Review of Renal Service Needs

Lower Western Sector - South
Greater Western Area Health Service

Final Report

the Nucleus group

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EXECUTIVE SUMMARY

In January 2005, the Greater Western Area Health Service (GWAHS) commissioned a review of the provision of renal dialysis services to residents living in the Shires of Wentworth and Balranald in South Western New South Wales. The purpose of the review was to determine the current and future needs of residents in the area and the most efficient and effective model of service delivery for them with the aim to minimize, to the extent possible, travel time for dialysis services.

NSW residents with End Stage Kidney Disease (ESKD) living in the Shire of Wentworth currently dialyse at Mildura Base Hospital in Victoria. Residents of the Balranald Shire who require maintenance dialysis need to travel to either the Robinvale Health Service or the Swan Hill Hospital, both of which are also in Victoria. Both the Mildura and Robinvale dialysis services are satellites of the North West Dialysis Service located at the Royal Melbourne Hospital in Melbourne.

As at February 2005, NSW residents were utilising 40% of the dialysis chairs at the Mildura Base Hospital. The Mildura Base Hospital Dialysis Unit is operating at capacity with a waiting list of two people.

Demand for renal dialysis services in Australia and for residents of the Shires of Wentworth and Balranald is growing. The prevalence of ESKD is determined by population growth, time taken to approach an equilibrium state, the change in incidence of new cases, the transplant rate and the changing mortality rates. Ageing of the population has been identified as one of the major contributing factors to the increase in prevalence of ESKD.

The incidence of ESKD in the Indigenous population across Australia and amongst patients attending Mildura Base Hospital is higher than the general population due to the higher incidence of diseases that contribute to and result in renal failure.

Consultations with health workers and patients confirmed that age, living conditions and general health status have a significant impact on the type of dialysis modality used. Findings are consistent with a recent review or renal dialysis services in Victorian that found "overall, patients currently receiving dialysis at a satellite generally appear unwilling to consider other modalities for a number of reasons, including a lack of support at home, perceptions of risk and personal issues"[1].

There is general agreement that expansion of the Mildura Base Hospital Dialysis Unit by another three chairs is the preferred, most cost effective option to meet demand in the short to medium-term. The hospital is recognised as the major regional health service for both NSW and Victorian residents within the region and has the infrastructure capacity (both equipment and staffing) to accommodate expansion.

[1] Department of Human Services (2004a)

However, structural alterations would be required to the building housing the Dialysis Unit at Mildura Base Hospital in order to accommodate three new chairs. The hospital estimates the cost of building alterations to be in the vicinity of $30,000 to $40,000. NSW Health has indicated that it would be prepared to enter into an agreement with the Victorian Government to contribute to the capital costs of the alterations, subject to it receiving a formal request from GWAHS. The Victorian Government would then need to enter into an agreement with Ramsay Health (owners and operators of the Mildura Base Hospital) to complete the works.

There was also significant support during the consultations for GWAHS to establish a dialysis satellite of the Dubbo Base Hospital in either Wentworth or Dareton in NSW, as a longer-term measure to address the significant number of NSW residents utilising Mildura Base Hospital. This option proposed the initial establishment of a three chair facility with capacity to expand to six chairs in the future. Wentworth was cited as the preferred site for the establishment of a satellite as it has an established acute facility and could attract additional tourist respite dialysis. This option was generally not preferred by Victorian agencies as they considered the duplication of a service, thirty minutes from an existing, well-established facility as a less cost effective option and still likely to draw on the resources of the Mildura Base Hospital. All people recognised that this option would require more extensive feasibility testing and, if to proceed, significant infrastructure spending.

The cost of providing satellite maintenance dialysis is expensive, with current figures calculated at close to $50,000 per patient/year. Preventing ESKD is regarded as the most cost effective way of managing demand for maintenance dialysis and the importance of preventative health programs and maintenance strategies for pre-dialysis patients, particularly targeting the Indigenous community, has been stressed.

During the course of consultations, it was also evident that there is little cross-border regional planning undertaken between NSW and Victorian health services (other than financial arrangements) which is a significant limitation in attempting to meet local demand for dialysis services. The people involved indicated that better regional health planning is required and were generally supportive and willing to participate.

BACKGROUND

End Stage Kidney Disease (ESKD) occurs when the kidneys are operating at around 10–15% of full function and are unable to properly filter waste, remove extra water from the body and help maintain the blood's chemical balance. At this stage a person must have maintenance dialysis for the rest of their life or until they receive a kidney transplant[2]. As at January 2004, there were 1,488 patients in Australia on the waiting list for a kidney transplant with an average waiting time of about 3.8 years[3].

The onset of chronic kidney disease can be acute where loss of kidney function happens quickly, and may or may not be permanent or chronic, where kidney disease develops over several months or years. The factors that can contribute to chronic kidney disease and the progression to ESKD are extensive and include:

- Autoimmune diseases that damage the glomeruli.
- Systemic diseases, such as diabetes, where blood pressure and blood glucose control have been poor.
- High blood pressure.
- Obstruction/infection caused by diseases such as prostatic hypertrophy.
- Genetic disease, such as polycystic disease.
- Toxic damage caused by drugs or environmental toxins[4].

The development of management plans that address lifestyle changes and proper medication have been shown to slow the progression to ESKD to half the natural rate or better, for both diabetics and non-diabetics[5].

The number of people with ESKD using maintenance dialysis services in Australia grew by 24.1% between 1998 and 2002 with New South Wales (NSW) growing at 18.2% for the same period.

The Greater Western Area Health Service (GWAHS) commenced on 1 January 2005, amalgamating the former Far Western Area Health Service, Mid Western Area Health Service and Macquarie Health Service. GWAHS covers an area of over 55% of the landmass of NSW, incorporating 28 local government areas with nine of these being classified as 'remote' or 'very remote'[6].

Residents of NSW with ESKD living in the Shire of Wentworth dialyse at the Mildura Base Hospital Dialysis Unit in Victoria. NSW residents were utilising 40% of the dialysis chairs at the Mildura Base Hospital, as at February 2005.

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[2] Kidney Health Australia website
[3] National Organ Matching Service, 2004 cited in Kidney Health Australia Fact Sheet
[4] Department of Human Services (2004a) http://www.health.vic.gov.au/renaldialysis/renal-finrep-1004.peritoneal dialysis
[5] http://www.kidney.org.au/assets/documents/Chronic%20Kidney%20Disease.peritoneal dialysis
[6] Greater Western Area Health Service (2004)

The Mildura Base Hospital Dialysis Unit is operating at capacity with one Mildura resident travelling to Robinvale to dialyse, a two-hour round trip.

In March 2005, GWAHS commissioned a review of provision of dialysis services to residents living in the Shires of Wentworth and Balranald. The purpose of the review was to determine the current and future needs of residents in the area and the most efficient and effective model of service delivery for them with the aim to minimize, to the extent possible, travel time for dialysis services[7].

The objectives of the review were to:

1. Map current service delivery, including the need for and utilisation of specific treatments such as maintenance dialysis, relationships between service providers and key issues in the provision of these services.

2. Determine the current and future renal service needs of residents in the Lower Western Sector – South (LWS-S) of the region based on trends in patient characteristics, projected health profiles and community demographics that may influence future demand.

3. Identify factors that impact on the quality, effectiveness and efficiency of service delivery including aspects of clinical practice, treatment modalities, service accessibility, new technologies and changing approaches to care.

4. Investigate service delivery models and options for improving current service provision.

5. Identify a preferred service model that will deliver effective, efficient and quality renal services to this region, minimising travel time for dialysis patients.

6. Provide advice regarding the implementation of the preferred service model including establishment, staffing and professional development costs.

This report presents the findings of the review and makes recommendations for the future provision of dialysis services in the lower western sector of the GWAHS.

[7] Consultant's Brief (2004)

CURRENT SERVICE DELIVERY

HUB AND SATELLITE MODELS

The hub and spoke model has been popularly applied in medical and human services delivery systems in programs that require an outreach or a geographically dispersed delivery of highly specialised services[8]. Particular applications have been identified in telemedicine (Victoria, USA), cardiology (UK), urology (UK), emergency services (NSW) and diabetes services (WA). Features of all service systems to which the hub and spoke concept is applied are the need to create provider and consumer networks across clinical and geographic boundaries to enhance access, quality and effectiveness of care; the need for highly specialised services not generally or regularly available in local communities; and a need to achieve fairness and equality of the distribution of services.

The current service delivery model for dialysis services in Victoria is the hub and satellite model. Large metropolitan-based hospitals act as the hub, providing a range of clinical, technical and infrastructure support to smaller centers operating in rural areas. A recent review of renal services conducted in Victoria showed strong support for the hub and spoke model and recommended that this model should underpin the continued development of maintenance dialysis services over the next decade[9].

The *Commonwealth Medical Specialist Outreach Assistance Program* for the Victorian Loddon Mallee Region, which incorporates Mildura, identified that the preferred program delivery model was a 'hub with a limited spoke approach with new and expanded specialist services delivered under a consultant specialist model'[10].

TREATMENT MODALITIES

For those people who have ESKD, two types of dialysis are available: haemodialysis and peritoneal dialysis. The decision as to which treatment modality will be utilised is determined in consultation with the patient and the managing physician taking into consideration the patient's age, health status, lifestyle requirements, geographic location and access to dialysis resources. All patients who require dialysis must undergo a surgical procedure in preparation for dialysis and receive dialysis training, both of which are performed at the hub hospital.

Haemodialysis is where blood is pumped from the person through an artificial kidney called a dialyser and back into the person. The dialyser helps to balance water, mineral and chemicals in the blood. Haemodialysis treatment can occur:

[8] McKinley, Bryan-Smith et al. (2002)
[9] Department of Human Services (2004a)
[10] Medical Specialist Outreach Assistance Program (2001)

- In hospital or at a satellite — patients travel to a haemodialysis unit, usually three times per week, for up to four hours at a time to receive dialysis treatment. Specially trained staff are responsible for managing the procedure. This treatment modality is the most expensive due to the staffing costs and the least flexible for the patient, as they must book sessions on prescribed days and times. Satellite dialysis is the recommended modality for people who due to health and home circumstances are unable to dialyse at home.

- In the home — where people have their own dialysis machine and manage their own dialysis. This modality requires the presence and active support of another person to monitor the person during the dialysis treatment. Patients who use home dialysis must attend training and have access to back-up technical and nursing support. Home dialysis also requires a dedicated area to accommodate the machine where it can be safely maintained and access to stable water and power supply. Patients are required to dialyse with the same frequency as hospital or satellite patients but have greater choice as to the times that they dialyse. The Victorian review found that patients selected for home haemodialysis tended to be younger and with fewer co-morbidities than those in hospital or satellite centres. The review also found that home dialysis had significantly lower total costs than in-centre haemodialysis[11].

- Nocturnal dialysis is also performed in the home but does not require a carer to be present. It is performed at night when the person is sleeping, usually six nights per week or on alternate nights, for eight to nine hours at a time. A clinical trial undertaken over two years in Victoria found that selected trial patients were among the more clinically stable, psychologically sound and technically adept patients[12].

- Peritoneal dialysis is where the human peritoneal membrane is used as the filtering membrane. There are two types of peritoneal dialysis: continuous ambulatory peritoneal dialysis and automated peritoneal dialysis. Peritoneal dialysis is always a home-based treatment.

MILDURA AND ROBINVALE DIALYSIS SATELLITES

The Mildura Base Hospital Dialysis Unit and the Robinvale District Health Service dialysis services are satellites of the North West Dialysis Service located at the Royal Melbourne Hospital (the hub) in Melbourne.

The North West Dialysis Service provides the satellites with dialysis machines (including technical support, maintenance and replacement), chairs, plumbing and supply of the reverse osmosis filtration system and consumables. It also provides education, training and support for staff, associated support services such as pathology and radiology, and training of patients (for entry to the ESKD program and/or change of treatment

[11] Department of Human Services (2004a)
[12] Department of Human Services (2004a)

modality). The North West Dialysis Service is responsible for the overall quality of patient care, including 24-hour telephone support to the satellite providers, acute emergency care and regular case review.

The North West Dialysis Service also provides the same level of support to patients who are dialysing at home, using either haemodialysis or peritoneal dialysis.

The Mildura Dialysis Unit operates in the Mildura Base Hospital, a 146 bed tertiary teaching Hospital. Ramsay Health Care built the hospital in a contractual arrangement with the Victorian Government. Mildura Base Hospital provides public hospital services on behalf of the Victorian Government to the community of Mildura and the Sunraysia District[13].

The new hospital retained the six dialysis chairs that had been operating since 1998 at the former hospital site. The Dialysis Unit is purpose built, meeting all occupational health and safety standards and is co-located with the Chemotherapy Unit.

The six dialysis chairs have capacity to dialyse twenty-four people. Two dialysis shifts are conducted morning and afternoon Monday to Saturday. The Dialysis Unit does not operate on Sundays. The filtration system for the dialysis machines has capacity to operate up to fifteen chairs. Two machines are kept in reserve for emergency use and to cover breakdowns.

The Robinvale District Health Service is a Multi-Purpose Service providing acute, nursing home and a range of other health services to the local community. The health service has three dialysis chairs and capacity to dialyse six patients.

STAFFING

Staffing for the Mildura Base Hospital Dialysis Unit is 6.1 EFT with 10 staff currently filling these positions.

At Robinvale, dialysis patients are managed by the general ward staff. A dedicated nurse is required when three patients are being dialysed.

All staff at both services are trained renal nurses.

[13] http://www.ramsayhealth.com.au/mbh/aboutus/aboutus.asp

CURRENT AND FUTURE RENAL SERVICE NEEDS

DIALYSIS TRENDS

The prevalence of ESKD is determined by population growth, time taken to approach an equilibrium state, the change in incidence of new cases, the transplant rate and the changing mortality rates. It is predicted that the number of ESKD patients will double over the next 15 years.[14]

The number of people on maintenance dialysis in Australia is growing, with older people experiencing the highest growth rate. As can be seen from the table below, most increases in new haemodialysis patients across Australia occur in people over 64 years. People aged over 85 years had the highest percentage increase (235%) but this is off a low base (17 in 1998 up to 57 in 2002). The next most significant increase (118%) was in the 75-84 years age group, increasing from 402 in 1998 to 878 in 2002. The 65-74 age group has the highest number of people receiving dialysis, 1,008 in 1998 up to 1,386 in 2002. However, very few patients over 65 years receive transplants. The majority of transplant recipients are aged 35-54 years. In 2002, only 5 % of transplant recipients were aged 65-74 years and no one over 75 years received a transplant[15].

	1998		1999		2000		2001		2002		Growth
Age	#	%	#	%	#	%	#	%	#	%	%
0–14	6	0.2	10	0.2	7	0.2	13	0.3	11	0.2	83.0
15–24	94	2.4	98	2.3	93	2.0	93	1.9	100	1.8	6.4
25–34	324	8.3	344	7.9	352	7.5	351	7.0	346	6.4	6.8
35–44	522	13.3	561	12.9	593	12.7	598	12.0	565	10.4	8.2
45–54	706	18.0	784	18.1	815	17.5	889	17.8	942	17.3	33.4
55–64	839	21.4	893	20.6	944	20.2	1009	20.2	1150	21.2	37.1
65–74	1008	25.7	1106	25.5	1188	25.5	1290	25.8	1386	25.5	37.5
75–84	402	10.3	523	12.1	644	13.8	729	14.6	878	16.2	118.4
85	17	0.4	19	0.4	29	0.6	29	0.6	57	1.0	235.3
Total	3918	100	4338	100	4665	100	5001	100	5435	100	38.7

Source ANZDATA registry report 2003: HMA[16]

The growth in peritoneal dialysis patients in Australia from 1998–2002 was 9.3%, significantly less than the growth in haemodialysis. Patients aged over 85 had the highest growth (260% but again, from a low base). People aged from 75-84 years were the group with the next highest growth (45%), up from 195 in 1998 to 283 in 2002.

The table below indicates that NSW experienced a 23% increase in the total number of dialysis patients for the state between 1998 and 2002.

1998		1999		2000		2001		2002		Growth 1988–2002	
#	PPM*	#	PPM	#	PPM	#	PPM	#	PPM	%	PPM%
1,935	314	2,069	332	2,150	342	2,304	363	2,392	371	23.6	18.2

* Patients per million population

[14] Health Services Research Group (2004)
[15] Department of Human Services (2004a)
[16] Cited in Department of Human Services (2004a)

AREA POPULATION

The population of the Shires of Wentworth and Balranald are projected to remain relatively stable over the next decade, with a slight overall decline. The table below indicates that the population of Balranald is estimated to decline from 2,712 at the ABS 2001 Census to 2,382 in 2016. The Wentworth Shire population is projected to rise from 6,793 at the ABS 2001 Census to 6,925 in 2006 and decline to 6,535 by 2016.

LGA	Census 2001	Projected Population		
		2006	2011	2016
Balranald	2,712	2,664	2,526	2,382
Wentworth	6,793	6,925	6,740	6,535

Source: Greater Western Area Health Service (2004)

The population of both Wentworth and Balranald Shires is ageing (refer to the table below) and is typical of rural and remote communities where young people are leaving the areas for employment and education[17]. The ageing of the population has been identified as one of the major contributing factors to the increase in the prevalence of ESKD in the population.

LGA	Age Groups											
	0-9	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	Total
Balranald	442	381	332	397	443	277	217	165	54	3	0	2,712
Wentworth	969	1,013	725	899	1,016	976	617	392	159	27	0	6,793

The table below provides total population for the Shires of Wentworth and Balranald and the Rural City of Mildura and the Indigenous population for these areas (as shown in Australian Bureau of Statistics 2001 Census data).

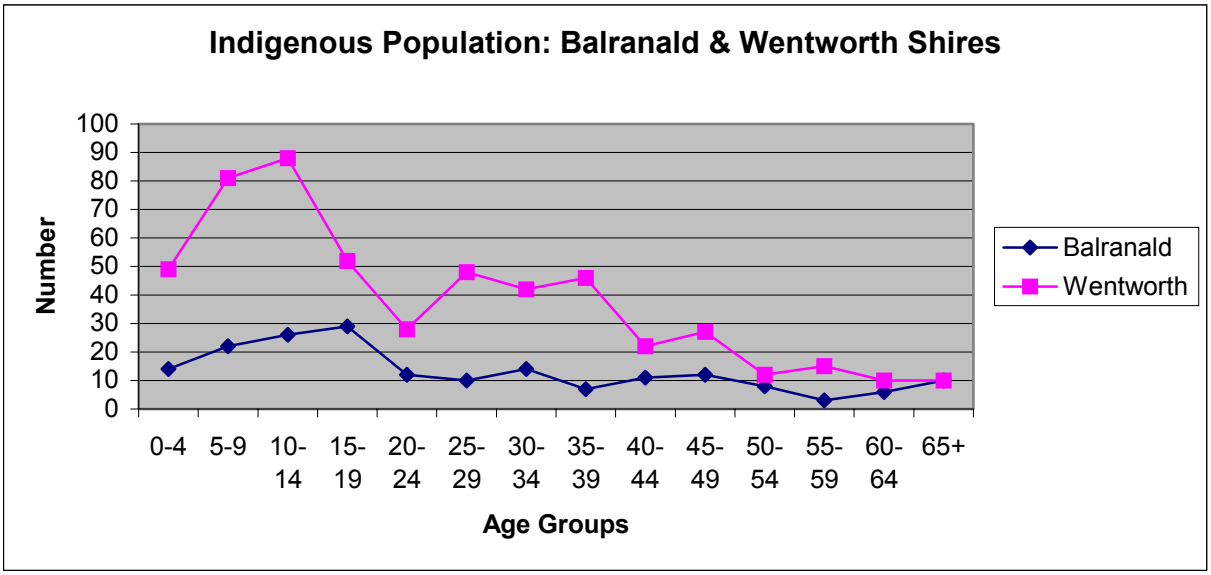
Local Government Area	Total Population	Indigenous Pop'n	Percentage
Balranald Shire	2,712[18]	184	7.7%
Wentworth Shire	6,793[19]	541	8.1%
Rural City of Mildura	42,201[20]	1108	2.3%

However, local health services believe that 2001 ABS Census data under-reports the true numbers of people of Indigenous background living in relevant areas. The Robinvale Health Service suggests that the real number of Aboriginal and Torres Strait Islander residents in their catchment area is closer to 600, against the 372 reported in the 2001 Census. Similarly, the 2001 Census did not identify any people from Pacific Islands in the area but the Robinvale Health Service Cultural Officer identified more than 700 Islander people in a local survey conducted in November 1999[21].

[17] FWAHS (2004a)
[18] Greater Western Area Health Service (2004)
[19] Greater Western Area Health Service (2004)
[20] Mildura Rural City Council (2005) website
[21] Robinvale District Health Services (2003b)

The graph below provides a breakdown of the Indigenous population by age group for the Balranald and Wentworth Shires. It indicates that within the population there are relatively high numbers of children and teenagers (5-14 years) and adults aged 30-39 years.

The number of Indigenous people in the Wentworth Shire aged over 40 years is 96 (18%) and in the Balranald Shire, 50 (27%). Health workers and General Practitioners have identified people aged from 40-60 years as the main group most at risk of developing kidney disease and progressing to ESKD, due to their high rates of hypertension and diabetes.



DIALYSIS PATIENT PROFILE AT MILDURA BASE HOSPITAL

The table below shows the patient profile at Mildura Base at February 2005:

State	Indigenous	Anglo - Aust	CALD	Total	Percentage
Victoria	3	10	1	14	58.3%
New South Wales	7	3		10	41.6%
Total	**10**	**13**	**1**	**24**	
Percentage	**41.7%**	**54.2%**	**4.1%**		**100%**

As at February 2005, there were ten NSW residents (42%) receiving dialysis at the Mildura Base Hospital all of whom are residents of the Wentworth Shire. There were no Balranald Shire residents dialysing in Victoria at the same time.

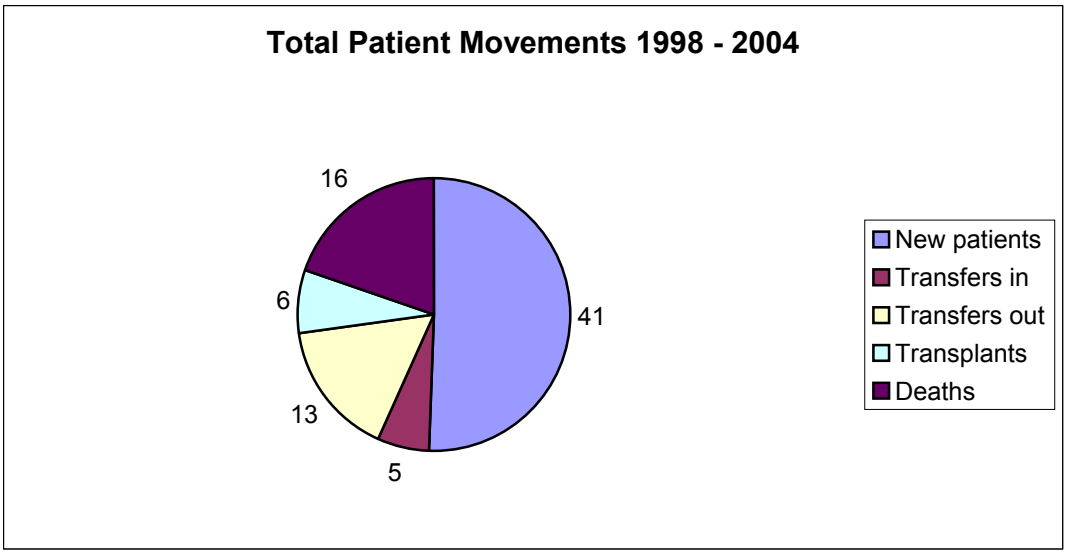
The Indigenous population receiving dialysis is overly represented given their proportion of the total population. Less than 10% of the population of Balranald and Wentworth Shires and less than 3% of the Mildura Rural City population are Indigenous, yet in total they represent over 40% of people receiving dialysis at Mildura. Of the NSW residents receiving dialysis in Mildura, people of Indigenous background comprise 70% of the patients.

CURRENT USAGE OF DIALYSIS SERVICES

Mildura Base Hospital is currently operating at capacity, providing dialysis to 24 patients, six days per week. Standard dialysis treatment for patients is three times per week, Monday, Wednesday and Friday or Tuesday, Thursday and Saturday. Mildura no longer provides holiday or respite dialysis (patients are referred to Robinvale for these services).

Analysis of patient data for the Mildura Dialysis Unit from 1998 to 2004 (when the facility was operating with six chairs) indicates that:

- The service commenced with twelve patients and took 40 months, until April 2001, to reach capacity. It operated at capacity for four months but finished the year with two vacancies.
- The service operated for another 32 months before reaching capacity again in July 2004, and has been operating at capacity from then until now.
- The service had a total gain of 46 patients, comprising new patients, transfers from other hospitals and home dialysis patients.
- A total of 35 patients left the service: 13 were transfers to other services or to home dialysis, six received transplants and 16 died.



The net gain has been 11 patients, an average growth rate of around 1.5 patients/year.

At Robinvale, dialysis services at February 2005 were being provided to one Mildura resident who commutes three times per week. There is spare capacity at this service.

FUTURE DEMAND FOR RENAL SERVICES

One of the tasks of the Victorian review of renal dialysis services[22] was to forecast demand for maintenance dialysis by treatment modality for each of eight Victorian departmental regions, including the Loddon Mallee Region that incorporates Mildura and Robinvale. This task was not completed due to gaps in available data (including information about treatment modality, age of patients, postcode of patients and the hub provider responsible for patient care).

A study undertaken in 2004 to identify trends in the incidence and prevalence of renal dialysis for NSW[23] estimated that the Far West Area Health Service would have 18 dialysis patients in 2001, increasing to 34 by 2016 (see table below). However, consultations with health service workers conducted as a part of the current review indicated that they believe this to significantly underestimate the true numbers, stating that the 2006 estimates had been reached by 2004.

2001	2006	2011	2016	Increase %
18	23	28	34	52.9%

The North West Dialysis Service provided the following data on patients with kidney disease known to them and living in the Mildura region including the Shires of Wentworth and Balranald:

- Sixteen pre-dialysis patients - three in Robinvale and thirteen in Mildura.
- Five peritoneal dialysis patients - three in Mildura and two in Ouyen.
- Four home haemodialysis patients.

This data indicates that nine people - the home dialysis and peritoneal dialysis patients - could potentially present at the Mildura Base Hospital for maintenance dialysis.

The Community Nurse at the Coomealla Aboriginal Health Service identified four clients who are pre-dialysis, and another four to five clients who should be receiving dialysis but have refused, due to non-acceptance of the treatment. The majority of these patients have chronic alcoholism and are not expected to change their lifestyles or accept maintenance treatment.

The independent nephrologist working in association with the Coomealla Aboriginal Health Service indicated that the North West Dialysis Service is informed of all patients who are progressing to ESKD. These patients would be counted in the North West Dialysis Service data.

The Balranald Health Service has identified one Balranald resident who has had a fistula fitted. The treatment modality and location of treatment for this person is yet to be determined. This patient is also included in North West Dialysis Service data.

[22] Department of Human Services (2004a)
[23] Gibberd, R. and Martin, A. (2004)

The Mildura Base Hospital identified two people on their waiting list: the person who is commuting to Robinvale and another person who is receiving peritoneal dialysis and wants to transfer to the satellite service. All of these patients reside in Victoria. Robinvale has no waiting list.

Consultations with NSW nephrologists indicated that they do not manage any patients with kidney disease in the lower western sector of the GWAHS. All NSW patients are managed by Victorian specialists.

Decisions as to who will receive dialysis when a vacancy becomes available are based on clinical need, length of time on the waiting list and personal circumstances. Place of residency is not a factor in determining service provision.

All health professionals consulted indicated that it is difficult to predict the number of number of people with advanced kidney disease who are not consulting doctors or who are at greater risk of progressing to ESKD due to poor compliance with prescribed medications.

SERVICE DELIVERY FACTORS

HEALTH STATUS AND ACCEPTANCE OF ALTERNATIVE MODALITIES

Consultation with medical specialists and some health workers indicated that the majority of patients using satellite dialysis are not prepared to use other treatment modalities such as home dialysis or peritoneal dialysis. The small number of people in the area using home dialysis and peritoneal dialysis is reported to reinforce the dependence on satellite maintenance dialysis. It is anticipated that over time this may change, especially if younger patients take up home dialysis and peritoneal dialysis.

Several health workers commented on the importance of representing the patients' perspective as part of this review. These workers indicated that the physical effects of receiving dialysis left many patients feeling tired and unwell. These effects are generally more pronounced for older patients and where co-morbidities exist. These comments were supported by several of the patients interviewed as part of this review who spoke of feeling ill after dialysis.

Eight patients who currently receive dialysis and a former patient who has since received a transplant were interviewed as part of this review. Three of the patients were Aboriginal. All patients stated they did not have capacity to dialyse at home and preferred hospital dialysis. Reasons given were:

- 'Too old' to learn how to operate the machine.
- Lack of capacity of carers (aged or infirm) to assist with home dialysis.
- Lack of willingness of carers to assist (attributed to stress and fear of 'something going wrong' with the procedure).
- Lack of room or facility at home to locate a machine.
- Sharing homes with extended family members and pets making it difficult to safely maintain the machines.
- Prefer the social contact with other people.
- Can maintain full-time work as they don't have to deal with the stress of managing their own dialysis.

These findings are consistent with the Victorian review which found that 'overall, patients currently receiving dialysis at a satellite generally appear unwilling to consider other modalities for a number of reasons, including a lack of support at home, perceptions of risk and personal issues'[24].

[24] Department of Human Services (2004a)

Consultation with health workers supported patient comments - workers described many of the patients or their living conditions as being unsuited to home dialysis or peritoneal dialysis. Additional reasons given included:

- Poor eyesight and dexterity of patients.
- Co-morbidities (primarily alcoholism).
- Reluctance to accept responsibility for self-management of their diabetes.
- Poor hygiene in the home.
- Low level of education.
- Unstable water supply.
- Lack of telephones.

These additional issues were predominately ascribed to the Indigenous patients. The poor health status of many of the Indigenous community compared to the broader Australian community is widely acknowledged. According to medical personnel and current research[25], the Indigenous community generally experiences ESKD at higher rates than the general population due to the high prevalence of hypertension and diabetes, and they experience the onset of these diseases much earlier than the general population.

Patient compliance with preventative and maintenance medication can also be poor, due to the fact that up to 90% of kidney function can be lost before people feel unwell[26].

Health workers indicated that there are some positive changes in the younger members of the Aboriginal community. Examples were given of people taking an active role in the management of their kidney disease in order to remain on the transplant register and people presenting to health services earlier for treatment for their children and themselves. However, health workers and General Practitioners indicated that significant change in the health status of the Aboriginal community for diabetes and hypertension is unlikely within the next five years.

The Pacific Islander population residing in the Robinvale area was also identified as a group who may be represented in dialysis services in the future, as they also experience higher rates of diabetes and hypertension.

Improvements in dialysis treatment mean that people are living longer on maintenance dialysis. Maintenance dialysis is now offered to and accepted by many people, particularly older people, who would not previously have been given this option. Medical specialists regard this as a measure of improved quality of life for people who otherwise would have died. However, as stated, this group is least likely to receive a transplant and will continue with maintenance dialysis for the remainder of their lives. The need for satellite maintenance dialysis for the older, frailer population is acknowledged.

[25] Hoy (2000)

[26] Kidney Health Australia website

TRAVEL

Expecting patients to travel significant distances to and from dialysis is seen as poor patient care, compromising their general health status. Patients having access to dialysis services in their local area is considered a high priority. The Royal Melbourne Hospital recommends travel time of 45 – 60 minutes for rural patients to dialysis services.

Patients living in Wentworth have a one hour round trip and Dareton residents a 40 minute round trip to Mildura. All patients, except two, raised the issue of transport or travel to the hospital as an issue.

One 86 year old patient who previously commuted to Robinvale for dialysis spoke of his extreme distress at having to travel for two hours each day by taxi. He and his daughter claimed he had a heart attack as a result of the stress. He was transferred to Mildura when a vacancy arose.

The Dareton Health Service and the Coomealla Health Service provide transport for six of the seven Aboriginal patients, with the other Aboriginal patient using the transport service occasionally. The Dareton Health Service has funding for a vehicle and driver to provide transport four days per week. Transport for the remaining two days per week is funded through the Home and Community Care Program, Commonwealth Community Aged Care Packages or, if required, the health workers will provide transport. The health service indicated that transport is the most significant issue as they operate during business hours, five days per week. Getting patients to and from the hospital outside of business hours and providing transport on public holidays and weekends was identified as a constant challenge. However, the health service indicated that without the transport service, patients would not attend dialysis treatment as there is no public transport and none have a reliable means of transport, either personally or through family members.

PATIENT MANAGEMENT AND PREVENTION PROGRAMS

Patients with ESKD are required to travel to Melbourne for surgery to insert their fistula, for dialysis training, and for complications that cannot be managed at Mildura. This applies to patients receiving hospital and home-based haemodialysis and for peritoneal dialysis.

Patients with ESKD receiving dialysis at Mildura and Robinvale are under the care of two Nephrologists who are associated with the Royal Melbourne Hospital or another Nephrologist who works independently. The Nephrologists conduct monthly clinics in Mildura to review dialysis and pre-dialysis patients and liaise with local General Practitioners regarding the management of the patients' renal disease.

The majority of Indigenous patients attend the Coomealla Aboriginal Health Service to consult their General Practitioner and for blood and urine screening. The Coomealla Aboriginal Health Service is based in Mildura and also operates a site at Dareton in New South Wales.

The Dareton site employs a full time Community Nurse who conducts the blood and urine screens and Mildura General Practitioners conduct clinics at the centre. The Aboriginal Health Worker at the Dareton Primary Health Service conducts community education programs on diabetes and hypertension with the local Aboriginal community. The worker also works closely with the Coomealla Aboriginal Health Service to ensure the management of patients with kidney disease.

The Robinvale Health Service is the auspice for the Central Murray/Northern Mallee Primary Health Care Alliance. Under this arrangement, two Community Health Nurses at the Balranald Community Health Centre and one at the Dareton Health Service are funded under a brokering arrangement with GWAHS. These workers have a focus on diabetes and vascular education.

Staff at both the Mildura Base Hospital Dialysis Unit and the Dareton Primary Health Service indicated they had little contact with each other, the primary communication being around transport arrangements for dialysis patients. Staff at Mildura indicated that they would like a closer relationship with Dareton and the Coomealla Aboriginal Health Service to manage shared patients.

GWAHS conducts a health-screening program that identifies people with chronic diseases and puts in place preventative measures to improve health status. This program is not yet in place in Wentworth or Balranald Shires.

The Nephrologists, General Practitioners and health workers consulted all stressed the importance of preventative health programs and maintenance strategies for pre-dialysis patients, particularly targeting the Indigenous community. They stated that treatments available can slow the progression to ESKD, where there is good patient compliance. Preventing ESKD is regarded as the most cost effective way of managing demand for maintenance dialysis.

Strategies to improve patient screening and management include:

- More collaborative working relationships between health care providers at a regional level (including Nephrologists, General Practitioners, dialysis unit nursing staff and primary care workers, with particular emphasis on Aboriginal health workers).
- Additional resources to implement more community-based health education and maintenance programs.
- Increasing patient involvement in their prognosis to promote better compliance that might delay progression to dialysis.

Cross Border Flows and Regional Health Planning

During the course of consultations, it was evident that there is little cross-border regional health planning undertaken between NSW and Victorian health services. The Victorian DHS undertakes its planning based on population projections for the Victorian local government areas within catchment areas of services. The DHS reports that where available data on cross border patient numbers is available this is considered. However, there are limitations in the level of detail available and this is a significant limitation in planning to meet local demand.

People along the NSW and Victorian border identify with the area where they live, rather than the jurisdiction. There is a natural flow of residents from Wentworth, Dareton, Gol Gol and Buronga to Mildura for employment, recreation and general services (in addition to health services). There is also significant housing development in Buronga and Gol Gol in NSW, which contributes to the natural flow.

Residents of Balranald Shire are reported to access services in Swan Hill rather than Robinvale, as it is a larger town. However, there is also new housing being developed at Euston in NSW which will increase the flow of people into Robinvale. Altering the flow of NSW residents into Victorian health services is unlikely to be possible.

There is a higher reported flow of Indigenous people moving between NSW and Victoria but this is attributed to changes in residence and proximity to family members, rather than to be closer to important services. For example, there are currently three Indigenous people receiving dialysis who live in Victoria but originally resided in NSW and who still have family in NSW. Nursing staff at the Mildura Base Hospital Dialysis Unit consider these patients could potentially return to NSW to be closer to family members.

Australian Health Care Agreement

All public hospitals in Victoria and NSW must ensure that public hospital services are provided in accordance with the terms of the Australian Health Care Agreement (AHCA). The AHCA is an agreement between the Commonwealth and the States and Territories to provide and jointly fund health care for eligible persons who choose to use State funded health services for the five years from 1 July 2003 to 30 June 2008[27]. The AHCA states that a person's place of residence should not be a determinant of an eligible person's priority for hospital services.

[27] Department of Human Services (2004b)

State Government Cross Border Agreements

NSW Health and the Victorian DHS negotiate annually the derived price for each diagnostic related group (DRG) for patients receiving treatment in cross-border hospitals. The negotiated rate takes into consideration some fixed costs such as depreciation but does not cover capital costs of building new infrastructure. This is generally considered the responsibility of the respective state governments. However, NSW Health has indicated it is willing to consider making a one-off capital contribution to Victoria in recognition of the number of NSW patients using the dialysis services.

Under budget-holding arrangements between GWAHS and NSW Health, the GWAHS had funds of $545,004 acquitted for 13 NSW patients who were admitted to the Mildura Base Hospital for dialysis in 2003/2004. Average cost per patient is calculated at $41,923. According to a NSW Health representative, the fee being paid to Victoria for dialysis patients is regarded as fair and they would not like to see any substantial increase.

Specialist Staff

The Victorian renal review indicated that there is a general shortage of Nephrologists, particularly those prepared to travel to rural and remote areas. The availability of NSW Nephrologists to travel to Wentworth and Dareton has been identified as a significant difficulty. This is evidenced by NSW patients currently being managed by Victorian Nephrologists.

The Victorian review also noted the shortage of trained renal nurses. Consultation with renal nurses in Mildura and Broken Hill indicated that renal nurse training is intensive and expensive, requiring three weeks of one-to-one supervision and instruction. Once trained, nurses need to practice the technical skills to maintain proficiency. It is considered uneconomic to train renal nurses and then only use them to backfill positions, as they are less able to maintain technical proficiency.

Several of the staff at Mildura Base prefer to work part time and this is reflected in the roster model: 10 staff filling 6.1 effective full time positions. Providing cover for sick leave and annual leave is difficult with full time staff occasionally having to work back-to-back shifts to fill rosters.

Costs

The cost of providing haemodialysis to rural and remote communities is expensive. A study of renal disease in Aboriginal remote communities in 2000[28] estimated the annualised cost per haemodialysis patient at $100,000.

The cost of providing maintenance dialysis at a satellite facility is expensive, second only to the cost of providing the service at a hub. Since 1993/94, the Victorian payment model for maintenance dialysis has

[28] Hoy (2000)

comprised a case payment and a capitation payment. Funding for replacing dialysis equipment that has reached the end of economic life was provided under a separate Equipment Replacement Grant, however as of 2003/04, hospitals are expected to purchase dialysis equipment from their general equipment grants.

For 2004/05, the case payment is calculated on the number of annual attendances, the weight associated with the Diagnosis Related Group (DRG) of 'Renal Dialysis' and the payment per Weighted Inlier Equivalent Separation (WIES). The WIES component paid to Ramsay Health, owner of the Mildura Base Hospital, for satellite haemodialysis includes a rural loading. Ramsay Health receives this payment directly from the Victorian DHS.

The case payment for satellite maintenance dialysis for 2004/05 is calculated at $25,728 per annum (156 episodes of treatment x 0.0512 [WIES for renal dialysis] x $3,216 [case payment rate for Rural Group B 5,000 – 7,500 WIES]). The Mildura Base Hospital receives payment for the number of patients treated irrespective of their place of residence. The case payment covers the costs of:

- Nurse care.
- Waste management.
- Power, water, domestic/cleaning services.
- Supply of some linen.
- Limited catering services.
- Supply and inwards goods services.
- Provision of some equipment, e.g. chairs, dressing trolleys.
- Telecommunications.
- Medical records.
- Patient transport[29].

The annual capitation grant covers costs not met by the case payment and is associated with treatment provided to the patients treated and managed within their service network. The capitation payment has been designed to cover the costs of:

- Haemodialysis consumables.
- Medical care, review and 24 hour call service, including emergency.
- Acute dialysis treatments.
- Nurse training.
- Provision of 24-hour support to nurses.

[29] Department of Human Services (2004a)

- Provision of allied health services - dietetics and social work.
- Pharmacy - expensive non-PBS pharmaceuticals and some PBS.
- Pathology - provision and maintenance of haemodialysis and water treatment equipment and associated ancillary fittings including plumbing.
- On-call service of equipment.
- Water quality testing.
- Recovery of machine usage fee from other parent units that use the satellite service[30].

The capitation component is paid monthly to the North West Dialysis Service and is calculated at 1/12 of the annual capitation funding based on the number of patients receiving service at the end of the month. The maintenance dialysis capitation grant for 2004/05 for a satellite is $26,317[31]. The total cost of providing satellite dialysis including the case payment and the capitation payment, per patient/annum is $52,045.

The North West Dialysis Service provided the following indicative, summary costs for the establishment and annual operation of a satellite dialysis facility. Single machines with their own filtration system can be placed into a facility, as is the case in homes. However, where three or more chairs are provided, the installation of a single filtration system is more cost effective. The indicative costs assume the location of chairs in a suitable building supplied with water, power and air conditioning. These figures estimate that the initial outlay for the establishment and first year of operation of a satellite haemodialysis service for three chairs, located within a suitable building, would cost $406,500. The capital costs however, would be depreciated over a seven year period.

Item	Cost Per Item	Cost/Three Chairs
Capital Costs		
Reverse osmosis filtration	90,000	90,000
Machine	25,000	75,000
Chairs	5,000	15,000
Overhead tables	1,500	4,500
Plumbing and television connections	20,000	60,000
Sub total	$141,500	$244,500
Operating Costs		
Includes staffing, training and support provided to staff, consumables, maintenance/servicing of machines, support and management of patients	$54,000	$162,000
Total	**$195,500**	**$406,500**

[30] Department of Human Services (2004a)
[31] Department of Human Services (2004a)

The NSW Renal Services Network[32] estimated operating costs for a satellite dialysis service with less than six chairs, per patient, per year, based on 2003 figures. NSW Health does not endorse these estimates and has stated there are no accepted costs for the provision of renal services in NSW.

Summary data provided by the NSW Renal Services Network is provided in the table below. Salaries and wages include management, renal nursing, social work, dietetics and maintenance technicians. Goods and services include disposables, administrative expenses, linen, waste and food services.

Item	Cost per Patient/Month	Cost per Patient/Year
Salaries and wages	2,931	35,173
Goods and services	973	11,675
Total	**$3,904**	**$48,848**

[32] NSW Renal Services Network (2003)

SERVICE MODEL OPTIONS

(1) EXPAND THE DIALYSIS UNIT AT MILDURA BASE HOSPITAL

Expand the current dialysis unit at Mildura Base Hospital to accommodate another three chairs, providing a total of nine chairs with capacity to dialyse thirty-six patients.

The consultations conducted as part of this review revealed general agreement that expansion of the Mildura Base Hospital Dialysis Unit is the preferred, most cost effective option in the short-term. The hospital is recognised as the major regional health service hub providing services to both NSW and Victorian residents of the region.

Based on the average net growth of around 1.5 patients per year, the addition of three chairs could potentially meet demand for the next six to seven years. This assumes availability for an additional ten patients once the two patients on the waiting list receive service. Hospital executives predict that an additional three chairs will more realistically reach capacity within three to five years.

The Dialysis Unit is a well-established satellite supported by specialist expertise provided through the North West Dialysis Service. The unit also has the infrastructure capacity (both equipment and staffing) to accommodate expansion. The reverse osmosis filtration system has capacity to support an additional nine chairs, with a total capacity for fifteen chairs. An additional three chairs would require the employment of one new EFT nurse position, per shift.

However, structural alterations are required to the building housing the Dialysis Unit to accommodate the three new chairs. The hospital estimates the cost of building alterations to be in the vicinity of $30,000 to $40,000 (no independent verification of this figure has been undertaken at this stage). The North West Dialysis Service has indicated that it would meet the additional expenses of the plumbing, supply and maintenance of the machines and chairs.

Expansion of the Dialysis Unit has been mooted in the past and some negotiations have been undertaken between GWAHS and the Mildura Base Hospital to identify how this could be achieved. The main obstacle to expanding the Dialysis Unit has been determining responsibility for funding the capital works.

Mildura Base Hospital is privately owned and managed and the hospital has indicated it would not fund capital works to expand the dialysis unit.

Capitation costs paid by the NSW Government to Victoria do not cover capital works. However, NSW Health has indicated that it would be prepared to enter into a one-off agreement with the Victorian Government to contribute to the capital costs of the alterations, subject to it receiving a formal request in writing from GWAHS. The Victorian Government would then need to enter into an agreement with Ramsay Health to complete the works as NSW Health will not directly fund Mildura Base Hospital as it is privately owned.

(2) DEVELOP A NEW SATELLITE IN THE LOWER WESTERN SECTOR

This option proposes that the Greater Western Area Health Service establish a satellite of the Dubbo Base Hospital which would operate independently of the Mildura Base Hospital Dialysis Unit.

There was significant support during the consultations for GWAHS to establish a dialysis satellite of the Dubbo Base Hospital in either Wentworth or Dareton, as a longer-term measure to address the significant number of NSW residents utilising the Mildura Base Hospital Dialysis Unit. This option proposed the initial establishment of a three chair facility with capacity to expand to six chairs in the future to meet demand. Wentworth was cited as the preferred site for the establishment of a satellite as it has an established acute facility and could attract additional tourist respite dialysis.

Support for this concept came mainly from NSW services on the basis that NSW should take responsibility for its own residents who require maintenance dialysis services. This option was generally not preferred by Victorian agencies as they considered the duplication of a service, thirty minutes from an existing, well-established facility as not the most cost effective option and still likely to draw on the resources of the Mildura Base Hospital.

All people recognised that this option would require more extensive feasibility testing and, if to proceed, significant infrastructure spending.

ACCOMMODATION

The Wentworth Health Service is accommodated in an old facility. There is ample physical space in which to establish a dialysis unit, but substantial capital works would be required. The Wentworth Health Service attempted to obtain Commonwealth funding as a Multi Purpose Service but was not successful. Feedback from GWAHS indicates that Wentworth would not be considered now as a potential Multi Purpose Service funding due to its proximity to Mildura. This means that any upgrade of the Wentworth Health Service would need to be funded by the NSW Government. No estimate of the cost of capital works to upgrade the facility was undertaken as part of this review.

There is no facility currently in Dareton that could accommodate a dialysis satellite, although the Coomealla Aboriginal Health Service is building new premises and the present manager of the Dareton site indicated that the provision of a dialysis satellite could be considered as part of the planning.

MACHINES

GWAHS does not have a policy that requires a standard dialysis machine be purchased by hospitals or supplied to satellites. Standardisation of machines across the area health service could enable staff to move between hubs and satellites for career enhancement or potentially to backfill staff on leave. In addition, access to emergency repair and maintenance services is essential to the operation of a satellite - having standardized machines may make it easier to negotiate more favourable technical support and maintenance contracts.

SUPPORT SERVICES

The operation of a satellite requires access to medical imaging and pathology services, which at present is provided in Mildura. In addition, access to allied health services (in particular dietetics, social work, and Aboriginal health workers) is considered essential to the effective operation of a satellite. The Dareton Primary Health Service provides Aboriginal health services and limited screening in dietetics and podiatry.

TRAVEL

The establishment of a dialysis facility in Wentworth will require Dareton residents (the majority of dialysis patients) to travel to Wentworth, a twenty minute round trip, compared with the forty minutes currently traveled to Mildura. Thus, a transport services for Aboriginal patients would still be required. Two patients living in Buronga/Gol Gol would have travel times increased.

COSTS

The following estimates are provided as an indicative guide (based on available data) to establish a rural satellite dialysis service. Establishment costs have been calculated based on estimates provided by the North West Dialysis Service. Operating costs have been calculated based on estimates provided by the NSW Renal Services Network.

Cost	Per Item	Three Chairs	Six Chairs
CAPITAL			
Reverse osmosis filt	90,000	90,000	90,000
Machine	25,000	75,000	150,000
Chairs	5,000	15,000	30,000
Overhead tables	1,500	4,500	9,000
Plumbing and TV	20,000	60,000	120,000
Total	**$141,500**	**$244,500**	**$399,000**

Source: Victorian North West Dialysis Service. Note: No provision has been made for the cost of a suitable building or building modifications, installation of air conditioning or connection of power and water.

Cost	Per Item	Per Patient	Per 12 Patients*
PREDIALYSIS TRAINING			
Renal resource centre	607.50		
Social work	60.00		
Dietetics	100.00		
Predialysis coordinator	135.00		
Anaemia coordinator	15.00		
Total		$917.50	$11,010

Source: NSW Renal Services Network (2003)
*Maximum number of patients treated in a three chair facility, assuming two shifts per day, six days per week.

Cost	Per Annum cost*	Per Patient/Year
SALARIES AND WAGES		
Management and nursing	339,946	28,329
Social work and dietetics	22,042	1,837
Technician and stores person	60,084	5,007
Total	**$422,072**	**$35,172**

* Based on 12 patients per year - source: NSW Renal Services Network (2003)

Cost	Per Patient/ Treatment	Per Patient/ Year	Total Per Annum*	Cost Per Patient Per Annum
GOODS & SERVICES				
Dialysis disposables	59.00	9,204	110,448	
Non PBS Pharmacy	4.20	655	7,862	
Computer/IT/Records	1.25	195	2,340	
Phone/office expenses	0.92	143	1,722	
Food services	5.00	780	9,360	
Linen	1.10	171	2,059	
Waste	0.70	109	1,310	
RMR			5,000	
Total	**72.17**	**11,258**	**140,102**	**$11,675**

* Based on 12 patients per year - source: NSW Renal Services Network (2003)

In summary, costs identified through consultation and research for the provision of satellite maintenance dialysis shows:

- $52,045 per patient per annum (Victorian DHS based on 2004/05 figures, including case payment and capitation payment).
- $48,848 per patient per annum (NSW Renal Services Network estimate, based on 2003 data).
- $41,923 per patient per annum (cost paid by GWAHS in 2003/04).

Caution should be exercised in the use of these comparisons, as NSW Health does not accept the estimates provided by the Renal Services Network. The figures indicate that the fee charged to GWAHS for use of the Mildura Base Hospital for NSW dialysis patients is below the Victorian DHS payment.

Specialist Staffing

Access to Nephrologists was regarded as a significant limitation of this model. Identifying Nephrologists prepared to manage patients in the Wentworth/Dareton area and to provide clinical support to satellite staff is considered problematic; there is a reported shortage of Nephrologists in the area with the closest ones working from Dubbo.

Specialist renal nurses would also be needed. However, Wentworth has not experienced difficulties in recruiting nurses and providing renal training was identified as a positive career development for current nursing staff.

Transport to Dubbo Hospital

The lack of transport between Wentworth and Dareton and Dubbo is a significant barrier to Nephrologists conducting clinics in the area, patients attending Dubbo for surgery to insert fistulas and for dialysis training, and to transporting patients with complications who need acute care. It was also generally agreed that patients would accept dialysis at a Wentworth or Dareton site, however they are less likely to accept having to travel to Dubbo to consult Nephrologists, for preparation for dialysis or medical emergencies.

(3) Establishment of a Victorian satellite in NSW

This establishment of a second satellite of the North West Dialysis Service in Wentworth or Dareton was proposed by a number of people during the consultations. This model would draw on the infrastructure and clinical support from Mildura and provide dialysis services to more stable patients who reside in NSW. Two variations of this model were proposed:

- The service could become a satellite of Mildura, where Mildura maintains responsibility for staffing, management, assistance with accreditation, ordering and provision of consumables, and provides limited back-up support for patients with complications.
- GWAHS could assume responsibility for the employment and rostering of staff and booking and management of patients. Expertise would still be sought from Mildura and for assistance with accreditation, ordering and provision of consumables, and back-up support for patients with complications.

This model has significant limitations:

- The North West Dialysis Service has indicated it would support the establishment of a satellite subject to (a) both the NSW and Victorian Governments being in agreement that this is the preferred option and the best model of operation; (b) the North West Dialysis Service receiving the capitation payment; and (c) agreement being reached between NSW and Victorian Governments as to who would meet the staffing costs.

- Nurses would be required to have dual NSW and Victorian registration. Nurses are paid more in NSW than Victoria - this could present difficulties in retaining specialist renal nurses at Mildura Base (they may choose to work in NSW where the pay is higher) and possibly also lead to industrial issues due to the inequity of pay between the two states.
- A potential scenario where stable Victorian residents are dialysing in NSW and less stable NSW residents are dialysing in Victoria.

(4) PROMOTION OF ALTERNATIVE DIALYSIS MODALITIES

The promotion of home haemodialysis, nocturnal dialysis and peritoneal dialysis has been identified as long-term strategies for addressing the high demand for satellite maintenance dialysis. It is also acknowledged that successfully utilising these treatment modalities for the Indigenous community, who are the largest single group of satellite dialysis patients at Mildura Base Hospital, will take considerable time and have little impact on current demand.

The decision as to treatment modality is made by the treating specialist and the patient, with due regard given to the patient's individual circumstances and supports available.

A further suggestion by a Nephrologist involved providing nocturnal dialysis at the Mildura Base Hospital for a selected group of patients as a short-term measure to address the current demand. This option would require additional beds and changed staffing rosters and has not been further investigated at this stage.

(5) ESTABLISHMENT OF A CARER ASSISTED DIALYSIS FACILITY

The establishment of a facility where patients can attend with carers to dialyse is a model that has been trialled in other areas of Australia, including the Brewarrina Health Service in the upper western sector of GWAHS. This model aims to replace home dialysis by providing a facility where the equipment can be properly maintained and other infrastructure monitored (e.g. water quality, electricity supply and filtration) but where limited staff support is provided.

This model is not considered a viable option for Wentworth/Dareton patients, mainly due to the Brewarrina experience where, over time, responsibility for the unit has come back to the health service staff. This is attributed to the lack of carers prepared to be involved, the nurses finding the unit adds interest to their work and the perception that more complex patients can be managed within the health service and so are referred[33].

[33] Morey Australia (2004)

(6) REGIONAL RENAL SERVICE AND HEALTH PLANNING

There is recognition by all health care providers that were consulted during this review that greater effort could be put into addressing kidney disease and broader health needs of the community in a way that more realistically accounts for the way that people identify with their local areas. There was a strong recognition that prevention and optimal treatment of kidney disease is necessary to slow the progression to ESKD, thus improving the quality of life of individuals and reducing the cost to the community. The majority of people interviewed were supportive of establishing more formal processes to better plan for the kidney health needs of the whole community.

Suggestions to achieve better planning included:

- Conducting a one-day forum where all personnel involved in kidney health for the region could come together to develop strategies for improved patient management. It was proposed that all people consulted as part of this review be invited to participate, either in person or via teleconference.
- Establishing a regional working party to address kidney disease and health management.
- GWAHS allocating additional funds to employ a half-time renal nurse for the Wentworth/Dareton area to assist with case management of the NSW patients. This position would work closely with the treating Nephrologists, local General Practitioners, Aboriginal Health Service, the Mildura Base Hospital Dialysis Unit and local primary care providers to assist predialysis and dialysis patients to slow their progression to ESKD and thus reduce the long-term demand for dialysis.
- Developing agreements between the states to accept responsibility for discrete service areas. For example, if the Wentworth Health Service was to be redeveloped it could look at providing residential beds for other high demand services such as mental health or drug and alcohol treatment, and Mildura could continue to meet the demand for dialysis services. In essence, this would involve NSW providing selected primary care services for Victorian residents in exchange for NSW patients use of Victorian facilities for dialysis.

RECOMMENDATIONS

RECOMMENDATION 1

GWAHS contribute to the capital costs of extending the Mildura Base Hospital Dialysis Unit by an additional three chairs. This would require GWAHS to:

- Re-establish dialogue with Mildura Base Hospital to identify the actual capital contribution sought to expand the dialysis unit.
- Seek approval from NSW Health to contribute capital funds to Mildura.
- Ensure NSW Health obtains Victorian agreement that they will allocate monies received from NSW to Ramsay Health for the purpose of expanding the dialysis unit.

RECOMMENDATION 2

GWAHS convene a cross border consultation forum to address kidney disease and the planning of kidney health management services. This would require GWAHS to:

- Identify participants (Nephrologists, General Practitioners, Renal Nurses, Aboriginal health and other relevant primary health care workers, NSW and Victorian health administrators).
- Facilitate a structured meeting to discuss the findings of this review, establish a process for planning cross-border services and identify resources and collaborative strategies to limit progression to ESKD, with particular focus on the Indigenous community.

RECOMMENDATION 3

GWAHS undertake further detailed investigation of the feasibility of establishing a satellite dialysis service in Wentworth or Dareton (that might address the long-term needs of the area). This should consider:

- The efficiency of the service - the maximisation of total benefits from the use of a given amount of resources and achievement of optimisation in both level of output and least-cost production[34].
- The effectiveness of the service - "the level of benefit reached when service provision occurs under ordinary circumstances by average practitioners for typical patients"[35].
- Equity - the fairness in the distribution of the available resources for the benefits to communities requiring dialysis services.

[34] Richardson and Wallace (1989)
[35] Lohr 1988 p. 37

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APPENDIX 1- CONSULTATIONS UNDERTAKEN

GREATER WESTERN AREA HEALTH SERVICE

Cathy Dyer, Acting Director Population Health
Michelle Pitt, Director of Nursing
Penny Griffin, Renal Clinical Nurse Consultant

MILDURA BASE HOSPITAL

Dane Huxley, CEO
Sue Thornton, Director of Nursing
Raelene Gibson, Dialysis Unit

WENTWORTH HEALTH SERVICE

Judy Lamb, Health Service Manager

DARETON PRIMARY HEALTH SERVICE

Patricia Algate, Team Leader
Steven Portelli, Aboriginal Health Worker

COOMEALLA ABORIGINAL HEALTH SERVICE

Craig Millard, Community Nurse

BALRANALD HEALTH SERVICE

Beth Harrison, Health Service Manager
Gay Renfrey, Community Nurse – Diabetes Educator

ROBINVALE HEALTH SERVICE

Graham Kelly, CEO

NORTH WEST DIALYSIS SERVICE

Julie Owen, Director
Glen Murphy, Finance Manager

DUBBO HOSPITAL

Gail O'Brien, Clinical Nurse Consultant

NSW HEALTH

Dr. Alison Latta, Medical Advisor, Statewide Services
Paul Verdichi, Manager Funding Strategies
John Slater, Funding Strategies

VICTORIAN DEPARTMENT OF HUMAN SERVICES

Peter Lewis, Manager Financial Strategy Unit
Gillian Smith, Senior Project Officer, Renal Review

Medical Personnel

Dr. Slava Zotov, General Practitioner, Balranald
Dr. Origanti, General Practitioner, Mildura and Dareton
Dr. Margo McIvor, Nephrologist
Professor Gavin Becker, Nephrologist
Associate Professor, Rowan Walker, Nephrologist
Dr. Martin Knapp, Nephrologist

Mallee Division of General Practice

Bob Mutton, CEO

Rural Workforce Agency

Aida Escall, Medical Specialist Outreach Assistance Program

Renal Dialysis Patients

Eight patients who currently receive dialysis and a former dialysis patient who has since received a transplant were interviewed. Two people were interviewed at home, one at the Wentworth Health Service and five while receiving dialysis at the Mildura Base Hospital.

APPENDIX 2 - PROJECT METHODOLOGY

The methodology for the review was developed in conjunction with GWAHS to ensure that the views of all relevant stakeholders were represented. The review was undertaken over a three-month period from February to April 2005.

LITERATURE REVIEW

Literature and reports were sourced from GWAHS, organisations and individuals interviewed and internet searches. Documents reviewed included:

- Evaluations of renal maintenance dialysis services in NSW and Victoria.
- Demographic data and trend analyses.
- Patient usage data of the Mildura Base Hospital.
- Information on funding arrangements.
- Organisation service plans (where available).

CONSULTATION

Consultation was undertaken with key stakeholders including:

- GWAHS executive and nursing staff.
- Satellite dialysis personnel including the North West Dialysis Service executive, Mildura Base Hospital executive and renal staff, and Robinvale Health Service executive.
- Aboriginal Health Service staff and primary health care workers in Wentworth, Dareton and Balranald.
- NSW Health and Victorian DHS administrative staff, Nephrologists and General Practitioners.
- Patients.

Content of the consultations covered:

- Data
  - Number of patients with ESKD in relevant catchments, number of patients with renal disease and number of patients x type of treatment modality.
  - Number of dialysis chairs at Mildura and Robinvale and the number of patients that can be dialysed at one time (# chairs x staffing level x hours of operation).
  - Demand for respite dialysis e.g. tourists, visitors, respite for families.
  - Demographic profile of all patients.

- Financial
  - Arrangements with Mildura and Robinvale Hospitals for NSW patients i.e. funding and service agreement, MOU.
  - Arrangements with Mildura and Robinvale Hospitals for NSW patients who are using other modalities.
  - Breakdown of dialysis costs i.e. equipment, consumables.
  - Transport for patients.
  - Staffing models required for all modalities.
- Service Provision
  - Staffing issues.
  - Cross-border staffing relationships and how they are managed.
  - Recruitment, training and professional development.
  - Teleconferencing/videoconferencing support.
  - Indigenous workers, educators.
  - Treatment modalities and how they are currently managed.
  - Specialist support required/provided.
  - Community acceptance.
- Patients
  - Transport.
  - Expenses.
  - Proximity of service to residence.
  - Indigenous issues.
- Preventative/educative mechanisms in place and review mechanisms in place for current service provision arrangements.
- Options for future service provision to meet demand and any implications.

Data Analysis

Qualitative and quantitative data was categorised thematically.

Report

A draft report was provided to the GWAHS. A teleconference was scheduled by GWAHS with people consulted as part of the review to provide feedback and comments on the report. Participants of the teleconference endorsed the recommendations.