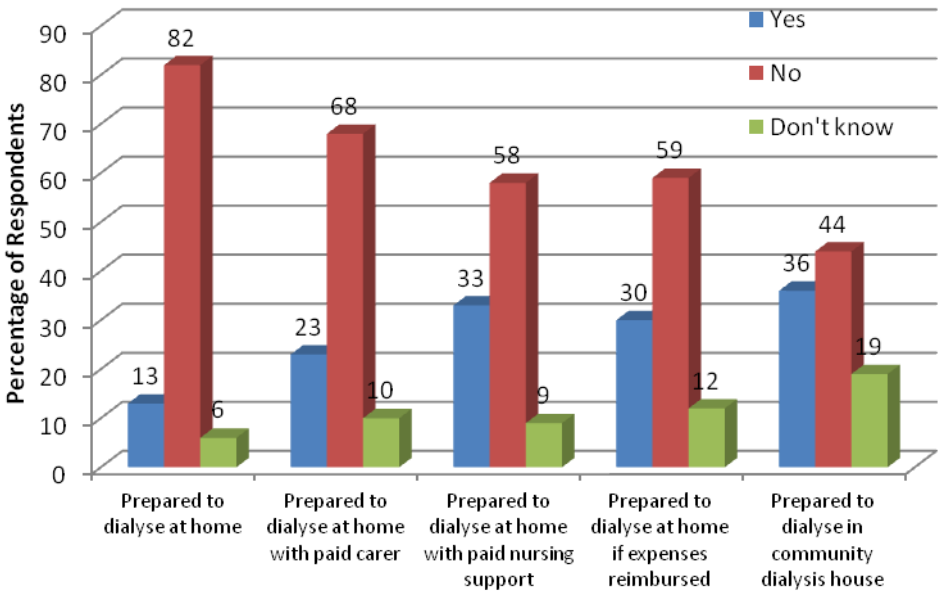


Figure 4 – Willingness of NSW patients to dialyse at home.

The NSW State Health Plan (*A New Direction for NSW: State Health Plan – Towards 2010)* promoted seven strategic directions to assist with the development of service plans. Two of these are:-

- Create better experiences for people using health services
- Make smart choices about the costs and benefits of health services

Despite each home haemodialysis patient reducing the cost of the NSW Health budget by over $16,000 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.

This lack of equity for home haemodialysis patients is also contrary to the stated aim in the NSW State Health Plan of promoting equity of access to health services:-

"NSW Health will seek to provide greater equity of access to heath services*. We will continue to work with other service providers and government agencies to reduce the health gap through enhancing the health of those who currently have the poorest health status. At the same time we will continue to focus on protecting, maintaining and improving the health and wellbeing of all the people of NSW."*

As a corollary to the argument that the cost of dialysis is likely to rise as a result of patients rejecting home haemodialysis because of the costs involved, if more patients were to consider home haemodialysis resulting from their understanding that financial barriers would be removed, the cost of meeting the dialysis demand from the NSW Health budget would fall.

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 totally 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 NSW Renal Services Plan and the principles stated in the NSW State Health Plan.

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.
- Water – special dispensation rebate on water bills equal to the cost of 168 kiloliters of water per year.

We would strongly advocate that the Victorian model be considered and 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 the decrease rather than proportionate increase in home haemodialysis has had over the last two years on the health system

Patient modality	**Hospital Haemodialysis**	**Satellite Haemodialysis**	**Home PD**	**Home Haemodialysis**	**Total**
Ave Annual Cost of treatment[1]	$79,072	$65,315	$53,112	$49,137	
2010 Actual Patients	834	1269	881	457	3441
Cost of Actual 2010 Treatment	$65,946,048	$82,884,735	$46,791,672	$22,455,609	$218,078,064
2012 Actual Patients	973	1366	924	445	3708 (**7.8%** Inc on 2010)
Cost of Actual 2012 Treatment	$76,937,056	$89,220,290	$49,075,488	$21,865,965	$237,098,799
Calculation of potential 2012 patient numbers at 7.8% increase proportionately on 2010	899	1367	949	492	3708
Cost of treatment calculation	$71,063,047	$89,316,070	$50,422,412	$24,198,023	$234,999,553
Difference between 2012 Actual and potential 2012 cost if the increase in modalities had been proportionate **It is suggested that action on the impact of increasing electricity costs for home patients would have reduced this imbalance and resulting financial impact.**					**$2,099,246**

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

Home Dialysis Power Usage Analysis for New South Wales

(updated January 2014)

1. Purpose

A detailed analysis of the impact of increasing electricity costs on home haemodialysis users was originally undertaken and communicated to key stakeholders in July 2011 (refer Appendix C).

This reviewed analysis seeks to quantify current electricity usage by home haemodialysis patients two years later, as at the end of 2013. 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

Since the original analysis was undertaken (Appendix C) there has been a change in energy providers and for the purpose of this exercise, residential power costs from Origin Australia (formerly Country Energy) on the following distribution grids have been used:

- AusGrid (formerly Energy Australia) – Sydney, Central Coast and Hunter regions
- Endeavour Energy - including Sydney's Greater West, the Southern Highlands and the Illawarra.
- Essential Energy – Regional and Rural NSW

'FlexiChoice' (no exit fees) residential power costs from 1st July 2013 are shown in the following table.

Domestic	unit	**cents**	**Domestic TOU (Powersmart)**	unit	**cents**
AusGrid					
Consumption of first 1,000kWh/qtr	per kWh	**27.390**	Peak (2-8pm working days)	per kWh	**52.547**
Consumption of next 1,000kWh/qtr	per kWh	**29.018**	Shoulder (7am-2pm and 8-10pm working days; 7am-10pm weekends)	per kWh	**21.846**
Remaining consumption kWh/qtr	per kWh	**31.328**	Offpeak (all other times)	per kWh	**13.167**
Endeavour Energy					
Consumption of first 1,750kWh/qtr	per kWh	**27.126**	Peak (1-8pm working days)	per kWh	**39.347**
Remaining consumption kWh/qtr	per kWh	**30.151**	Shoulder (7am-1pm and 8-10pm working days; 7am-10pm weekends)	per kWh	**30.261**
			Offpeak (all other times)	per kWh	**15.268**
Essential Energy					
All consumption	per kWh	**34.221**	Peak (7-9am and 5-8pm working days)	per kWh	**38.159**
			Shoulder (9am-5pm and 8-10pm working days)	per kWh	**38.159**
			Offpeak (all other times)	per kWh	**18.997**

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

While a full analysis was originally undertaken in 2011, because of the wide range of metering options Table 2 illustrates usage calculated for a conventional meter and Table 3 for TOU (Time of Use) or smart meter. While this is not undertaken in the same detail as the original analysis, 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 2 – Cost for Dialysis with a conventional power meter

	AusGrid		**Endeavour Energy**		**Essential Energy**	
	6 hour dialysis	**9 hour nocturnal dialysis**	**6 hour dialysis**	**9 hour nocturnal dialysis**	**6 hour dialysis**	**9 hour nocturnal dialysis**
Hours per annum	1,095	1,642	1,095	1,642	1,095	1,642
Power cost/kWh	$0.27390 $0.29018	$0.27390 $0.29018	$0.27126 $0.30151	$0.27126 $0.30151	$0.34221	$0.34221
Power usage kW/hr	2.40	2.40	2.40	2.40	2.40	2.40
Annual power usage kWh	2,628	3,941	2,628	3,941	2,628	3,941
Annual power cost	$757.38	$1,138.39	$712.87	$1,087.82	$899.33	$1,348.65
Annual dialysis rebate	$251.85	$251.85	$251.85	$251.85	$251.85	$251.85
Net annual cost to user	**$505.53**	**$886.54**	**$461.02**	**$835.97**	**$647.48**	**$1,096.80**

Assumptions:

- A two person home in Sydney uses on average 920kW per quarter *(EnergyMadeEasy website)* and for the purpose of this exercise, calculations have been based on this conservative household figure (*ave NSW Household 2.6 people – 2011 ABS)*
- This usage has been the base to which the additional dialysis demand has been calculated

Table 3 – Cost for Dialysis with a smart meter

	AusGrid		Endeavour Energy		Essential Energy	
	6 hour dialysis	**9 hour nocturnal dialysis**	**6 hour dialysis**	**9 hour nocturnal dialysis**	**6 hour dialysis**	**9 hour nocturnal dialysis**
Hours per annum	1,095	1,642	1,095	1,642	1,095	1,642
Power cost/kWh	$0.21846 (2hr) $0.52547 (4hr)	$0.21846 $0.13167	$0.39347	$0.30261 $0.15268	$0.18997 (offpeak)	$0.18997 (offpeak)
Power usage kW/hr	2.40	2.40	2.40	2.40	2.40	2.40
Annual power usage kWh	2,628	3,941	2,628	3,941	2,628	3,941
Annual power cost	$1,111.99	$594.92	$994.24	$733.02	$1002.82	$916.49
Annual dialysis rebate	$251.85	$251.85	$251.85	$251.85	$251.85	$251.85
Net annual cost to user	**$860.14**	**$343.07**	**$742.39**	**$481.17**	**$750.97**	**$664.64**

Assumptions:

- Patients generally have a routine of dialysing in the afternoon (12-6pm) as this can suit health/body clock routine.
- Nocturnal dialysis is assumed for this exercise to be undertaken 8pm-5am

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 $1,000 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.

Original Home Dialysis Electricity & Water Usage Analysis for NSW

Produced 25 July 2011

by the members of KHA's NSW Consumer Committee

1. Purpose

This discussion paper seeks to quantify current electricity and water usage by home haemodialysis patients to assess whether current allowances for electricity and water are adequate.

2. Input Data for Power Costs

From Energy Australia and Country Energy residential power costs from 1st July 2011 are shown in Table 1.

	Time of use	Energy Australia	Time of use	Country Energy
Conventional meter				
	All the time	$0.3201/hr	All the time	$0.2885/hr
Smart Meter				
Peak	2pm to 8pm working weekdays	$0.4466/hr	7am to 9am & 5pm to 8pm weekdays	$0.3107/hr
Shoulder	7am to 2pm and 8pm to 10pm working weekdays and 7am to 10pm on weekends and public holidays	$0.1804/hr	9am to 5pm & 8pm to 10pm weekdays	$0.3107/hr
Off Peak	Other times	$0.1056/hr	Other times	$0.1556/hr

Table 1 – Residential Power Costs

Note:- The current daily dialysis rebate for both suppliers is $0.69 per day = $251.85 per annum

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 significant number of dialysis patients are opting for nocturnal dialysis every second day which entails 8 hours dialysis. Again, allowing 1 hour for setup and cleanup that totals 1642 running hours per annum (9 x 365/2).
(Sydney Dialysis Centre at St Leonards has 150 home haemodialysis patients of which 24 are practicing nocturnal dialysis)

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

There are 3 means of metering power to a residential property:-

1. By conventional meter which has one rate independent of when the power is used. (For Energy Australia this rate is $0.2266 per kWh for the first 1,750 kWh used per quarter and then $0.3201 per kWh (see Table 1). The higher rate has been used in the calculations here.)
2. By conventional meter which has a separate circuit for heating water using off peak rates. This scenario has not been considered as it would need the dialysis machine to be on a separate circuit and could only be used at off peak times in the middle of the night which is not considered to be practical.
3. By smart meter which has different charge rates for different times of the day and days of the week. The cost of power for a dialysis machine is dependent on the time of day and the day that it is used.

Table 2 shows the annual net cost to the patient for a **conventional meter** with the current Daily Dialysis Rebate of $0.69 for both Energy Australia and Country Energy. To reduce this cost to zero the Daily Dialysis Rebate would need to be raised to $2.30 for 6 hour dialysis and $3.56 for a 9 hour dialysis based on Energy Australia's costs.

Table 2 – Cost for Dialysis with a conventional power meter

	Energy Australia		Origin Energy	
	6 hour dialysis	**9 hour nocturnal dialysis**	**6 hour dialysis**	**9 hour nocturnal dialysis**
Hours per annum	1,095	1,642	1,095	1,642
Power cost/kWh	$0.3201	$0.3201	$0.29	$0.29
Power usage kW/hr	2.40	2.40	2.40	2.40
Annual power usage kWh	2,628	3,941	2,628	3,941
Annual power cost	$841.22	$1,261.45	$758.18	$1,136.92
Annual dialysis rebate	$251.85	$251.85	$251.85	$251.85
Net annual cost to user	**$589.37**	**$1,009.60**	**$506.33**	**$885.07**

Data from Table 2 is illustrated in Figure 1.

Figure 1 – Current out-of-pocket expense for power using a conventional power meter

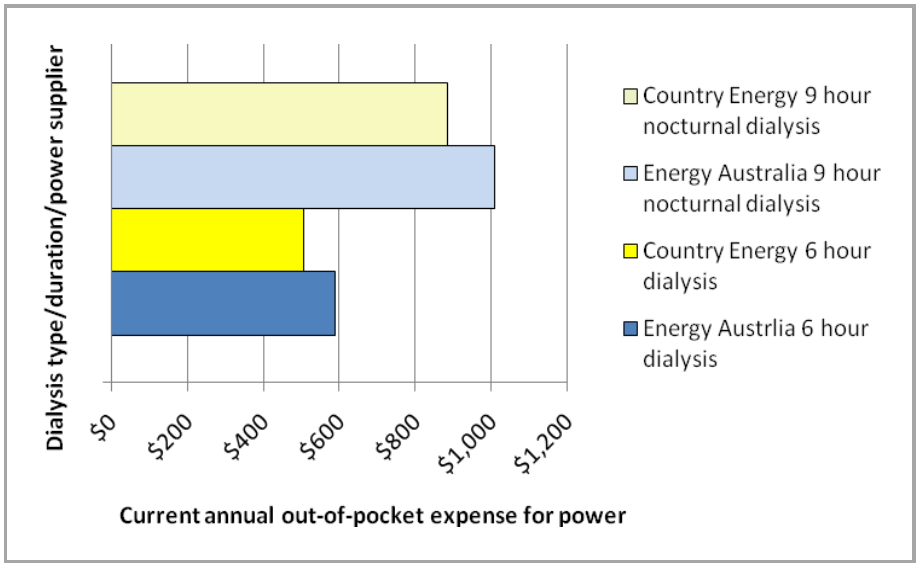


Table 3 shows the annual net cost to the patient for a **smart meter** using Energy Australia data for a 6 hour dialysis time and the daily Dialysis Rebate of $0.69.

Table 3 - Cost for Dialysis with a Smart meter (6 hour dialysis)

Smart meter - Energy Australia - 6 hour dialysis every second day								
Starting time	**6am**	**8am**	**10am**	**12 noon**	**2pm**	**4pm**	**6pm**	**8pm**
Average power cost/use[1]	$2.42	$2.60	$3.51	$4.42	$5.34	$4.42	$3.15	$1.88
Power cost/year	$441.33	$474.09	$640.66	$807.22	$973.79	$807.22	$575.13	$343.04
Annual dialysis rebate	$251.85	$251.85	$251.85	$251.85	$251.85	$251.85	$251.85	$251.85
Net annual cost to user	**$189.48**	**$222.24**	**$388.81**	**$555.37**	**$721.94**	**$555.37**	**$323.28**	**$91.19**

***Note** :- 1. Due to the reduction in power consumption charges for weekends and public holidays the average power cost per dialysis session has be calculated over a 14 day period which includes 5 weekday and 2 weekend dialysis sessions.*

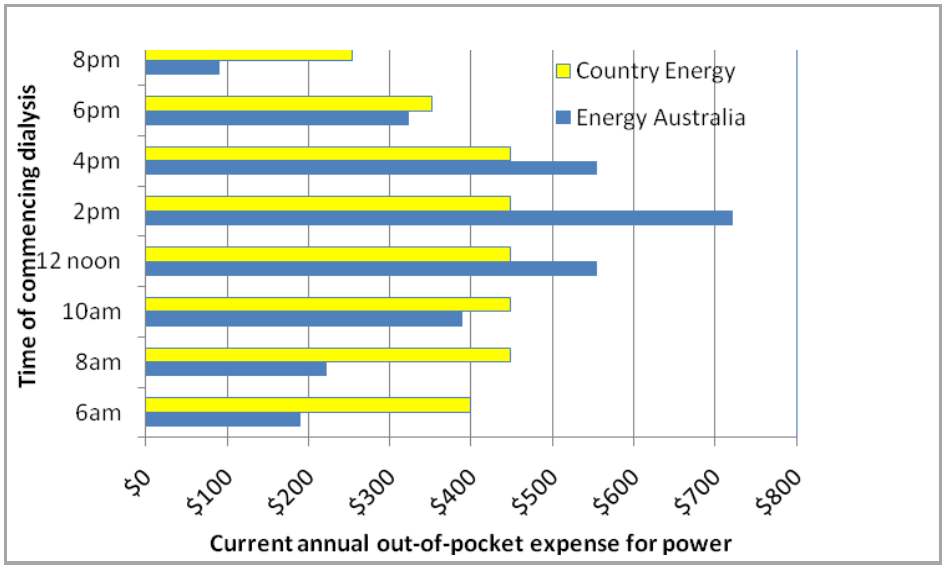
Table 4 shows the annual net cost to the patient for a **smart meter** using Country Energy data for a 6 hour dialysis time and the daily Dialysis Rebate of $0.69.

Table 4 - Cost for Dialysis with a Smart meter (6 hour dialysis)

Smart meter - Country Energy - 6 hour dialysis every second day								
Starting time	**6am**	**8am**	**10am**	**12 noon**	**2pm**	**4pm**	**6pm**	**8pm**
Average power cost/use[1]	$3.57	$3.84	$3.84	$3.84	$3.84	$3.84	$3.30	$2.77
Power cost/year	$651.54	$700.06	$700.06	$700.06	$700.06	$700.06	$603.01	$505.97
Annual dialysis rebate	$251.85	$251.85	$251.85	$251.85	$251.85	$251.85	$251.85	$251.85
Net annual cost to user	**$399.69**	**$448.21**	**$448.21**	**$448.21**	**$448.21**	**$448.21**	**$351.16**	**$254.12**

Data from Tables 3 and 4 are presented in Figure 2.

Figure 2 – Comparison of current out-of-pocket expenses using a smart meter for 6 hour dialysis



From Tables 3 and 4 it can be seen that the time of commencing dialysis when connected to a smart meter has a large bearing on the cost that will be incurred and there are considerable variations in cost between metropolitan and country patients. While some patients using smart meters may have the chance to change to a time which reduces cost, many are reliant on the availability of a carer for assistance, or limited by work hours or other constraints which precludes this. It should be noted that Country Energy do not offer time dependent rates universally throughout NSW.

Energy Australia will supply Smart Meters to residential properties at no cost to the owners. Installation by a licensed electrician usually costs about $300 to $400. However, this presents difficulties with rented properties and home units.

Table 5 shows the annual net cost to the patient for a **smart meter** using Energy Australia data for a 9 hour nocturnal dialysis time and the daily Dialysis Rebate of $0.69.

Table 5 - Cost for Dialysis with a Smart meter (9 hour nocturnal dialysis)

Smart meter - Energy Australia - 9 hour nocturnal dialysis every second day				
Starting time	**6pm**	**8pm**	**10pm**	**midnight**
Average power cost/use[1]	$3.91	$2.64	$2.28	$2.64
Power cost/year	$713.99	$481.85	$416.28	$481.85
Annual dialysis rebate	$251.85	$251.85	$251.85	$251.85
Net annual cost to user	**$462.14**	**$230.00**	**$164.43**	**$230.00**

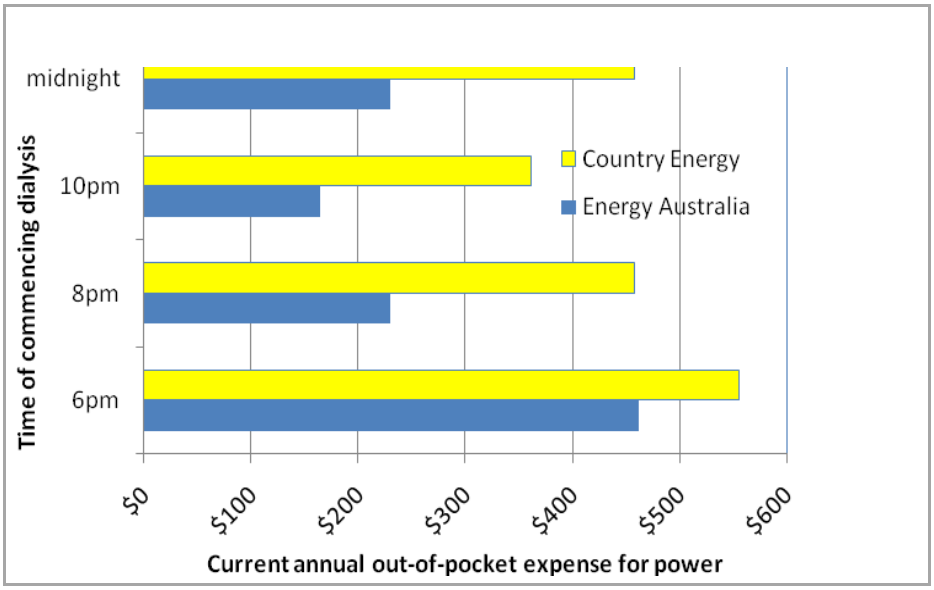
Table 6 shows the annual net cost to the patient for a **smart meter** using Country Energy data for a 9 hour nocturnal dialysis time and the daily Dialysis Rebate of $0.69.

Table 6 - Cost for Dialysis with a Smart meter (9 hour nocturnal dialysis)

Smart meter – Country Energy - 9 hour nocturnal dialysis every second day				
Starting time	**6pm**	**8pm**	**10pm**	**midnight**
Average power cost/use[1]	$4.42	$3.89	$3.36	$3.89
Power cost/year	$807.47	$710.42	$613.38	$710.42
Annual dialysis rebate	$251.85	$251.85	$251.85	$251.85
Net annual cost to user	**$555.62**	**$458.57**	**$361.53**	**$458.57**

Data from Tables 5 and 6 are presented in Figure 3.

Figure 3 – Comparison of current out-of-pocket expenses using a smart meter for 9 hour dialysis



From the data presented above and under the current power rebate, the recent increase to electricity prices is inflicting a considerable burden on patients who have chosen to undertake home haemodialysis. The cost burden exceeds $1,000 per annum for those patients undertaking nocturnal dialysis using a conventional power meter in the area served by Energy Australia.

Given that the average annual cost of home dialysis ($49,137) is considerably less than either satellite dialysis ($65,315) or hospital dialysis ($79,072) (ref KHA 2010), it is clear that increased electricity charges are creating a significant disincentive to undertaking or continuing home dialysis. There is anecdotal evidence of patients wishing to switch from home dialysis to satellite or in-centre dialysis to reduce their costs.

With the power usage depending on the type of meter, patients' location, time of dialysis and duration of dialysis a simple solution to providing an equitable means of easing the patients' burden is difficult. While an increase to the rebate is one solution, a simpler and more uniform alternative

could be to seek a reduction in the quantity of energy billed to the consumer. For a dialysis machine using 2,400 watts for 6 hours every second day and for nocturnal dialysis of 9 hours every second day this would require 2,628 kWh or 3,942 kWh per annum respectively to be removed from the power bill.

This alternative is attractive as it means the daily dialysis rebate would not have to be reviewed each time power costs increased and would also align it with how the water allowances are handled.

6. Input Data for Water Costs

Home dialysis machines use about 1.8 litres of water per minute. Based on 6 hour or 9 hour sessions every second day this results in an annual usage of about 118,000 and 177,000 litres per year respectively. In New South Wales, water is supplied by many organisations, many of them local Councils. A brief search of the internet produced the following data on costs and allowances for home dialysis patients.

Table 7 – Water Allowances and Costs

Supply Organisation	Annual Dialysis Allowance (litres)	Residential Water Cost/1,000 litres
Sydney Water	400,000	$2.01
Hunter Water	250,000	$1.90
MidcoastWater	nk	$2.66
Nambucca Shire Council	100,000	nk
Parkes Shire Council	100,000	$3.40
Goulburn Mulwaree Council	½ total water usage	nk

From the data above it can be seen that the dialysis water allowance is not uniform across NSW. For Sydney Water and Hunter Water the allowances are adequate. However, it appears that for smaller communities the allowances may not cover the water used. The out-of-pocket cost implications are not currently as great as for power supply but could be significant.
(For example, the worst case scenario using data from Table 7 is for a patient undertaking nocturnal dialysis in Parkes Shire where the annual out-of-pocket expense would be ((177kl – 100kl) x $3.40 = $261.80).

A uniform allowance of 200,000 litres per annum would solve this problem.

Reference

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