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The Impact of Increased Power Costs on Home Haemodialysis Queensland

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

Increases in the cost of electricity continue to contribute to the situation where home haemodialysis patients face significant out-of-pocket costs.

Figure 1 illustrates the dialysis modality changes for Queensland patients between 2004 and 2013 (Source – ANZDATA).

Points worth noting from Figure 1 include:

- The total number of dialysis patients in QLD increased 53% from 1442 in 2004 to **2200** in 2013.
- The total number of home dialysis patients rose from 439 in 2004 to 693 in 2013.
- The percentage of people dialysing at home increased from 30.4% to 31.5% of the total dialysis population between 2004 and 2013.
- During this period home haemodialysis patients increased from 100 to 263.

Queensland has low rates of home haemodialysis, when compared to the other rates of dialysis within the state. An important step to improve the uptake of patients choosing to dialyse at home would be to alleviate some of the extensive out of pocket electricity costs they are currently facing.

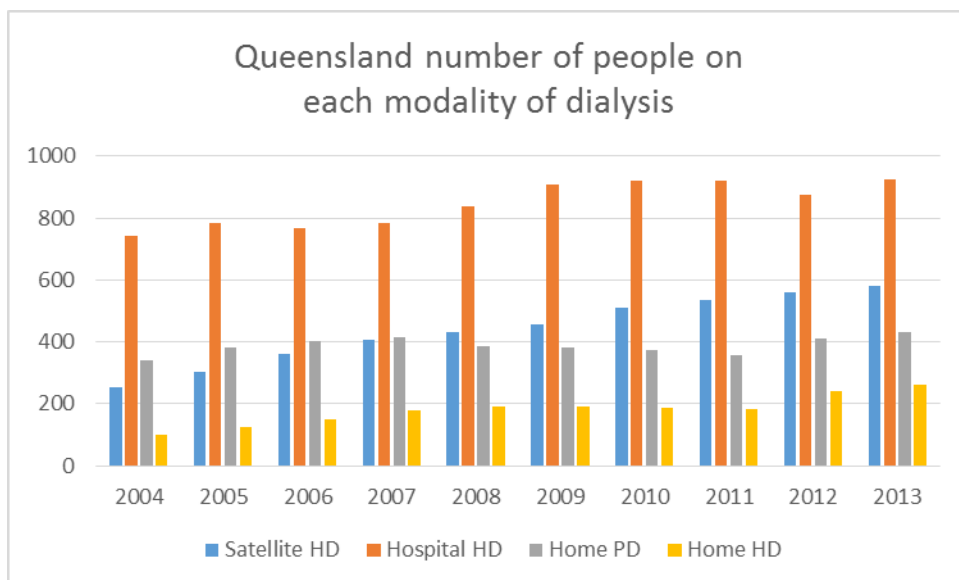


Figure 1 – Number of QLD patients undergoing dialysis by mode

As at December 2013, there were 263 home haemodialysis patients in Queensland (ANZDATA). It can be calculated that the 263 patients who have chosen home haemodialysis instead of satellite dialysis currently reduce health budget costs by nearly \$4,254,814 annually in Queensland (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 QLD 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).

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 exceed \$700 per annum, and be almost \$300 per annum depending on dialysis mode¹.

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 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.

¹ Refer to Appendix B for further explanation

The Queensland Statewide Renal Health Services Plan 2008-2017 (Part One: The Way Forward) identified appropriate benchmarks for the distribution of modalities to be set at 50% home based dialysis or community based self-care dialysis, with benchmarks of 40% in Northern and 60% in Southern and Central Area Health Services.² At 2013 only 31.5% of all dialysis patients in Queensland were on home-based dialysis. If the target for home dialysis was met at 50%, this would equate to an additional 407 patients on home dialysis.

In 2011 Kidney Health Australia published its “Report on Consumer Perspectives on Dialysis – First National Census.” Analysis of the data from Queensland 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.

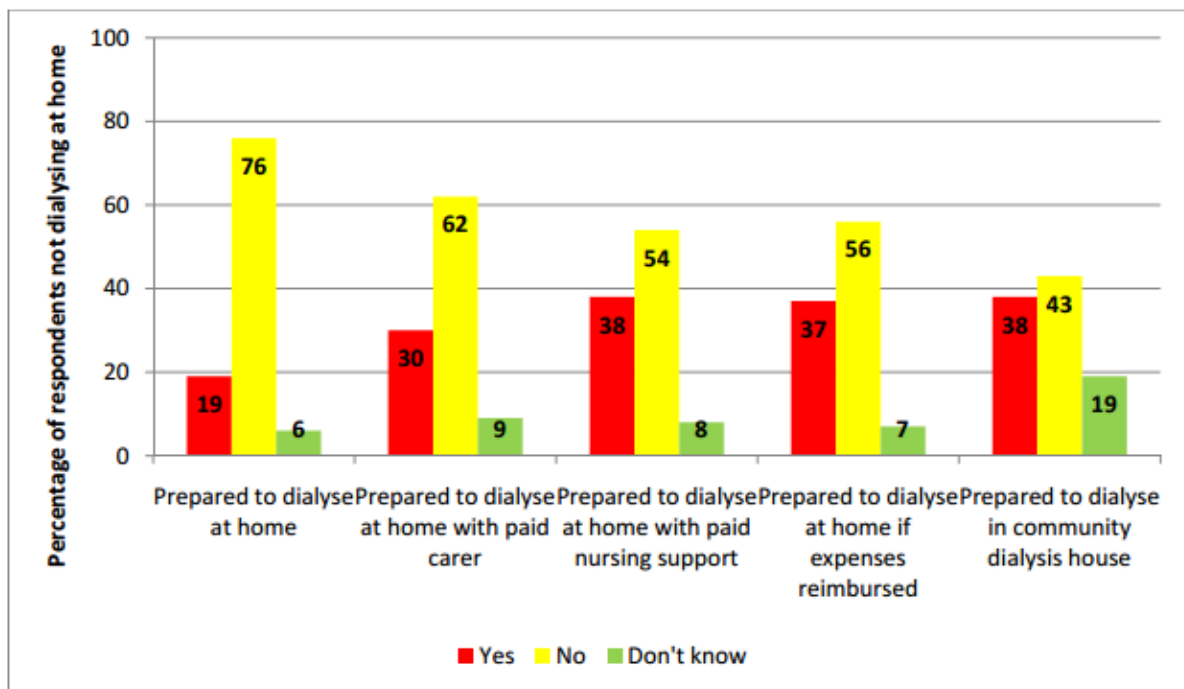


Figure 2 – Willingness of Queensland patients to dialyse at home.

The Queensland Department of Health’s Strategic Plan 2012-2016 (2013 update) promoted six strategic directions³ to assist with the development of service plans. Two of these are:-

² http://pandora.nla.gov.au/pan/108521/20091015-1137/www.health.qld.gov.au/publications/qh_plans/QS_renal_plan_part1.pdf

³ <https://publications.qld.gov.au/storage/f/2014-06-11T05%3A16%3A05.225Z/strategic-plan12-16-update13-support.pdf>

- Accessible services – ensure access to appropriate health services is simple, equitable, and timely for all Queenslanders
- Support health activity that contributes to reducing rates of chronic disease

Despite each home haemodialysis patient reducing the cost of the Queensland 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 Queensland Statewide Renal Health Services Plan 2008-2017 (Part One: The Way Forward) of promoting equity of access to health services:-

“Overall the plan sought to deliver a coordinated and evidence-based approach to renal health service delivery in Queensland, **where equity of access to treatment**, service capability and sustainability, patient outcomes and cost-effectiveness are maximised.”

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 personal costs borne, 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 Queensland Health budget would fall. This would also assist in moving towards the 50% home dialysis goal as listed in the plan.

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.

4. Conclusions

Current subsidies for power usage for home dialysis patients are inadequate and inequitable and could lead 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 Queensland Renal Services Plan and the principles stated in the Queensland Department of Health Strategic Plan.

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

5. 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 to the state health system on various dialysis methods

<i>Patient modality</i>	Hospital Haemodialysis	Satellite Haemodialysis	Home PD	Home Haemodialysis	Total
Ave Annual Cost of treatment ⁴	\$79,072	\$65,315	\$53,112	\$49,137	
2010 Actual Patients	919	511	372	186	1998
Cost of Actual 2010 Treatment	\$72,667,168	\$33,375,965	\$19,757,664	\$9,139,482	\$134,940,279
2013 Actual Patients	926	581	430	263	2200 (a 10% increase)
Cost of Actual 2013 Treatment	\$73,220,672	\$37,948,015	\$22,838,160	\$12,923,031	\$146,929,878
Calculation of potential 2016 patient numbers at 10% increase proportionately on 2013	1018	639	473	289	2419
Cost of treatment calculation	\$80,495,296	\$41,736,285	\$25,121,976	\$14,200,593	\$161,554,150 (\$14,624,272 increase)
It is suggested that action on the impact of increasing electricity costs and associated out of pocket expenses for home patients could reduce cost barriers for modality choice and positively impact projected financial outcome.					

⁴ Kidney Health Australia, 2010, *The Economic Impact of End-Stage Kidney Disease in Australia: Projections to 2020*,

Home Dialysis Power Usage Analysis for Queensland

1. Purpose

This reviewed 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

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

- AGL Energy
- Energy Australia
- Origin 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 ($6 \times 365/2$).

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 power meters in Queensland. 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 Queensland

	AGL		Energy Australia		Origin	
	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	0.27907	0.27907	0.28015	0.28015	0.30816	0.30816
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	\$733.40	\$1099.81	\$736.23	\$1104.07	\$809.84	\$1214.46
Annual dialysis rebate	\$437.76	\$437.76	\$437.76	\$437.76	\$437.76	\$437.76
Net annual cost to user	\$295.64	\$662.05	\$298.47	\$666.31	\$372.08	\$776.70

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 \$700 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.