



## ORIGINAL ARTICLE

# RENEW—a renal redesign project in predialysis patient care

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## Abstract

**Background:** An ageing population and geographical growth, along with an increase in the number of people that reside in specific location, are increasing the demand for renal replacement therapies. Hospital-based haemodialysis units are struggling to cope with the associated physical, staffing and cost demands. Home-based dialysis therapies are known to be more cost effective with superior social, physical health and survival outcomes.

**Methods:** 'RENEW, a renal redesign project, examined the pre-dialysis health care experience of renal patients to find opportunities to improve patient care outcomes and increase the uptake of home-based dialysis therapies. This article details two crucial parts of the approach to change management: (i) diagnostics—an inclusive, client focused, multidisciplinary approach to identify issues relating to the pre-dialysis journey—and (ii) solution design—an inclusive problem-solving approach to identify and marry solutions to the issues identified during diagnostics.

**Results:** Based on feedback from patients/caregivers and staff interviews, utilizing a clinical redesign methodology, a new model of care was developed, implemented and subsequently embedded into clinical practice. The results have been evident via improved care coordination, enhanced patient preparation for dialysis, improved patient psychosocial welfare and, importantly, an increased number of patients planned for and commencing home dialysis. This has empowered patients by giving them the confidence, knowledge and skills to be actively engaged in their own care. The project resulted in significant expenditure avoidance.

**Conclusion:** Change management strategies with successful implementation are vital components of evolving clinical practice to achieve both clinical and organizational goals.

**Key words:** change management, clinical redesign, dialysis, home dialysis

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## Introduction

Chronic kidney disease (CKD) is one of the conditions placing a significant and growing burden on the health care system due to the rapid growth in patient numbers. CKD is an increasingly common condition, with an estimated 1.7 million Australians  $\geq 18$  years of age with clinical evidence of CKD [1]. In New South Wales (NSW) in 2012, the most common reason for hospitalization (including both day only and overnight admission) was renal dialysis, accounting for 291 339 hospitalizations (18.6% of all hospitalizations) [2].

In NSW, 91.4% of the renal services are provided by public health services [3]. There are a number of treatment modality options available for renal replacement therapy (RRT), namely in-centre haemodialysis (HD), satellite HD, home HD, home peritoneal dialysis (PD) and kidney transplant. Home-based dialysis has been identified as the most cost effective modality [4, 5], with proven physical and social benefits. However, despite these proven benefits, utilization of different dialysis modalities varies significantly across the states and territories of Australia, with home dialysis rates ranging from 0 to 56% [6, 7]. While some of this variation may be related to individual patient/caregiver factors, much of the difference in dialysis modality utilization and achievement of home dialysis may be related to the policies, philosophy, processes and structure of the health service [8, 9].

The demand for dialysis services continues to increase in real terms, with both projections and actual service utilization data suggesting an increase of approximately 5–6% annually overall [10–12]. With 39% of all NSW dialysis units operating at or above capacity [13], there is a need to review models of care to better manage the demand for hospital-based haemodialysis.

## Materials and methods

In March 2011, a renal redesign project (RENEW) was commenced in a major teaching hospital renal service in Australia using clinical redesign methodology, with clear project phases, end dates and deliverables identified. Like most quality assurance projects, the clinical redesign methodology provides confidence that quality requirements are achieved. The data generated from the various phases of the project can be developed into a very persuasive model. Inherent in the model is that deadlines must be achieved, limiting procrastination. The most important outcome is for patient welfare. However, without well-developed interpretation skills from the project team, it will be challenging and stressful for them to reach outcomes within the timetable or to complete the templates and reports in a timely fashion. Delivering the methodology well requires significant project team effort to support the organizational structure, processes, procedures and responsibilities.

The clinical redesign project was supported by the Accelerated Implementation Methodology (AIM) [14]. The AIM provides an approach that is structured to ensure effective planning, implementation and monitoring. This methodology aids in the identification of significant barriers to implementing change at both organizational and personnel levels and provides strategies to improve the organizational readiness and engagement and a climate to achieve business goals [14]. One benefit of the AIM is the focus on achieving optimal results where resources are limited [14].

The objectives of the project were to

- Optimize the management of pre-dialysis patients—90% of pre-dialysis patients should be managed using a care plan/dialysis initiation pathway (as measured at 12 months).

- Increase the uptake of home therapies to  $\geq 50\%$  of the total dialysis population (at 12 months).
- Reduce the percentage of PD patients who require acute temporary vascular access for haemodialysis before commencing PD by 10% (at 12 months).
- Increase the percentage of patients commencing haemodialysis with permanent vascular access by 5% (within 12 months).
- Reduce occupancy in the acute HD unit (in-centre unit) by 20% (at 12 months).

The project scope was confined to

- Adults  $\geq 18$  years of age.
- Patients under the medical governance of the renal team.
- Patients referred to the renal team of the major teaching hospital renal service who are planned to have RRT as part of their management.
- Patients who have been initiated on RRT and have had pre-dialysis management from the renal team.

The following aspects were determined to be out of scope of the service:

- Patients who present acutely requiring immediate RRT and having no referral history to the renal team.
- Patients with a pre-emptive renal transplant plan and patients with a current renal transplant.
- Patients with no long-term management plan for RRT.
- Patients requiring transient RRT.

A strong and clearly defined governance structure was established to monitor and drive the project outcomes with support from senior management and a senior nephrologist to sponsor and demonstrate strong leadership and commitment for the project and planned changes (Figure 1). An executive sponsor was identified and a project management committee met regularly throughout the project to actively assist the project and the project team.

In developing the diagnostic findings, the project team consulted via structured interview and focus groups (staff interview = 15, staff focus group = 22 people) with a range of clinicians and staff who provide care to renal patients undergoing pre-dialysis management. In addition, a variety of patients and caregivers ( $n = 10$ ) were interviewed by a two-person interview team (one primary interviewer and one scribe). Patients were given a pre-interview information leaflet and were appropriately consented. A copy of the consent form was retained by the patient/caregiver. It was clarified that consent could be withdrawn at any time. A transcript of the patient/caregiver comments were provided to them for confirmation of accuracy. The interviews were conducted either at the patient's home or in the health care facility.

## Results

Comments from the patient and caregiver interviews were categorized and the findings were diagrammatically represented (Table 1). The positive aspects of the patient's experience were respect for patient's values, preferences and expressed needs, information and education and involvement of family and friends. The negative aspects of experience were identified as information and education, coordination and integration of care and emotional support.

Using the patient journey from the point of referral to the renal team and finishing with the commencement of dialysis, potential solutions were identified and prioritized by working

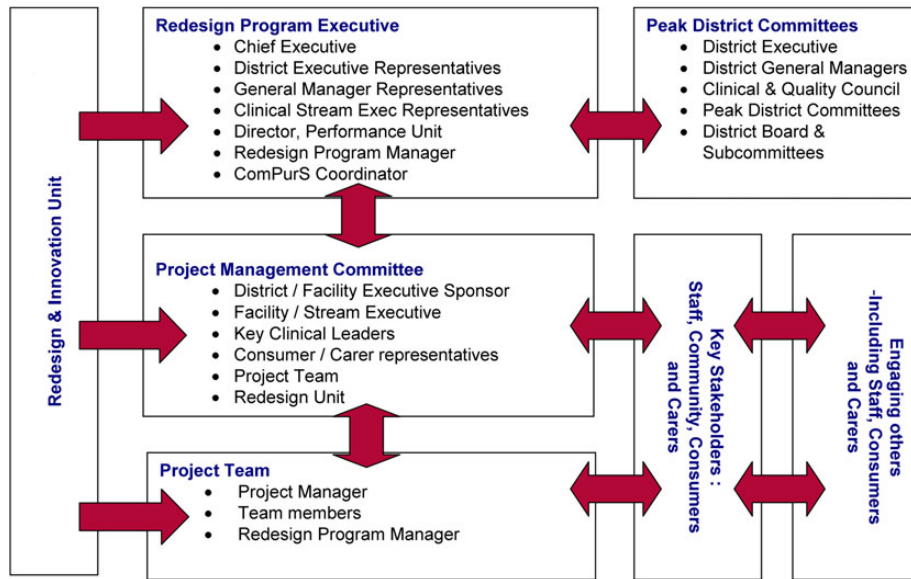


Fig. 1. Governance structure for the RENEW Project.

Table 1. Findings from the patient and caregiver interviews

<p>Positive aspects of the experience: ✓</p> <ul style="list-style-type: none"> <li>Respect for patients' values, preferences and expressed needs</li> <li>Information and education</li> <li>Involvement of family and friends</li> </ul>	<p>Respect for patients values, preferences and expressed needs</p> <p>Information and education</p> <p>Involvement of family and friends</p>	<p>'I chose one treatment option, then changed my mind. I told my doctor who arranged a different treatment for me'.</p> <p>'I thought home haemodialysis was okay, but as I live alone I changed my mind and now dialyse at satellite'.</p> <p>'The dialysis nurses . . . are very good, give you feedback in relation to your results. You can ask questions and they are followed up'.</p> <p>'I was given a book in relation to dialysis, it was very good, I was able to read that in my own time. It was very good and interesting'.</p> <p>'I met with the case manager with my daughter and wife, they also attended the education'.</p> <p>'I came to Liverpool with my brother to the education session and talked to other patients and looked at the unit'.</p>
<p>Negative aspects of the experience: ✗</p> <ul style="list-style-type: none"> <li>Information and education</li> <li>Coordination and integration of care</li> <li>Emotional support</li> </ul>	<p>Information and education</p> <p>Emotional support</p> <p>Coordination and integration of care</p>	<p>'The education seemed very generic, not individualized to the patient'.</p> <p>' . . . I did not know what was going to happen next'.</p> <p>'I received a couple of invites to the education seminar but I believe these to be repeats . . . the invite should state if this is one you have previously attended'.</p> <p>'I saw the dietician 6–7 years ago then I didn't see her again until I started dialysis'.</p> <p>'I did not see a psychologist, social worker or dietician'.</p> <p>'I hate dialysis, I don't like the regimentation it puts on your life'.</p> <p>'Consideration also needs to be given to the carer and the support required for them'.</p>



groups and face-to-face interviews with key stakeholders, if unable to attend the group meetings. Four distinct areas of the patient journey provided the focus for these workgroups: care planning, case management and follow-up; patient records; vascular access and patient and staff awareness.

The solutions were developed, refined and validated through a range of consultation processes, with the feasibility of each solution clarified. The project identified and then implemented a total of 19 solutions in three stages, with the last completed by December 2012. A summary of the implemented

**Table 2.** Summary of the implemented solutions, the timeline and status in 2014

Solution (identified in 2012)	Completed (2014)	In progress (2014)	Not implemented
1. Pathway for patient care			
1.1. Development of a pre-dialysis care plan	Yes	N/A	N/A
1.2. Care milestones identified	Yes	N/A	N/A
1.3. Provision of an audit and quality improvement tool	N/A	Yes, incorporated in renal EMR	N/A
2. Information technology			
2.1. Centralized electronic patient information	N/A	Yes, renal EMR, staged development and 90% rolled out	N/A
2.2. Standardized data collection	N/A		N/A
2.3. Flagging end-stage renal patients	N/A		N/A
2.4. EMR referrals	N/A		N/A
2.5. Online staff resources	N/A	No	N/A
3. Service networking			
3.1. Networking with general practitioners	N/A	N/A	No
3.2. Vascular access	Partial completion	N/A	N/A
3.3. Amalgamation of the CAPD clinic and home HD unit	Yes	N/A	N/A
3.4. Identification of dialysis patients	Yes	N/A	N/A
3.5. Internal staff rotation	Yes	N/A	N/A
4. Improving quality and service			
4.1. Case management model	Yes	N/A	N/A
4.2. Pre-dialysis patient education	Yes	N/A	N/A
4.3. (a) & (b) Support for home therapies patients	Yes	N/A	N/A
4.4. Pre-dialysis multidisciplinary meeting	Yes	N/A	N/A
4.5. Psychological assessment tool	Yes	N/A	N/A
4.6. Supportive care	Yes	N/A	N/A
4.7. A defined statement of service philosophy	Yes	N/A	N/A

CAPD, continuous ambulatory peritoneal dialysis; EMR, electronic medical record.

solutions, the timeline and status in 2014 are outlined in Table 2.

Some of the significant improvements identified are:

- One hundred percent (>432 in 24 months) of new pre-dialysis patients commencing on a newly developed renal care pathway, ensuring appropriate consultation and therapy milestones. There was no renal care pathway prior to the project commencing. Protocols were established to ensure patients across the whole health district served by the renal service had access to appropriate dialysis modalities in a timely fashion. The pathway has been included in the Renal Electronic Medical Record Project and rolled out to two local health districts in late 2014. This has replaced the former paper care pathway, ensuring all staff can access information in electronic form. Regular departmental multidisciplinary involvement was implemented to review, monitor and manage the performance and demands of the newly developed renal care pathway, which provided a new coordinated care delivery model. A co-ordinated, structured and planned patient care journey has resulted.
- Reduced the number of pre-dialysis patients waiting for education—49% ( $n = 152$ ) to 0 waiting.
- Increased the number of new patients planned for home dialysis, which has risen from 19 to 69% (Table 3), demonstrating improved education and decision making in making a treatment choice. As a consequence, the uptake of home dialysis in this organisation of 44% ( $N=251$ ) has exceeded both the State benchmark (38%) and the National Benchmark (28%). The percentage of PD patients who require initial acute temporary vascular access for HD before commencing PD was reduced by 10%. All patients commenced on home HD had a permanent vascular access.

**Table 3.** Actual patient numbers by modality

Actual patient numbers	In-centre HD/PD	Satellite HD/PD	Home HD	Home PD	Total
June 2011	79	211	41	158	489
Commencement of the renal redesign project (RENEW)					
June 2012	80	216	47	177	520
June 2013	96	224	57	194	571
June 2014	80	259	61	206	606

- A >50% increase in home PD patients, from 146 (December 2011) to 220 (June 2014), compared with the rest of NSW, where home dialysis has been declining overall. Benchmarking against other renal dialysis units nationally through the use of the Australian New Zealand Data (ANZDATA) Registry has demonstrated outstanding dialysis patient survival and technique survival (Figures 2 and 3) despite high levels of patient comorbidities.
- One hundred percent ( $n = 432$ ) of patients commenced on a renal care pathway had undertaken formal psychological assessment and a home training assessment tool. These evidence-based tools were developed utilizing local, national and international clinical guidelines.
- Pre- and post-implementation interviews of patients and caregivers have demonstrated overall improvement in care coordination and patient satisfaction (Figure 4).

#### Analysis of costs

One of the advantages of the clinical redesign methodology is to review the current model of care, identify and remove waste and reinvest the resources into the system. For this project, no

additional resources were provided to the department. Unfunded HD chairs ( $n = 6-10$ ) were opened, covered with overtime shifts to cope with unplanned growth in patient demand. There were other strategies to rationalize and prioritize dialysis

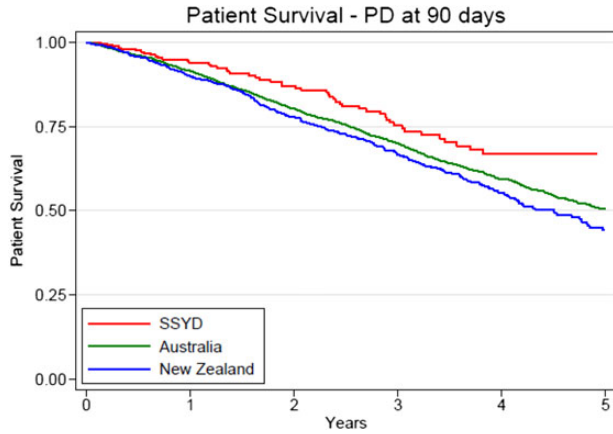


Fig. 2. Patient survival—Australian and New Zealand Data (ANZDATA) Registry, PD, 2007–12.

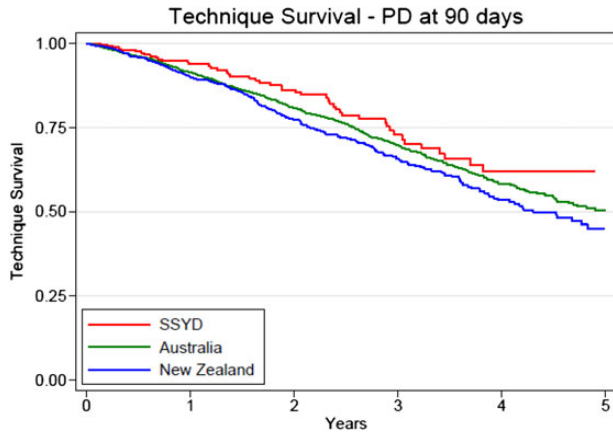


Fig. 3. Technique survival—Australian and New Zealand Data (ANZDATA) Registry, PD, 2007–12.

requirements, such as to reduce the frequency of HD sessions, which served as a short-term solution but was not sustainable or acceptable in the long term.

In addition, an estimation of the productivity savings accrued to June 2013 was performed by comparing the actual number of patients with the estimated number of patients if patient proportions in each of the modalities had remained at the same level as they were at June 2011. Expenditure per person for costs specifically related to dialysis treatments for metropolitan services were extracted from the NSW Dialysis Costing Study conducted in 2008 [4] and were indexed for 2011–12 and 2012–13 based on increases in the consumer price index. The results of the analysis are presented in Table 4. On the whole, it is estimated that ~19 extra patients commenced on home dialysis compared with the estimated outcomes in June 2013. Most of these patients are estimated to have otherwise ended up in satellite HD under previous arrangements. The satellite HD modalities are estimated to cost approximately \$17 500–\$18 000 more per person compared with home dialysis modalities. This analysis indicates a productivity savings of ~\$461 058 to June 2013 for the renal service across 20 months of the RENEW process.

A similar analysis of productivity savings to October 2013 identified savings of \$956 844.41 for the 24 months since the commencement of implementation. In addition, there was further cost avoidance that would have been required to build extra hospital-based HD capacity that would have been required if the model of care had not been successfully changed.

Discussion

Central to the success of the RENEW Project was the vision and leadership supporting the model. The design, development and implementation were reliant on engagement at all stages of the innovation and at all levels. Identification and development of a case for change, leading to a clear plan with executive sponsorship and drive, has been key. A gap analysis of the pre-dialysis phase of a patient’s journey was particularly powerful in terms of engaging the multidisciplinary team and motivating change for improvement. Finally, engaging the multidisciplinary team in the process of translating specific published clinical guidelines into a pathway to support clinical practice has facilitated engagement by team members across the patient journey. This solution has also reduced the burden on existing facility-based (hospital-centred) dialysis units, which were largely over capacity (e.g. in-centre dialysis unit).

PT - CENTRED DIMENSIONS OF CARE ISSUES: PRE VS POST IMPLEMENTATION OF CARE PLAN

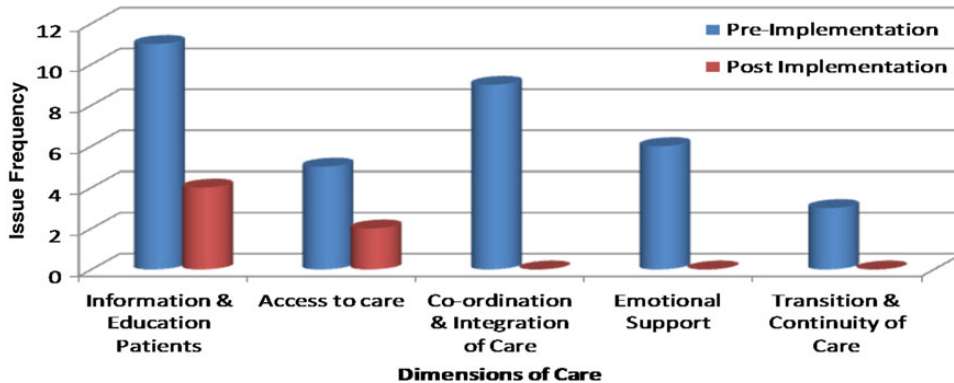


Fig. 4. Pre- and post-implementation interviews of patients and caregivers.

**Table 4.** Analysis of cost savings (in AUD), November 2011–June 2013

	Hospital HD/PD	Satellite HD/PD	Home HD	Home PD	Total
Estimated expenditure per person for dialysis treatment					
2007–8	51 684	39 631	24 040	24 083	
2011–12	57 891	44 390	26 927	26 975	
2012–13	59 341	45 502	27 601	27 651	
November 2011–June 2012					
Actual patient numbers, June 2012	80	216	47	177	520
Costs, November 2011–June 2012, based on actual patient numbers	3 087 505	6 392 200	843 711	3 183 064	13 506 481
Estimated patient numbers, June 2012					
Costs, November 2011–June 2012, based on estimated patient numbers	84	224	44	168	520
	3 242 196	6 640 084	782 662	3 021 508	13 686 450
July 2012–June 2013					
Actual patient numbers, June 2013	96	224	57	194	571
Costs, July 2012–June 2013, based on actual patient numbers	5 696 725	10 192 506	1 573 284	5 364 265	22 826 781
Estimated patient numbers, June 2013					
Costs, July 2012–June 2013, based on estimated patient numbers	92	246	48	184	571
	5 474 045	11 210 956	1 321 428	5 101 441	23 107 871
Overall					
Cost savings, November 2011–June 2013	–67 989	1 266 334	–312 906	–424 381	461 058

A shared vision of the model was reported to be key to the continued drive towards change and improvement and supported the implementation teams to continue even when negotiating significant obstacles. An organizational shift towards 'Home First' dialysis through education, policy and structural clinical process changes assisted the innovation sites to achieve their aims. Clinical change champions, together with executive support and leadership, were required to achieve change. Identification of key performance indicators relevant to the aims of the improvement was also highlighted as an important strategy supportive of change, in particular when these key performance indicators were reported to different departments/executive teams. Sound governance and monitoring structures and processes were required to successfully and efficiently implement the proposed solutions and changes. Ongoing reinforcement of behaviour change was seen to be important to maximize the likelihood of change being accelerated and sustained.

Prior to the project PD numbers were in decline, with the proportion of patients on home HD continuing to be suboptimal (Table 3) despite efforts to recruit patients to home therapies. The decline in PD numbers occurred despite identified superior outcomes for the Health District's renal patients undergoing this mode of dialysis. ANZDATA reports consistently showed excellent survival results when compared nationally and compared with HD. Promoting home dialysis allowed both PD and home HD to increase the proportion of current dialysis population, and to grow in patient numbers, eventually exceeding benchmark data locally and nationally.

Enablers such as using specific tools to implement change processes of clinical care served to educate teams and establish a shared understanding of the expectations of promoting home dialysis and helped to measure progress towards goals. Decision support tools also facilitated consistency and coordination of care. Importantly, clinical tools were built into existing clinical processes (e.g. pre-dialysis care pathway forming a part of the medical record), supporting initial practice change and sustainability of the model over time. A decision support tool enables consideration of all dialysis treatment options and assists the patient in understanding the importance of making a renal treatment decision according to their lifestyle priorities [15].

A patient-centred approach is key in a model such as this, where patients are largely responsible for their own care. Patient-centred care in this context involves clearly informing patients of options and empowering them to make decisions regarding their own health care, to respect decisions made by patients and their caregivers and to build supportive systems to enact these decisions. Patients of the renal service noted real changes to approaches of care following implementation of the 'Home First' model, noting improvements in care, care coordination and continuity and emotional support. For measuring outcomes, a mixed-methods approach is recommended for future project analysis to capture the experience of care issues.

The NSW Agency for Clinical Innovation (ACI) works with clinicians, consumers and managers to design and promote better health care for NSW. In 2014, the ACI established the Clinical Innovation Program to discover, develop and provide support for the successful spread and implementation of clinical innovation. The program supports the implementation of new models of care that have been developed by teams of local health care providers in NSW. These models are based on 'real-life' examples of local practices, developed and implemented to improve experiences and outcomes for consumers and communities. Part of the design and solutions for the RENEW Project was selected and reported as one of the three ACI Clinical Innovation Programs, the Home First Dialysis Model of Care [16].

The Home First Dialysis Model of Care is person-centred, focusing on encouraging, empowering and supporting patients in making the right choices for their individual circumstances. The model centres on the period from a person being diagnosed with CKD through to end-stage kidney disease. Home First is a model that engages and educates patients about home dialysis options and its benefits while streamlining processes to ensure each patient is evaluated on an individual basis. The model has subsequently been adopted and implemented in other renal services.

## Conclusion

Areas for improvement and appropriate solutions were identified through a formal engagement model, allowing the development

of a structured Home First approach, pathways outlining the ideal patient journey, shared decision making with patients (and tools to facilitate this), improved adherence to clinical guidelines (especially dialysis access management) and improved data systems to support communication.

The RENEW Project has succeeded in improving the experience of the patient journey for renal patients and their caregivers as well as renal staff, and has been successful in increasing the number of patients dialysing at home independently, while at the same time realizing productivity savings to improve the capacity of the health system to meet the growing demands on the dialysis service. This project has demonstrated the value of leadership, staff engagement, a structural redesign process, planned implementation and change management.

The model of implementation and the resources developed by our RENEW Project can readily be adopted by other renal service providers. The success of this project is attributable to the dedicated clinic staff, the methodology and an appropriate governance model.

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### Conflict of interest statement

This work has not been previously published nor is it being considered for publication elsewhere.

### References

1. Kidney Health Australia. Chronic Kidney Disease in Australia. 2015. <http://www.kidney.org.au/health-professionals/prevent> (December 2015, date last accessed)
2. Population and Public Health Division. New South Wales Admitted Patient Report 2012. Sydney: NSW Ministry of Health, 2012. [http://www0.health.nsw.gov.au/pubs/2012/pdf/admitted\\_patient\\_rpt2012.pdf](http://www0.health.nsw.gov.au/pubs/2012/pdf/admitted_patient_rpt2012.pdf) (July 2014, date last accessed)
3. Agency for Clinical Innovation. 2014.
4. Agar JW, Hawley CM, George CR et al. Home haemodialysis in Australia—is the wheel turning full circle. *Med J Aust* 2010; 192: 403–406
5. Health Policy Analysis. NSW Dialysis Costing Study, 2008, commissioned by the Statewide Services Development Branch. NSW Department of Health, Sydney, NSW, Australia, 2009
6. Australia & New Zealand Data Registry. The 37th Annual ANZDATA Report. 2014. [http://www.anzdata.org.au/v1/report\\_2014.html](http://www.anzdata.org.au/v1/report_2014.html) (December 2015, date last accessed)
7. Kidney Health Australia. A model for home dialysis, Australia. 2012. <http://www.kidney.org.au/ForPatients/Treatmentoptions/HomeDialysis/tabid/811/Default.aspx> (June 2014, date last accessed).
8. Chow J, Fortnum D, Moodie J et al. The HOME network: an Australian national initiative for home therapies. *J Ren Care* 2013; 39(Suppl 1): 56–61
9. Fortnum D, Ludlow M. Improving the uptake of home dialysis in Australia and New Zealand. *Ren Soc Australas J* 2014; 10: 75–80
10. Australian Health Ministers' Conference. National Service Guidelines for the Management of Dialysis and Kidney Transplantation in Remote Australia, 2006.
11. Australian Institute of Health and Welfare. *Projections of the prevalence of treated end-stage kidney disease in Australia 2012–2020*. Cat. no. PHE 176. Canberra: AIHW, 2014
12. Kerr PG, Polkinghorne KR, McDonald SP. Home hemodialysis in Australia: current perspective. *Hemodial Int* 2008; 12(Suppl 1): S6–S10
13. Agency for Clinical Innovation 2010. NSW Dialysis Capacity Audit 2010. Agency for Clinical Innovation, Chatswood. <http://www.aci.health.nsw.gov.au/networks/renal/achievements/dialysis-issues> (July 2014, date last accessed)
14. IMA. Accelerating Implementation Methodology. 2007. [www.ima.worldwide.com](http://www.ima.worldwide.com) (11 November 2013, date last accessed)
15. Kidney Health Australia. 'My Kidney, My Choice' Decision Aids. 2016. <http://kidney.org.au/your-kidneys/support/kidney-disease/treatment/choosing-your-treatment> (13 June 2016, date last accessed)
16. Agency for Clinical Innovation. ACI Clinical Innovation Program: Home First Dialysis Model of Care. 2015. <http://www.aci.health.nsw.gov.au/resources/renal/dialysis/home-first-dialysis> (25 December 2015, date last accessed)