Acknowledgements

This document reflects the work of clinical leaders, management and supportive organisations in the development and implementation of innovative models of care. The Agency for Clinical Innovation (ACI) takes this opportunity to thank all creative and visionary leaders in NSW who are working toward the implementation of evidence based services to achieve the best outcomes for their clients and communities.

The home first model aims to describe a model which is derived from a number of service models operating across the state. It highlights the work of South Western Sydney Local Health District in developing and implementing a home first dialysis model – a service redesign project that has been successful in increasing home dialysis rates, improving consumer experiences of care and producing significant costs savings for local health services. The document also highlights the successes of two similar models across the state Northern NSW Local Health District and Western Renal Service.

In particular, the ACI takes this opportunity to thank the following organisations and their staff for giving their time and efforts in the preparation of this document, and sharing their ideas with the rest of the State.

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NSW ACI Clinical Innovation Program

The NSW Agency for Clinical Innovation (ACI) is a leader in the design and implementation of innovation in healthcare. The ACI’s Clinical Innovation Program supports clinical innovation in the NSW health system, through the spread of local innovations.

In the context of the ACI Clinical Innovation Program, innovation means finding a better way to do something¹, or “the intentional introduction and application within a role, group, or organisation, of ideas, processes, products or procedures, new to the relevant unit of adoption, designed to significantly benefit the individual, the group, or wider society”².

Across NSW, clinicians, managers and consumers are designing and delivering new, efficient and effective ways to deliver services, achieving positive change for consumers, communities and clinicians. The ACI Clinical Innovation Program outlines new models of care that have been developed locally by teams of local healthcare providers in NSW; clinical innovators who identified a need for change and addressed the need by designing and implementing new models of care. These models are not clinical practice guidelines, but instead models based on “real life” examples of local practises, developed and implemented to improve experiences and outcomes for patients and communities. These models of care are available to providers across the state to read, reflect, and identify local opportunities for change for improvement.

The ACI Clinical Innovation Program has a methodology for identifying, prioritising and working to spread innovations:

- Identification of local innovations occurs via the NSW Health Innovation Award Finalists and Centre for Healthcare Redesign school.
- Innovations are evaluated and examined for sustainability, reviewed to ensure the model is a priority for the ACI and its Networks/Taskforces/Institutes, and provides the best outcomes for patients, staff and the health system. ACI Clinical Networks also identify leading initiatives which are adding significant knowledge and value to their field.
- The identified innovation and other leading initiatives, are drawn together to develop a model which effectively addresses the identified need, problem or opportunity. The model is examined to ensure it meets the needs of metropolitan, regional and rural services.
- The resultant model is documented to support replication across NSW; other services may wish to adapt the model, or aspects of the model, to suit the local area and services available.
- Implementation planning is the next stage in the process, with support for implementation of the innovation.

Purpose of this document

This document has been developed to highlight some of the innovative work of NSW Local Health Districts to improve care for people on dialysis. The document outlines central elements of various services across the state which aim to improve the experience of predialysis patients, to facilitate self-management of their condition and treatment, and to shift treatment modalities toward recommended practice, with a focus on home dialysis. This document outlines the innovative work of South Western Sydney Local Health District in
developing and implementing their Renal Pathways Project. It also highlights the leading work of the Western Renal Service and Northern NSW Local Health District Renal Service which add value to the model of care. This document describes the enablers of the service design and provides some cues for local system improvements.

It is acknowledged that there may be many examples of similar services already in place across NSW, some of which may have been operating for some time. This *home first* model aims to describe a model which is derived from a number of service models operating across the state. The term *home first* does not apply to any one of the sites visited, but is a descriptive term developed during the process of writing this document.

This document aims to share experiences, illustrate commonalities across services and describe some points of difference. It is hoped that by reading this document, Local Health Districts, together with local partners, may identify opportunities for change for improvement; may learn about alternatives to existing service models; and may be able to implement local changes to improve the experience and outcomes for people on dialysis.
What the state’s leading clinicians are saying about the *home first* dialysis model of care

“Quite an impressive achievement. The change in trajectory is very impressive. The economic analysis has been done very well and congratulations to all those involved... Great work. I think this model should be considered in all units in NSW.”

Renal Staff Specialist, metropolitan area

“Thank you for providing me with a copy of the document. It was an enjoyable read that I am sure any health district that does not have a predialysis pathway would find extremely useful... Thank you for sharing information with us all, networking and sharing ideas are so important to change and growth.”

Renal Case Manager, rural area

“This ... approach ... is consistent with the emerging trends for managing predialysis patients in NSW and according to the report has worked well... The approach is consistent with evidence-based practice and KHA recommendations.”

Renal team, metropolitan area

“A very interesting read and great initiative.”

Renal Clinical Nurse Specialist, rural area
The innovation: *home first* dialysis model

Case for change

Chronic conditions in Australia are on the rise, associated with an ageing population, and an increase in lifestyle factors impacting negatively on health. Chronic kidney disease (CKD) is just one of these chronic conditions experiencing a period of growth, and placing significant burden on the healthcare system. CKD is an increasingly common condition with an estimated 1.7M Australians aged 18 years and over with clinical evidence of CKD.

In 2007-08, 15% of all hospitalisations in Australia were related to CKD\(^3\), with one million of these for dialysis. In NSW in 2012, the most common reason for hospitalisation was renal dialysis, accounting for 18.6% of all hospitalisations (291,339 dialysis hospitalisations)\(^4\).

Whilst overall measures of health and life expectancy in Australia are improving, health inequities continue to exist and in some areas are increasing. There still exist significant inequities between population groups, socioeconomic levels and geographical areas, in health and health outcomes. As with many chronic conditions, the experience of CKD rates, morbidity and mortality varies according to levels of disadvantage. People from disadvantaged areas experience higher prevalence and are more likely to be hospitalised for care relating to CKD.

Aboriginal and Torres Strait Islander people are at greater risk of developing CKD and are hospitalised for dialysis at 11 times the rate, and for other CKD care five times the rate of other Australians\(^5\). The age standardised rate for regular hospital dialysis is at least seven times that of other Australians. Additionally, Aboriginal and Torres Strait Islander have the lowest rate of kidney transplantation in the end-stage kidney disease (ESKD) population, when compared with other cultural groups both nationally and internationally\(^6\).

Renal services in NSW

Renal services in NSW are delivered primarily by public health services, however there is a slowly increasing number of patients accessing services (e.g. haemodialysis) from private providers (8.6% of dialysis provided in NSW in 2010 was by private providers\(^7\)).

Treatment options for end-stage kidney disease (ESKD) include:

- **Conservative management and supportive care**: provides no renal replacement therapy.
- **Haemodialysis**: the kidneys’ role in removing substances from the blood is replaced by a machine. Treatment involves dialysis for 3–6 hours, three days a week. Haemodialysis can be undertaken at home, in hospital or a satellite unit. Dialysis provided in hospital or satellite unit requires hospital admission.
- **Peritoneal dialysis**: includes two kinds of dialysis. Continuous Ambulatory Peritoneal Dialysis (CAPD), which involves fluid transfer to and from the peritoneal cavity each day; and Automated Peritoneal Dialysis (APD), involving a machine which cycles fluids through the abdomen overnight. Peritoneal dialysis is undertaken at home.
- **Kidney transplant**: replaces kidney function by transplanting a healthy kidney from a living or deceased donor. Despite this being the most cost effective and successful treatment for ESKD\(^8\) there is a significant shortage of available organs for transplantation.
Dialysis services may be provided in a number of settings:

- Home
- Self-care units or community based unit (independent but not own home)
- Satellite units
- Hospital or in-centre
- Private hospital units

Dialysis modality varies significantly across the state, with home dialysis rates ranging from 0% to 56% across services. Likewise, home dialysis rates across Australia vary across renal units from 6-62%\(^9\). A recent study found NSW renal units to consistently have greater proportions of patients on home dialysis\(^{10}\), than in other states. This is understood to be a result of home first policies, education strategies and renal unit culture.

The overall trends for NSW in areas other than SWSLHD have indicated that the proportion of patients on home dialysis modalities has been decreasing. From a peak of 41.1% at the end of 2008, this has fallen to 35.0% by the end of 2012\(^{11}\). Whilst some of this variation may be related to individual patient/carer factors, much of the difference in modality and achievement of home dialysis can be related to the policies, philosophy, processes and structures of the health service\(^{12}\). During this time, hospital and satellite patient numbers have increased by 23.7%, whist the number of patients on home dialysis have decreased by 4.6%.

The demand for dialysis services is increasing in real terms, with projections and actual service utilisation data suggesting an increase of approximately 5-6% annually\(^{13,14}\). With 39% of all NSW dialysis units operating at or above capacity\(^{15}\), there is a need to review the usual model of care.

**The experience of consumers**

Central to good clinical care for people with chronic conditions is informing and activating patients to be engaged in the self-management of their health and their care. In current practice across NSW, patients may be passive recipients of care in in-hospital dialysis units, or satellite units. There is a need to shift toward stronger, patient centred care, empowering patients to make decisions and actively participate in their own care.

**Why home first?**

The benefits of home dialysis are well-recognised, with outcomes for patients including increased dialysis dose, improved clinical outcomes, improved greater freedom and flexibility\(^{16}\), improved quality of life\(^{17}\) and reduced depression rates\(^{18,19}\). There are also significant benefits to the health system, including significant cost differences between hospital based, satellite and home based dialysis and lower resource utilisation with home dialysis. Other substantial benefits for patients include not having to fit into arduous health service schedules and a reduction in travel time and costs. In their model for home dialysis, Kidney Health Australia describes home dialysis and kidney transplant as, “the most economically viable options with positive health outcomes”\(^{20}\). NSW has established a target to increase home dialysis rates to 50% of all dialysis patients\(^{21}\). Currently, NSW has an average home dialysis rate of just 35%, ranging from local rates of 0-56%.
The innovation

In October 2011, at South Western Sydney Local Health District, as part of a Clinical Redesign Project an opportunity was identified to improve the experience of predialysis patients, to facilitate self-management of their condition and treatment, and to shift treatment modalities toward recommended practice. The SWSLHD Renal Care Pathway aimed to improve the uptake of home dialysis therapies and ‘do more with the same’ resources. The SWSLHD Renal Care Pathway was developed following feedback from patients and carers, interviews with staff and research into clinical guidelines.

The SWSLHD Renal Pathways project commenced at the NSW Centre for Healthcare Redesign school, with the project undertaken using redesign methodology. A gap analysis early in the project identified a number of areas for improvement. These included:

- a need for a structured home first approach
- pathways outlining the ideal patient journey
- shared decision making between patients and clinicians (and tools to facilitate this)
- appropriate multidisciplinary referrals and care
- clinical guidelines (in particular in relation to dialysis access management), and
- improved data systems to support communication.

Central to the redesign process were four principles:

- A focus on patient centred care, and supporting patient self-management
- A teamwork approach to care, with the patient a member of the team
- Implementation of the evidence base, aiming to improve patient outcomes
- Engagement at all levels of the health service, supported by a clear vision and both clinical and executive leadership

The innovation design process involved reviews of national and international clinical guidelines, literature reviews, analysis of available data, and consumer and staff consultations, identifying the key elements of the renal care pathway. Further model design was facilitated through formation of a clinical working party to design the pathway and lead the change, development of a case management model suitable for renal patients, preparation of team members for changed model (including new tools, care planning processes) and development of an implementation strategy.

Innovation outcomes

Outcomes of the SWSLHD Renal Care Pathway include introduction and use of a structured multidisciplinary predialysis pathway, introduction of a valid psychological assessment tool to support timely and appropriate referrals to a renal psychologist, and increased rates of home dialysis. Patients have also reported greater satisfaction with care, care coordination and preparation for dialysis.

At June 2014, the number of SWSLHD patients on home peritoneal dialysis increased by 41.1% from December 2011 to 206 patients, and the number of patients on home haemodialysis increased by 60.5% to 61 patients for the same period. During this time, total patient numbers have increased by 30.0%.

Home first dialysis model of care
The chart below shows the change in proportion of patients on home dialysis modalities over time, for SWSLHD and other NSW services.

![Chart showing the change in proportion of patients on home dialysis modalities over time for SWSLHD and other NSW services.](chart.png)

An evaluation of SWSLHD Renal Pathway estimated considerable cost savings due to the implementation of the Renal Pathways Program. Varying levels of cost saving have been generated by different assumptions in calculating the economic value of the model, however in all instances, significant cost savings are evident. These cost savings are provided in the table below.

<table>
<thead>
<tr>
<th>Methodology</th>
<th>Total savings during:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2011-12 (Nov to Jun)</td>
</tr>
<tr>
<td>1. Assuming modality mix at Jun 2011 remain constant</td>
<td>$119,979</td>
</tr>
<tr>
<td>2. Assuming home patient numbers remain at Jun 2011 level</td>
<td>$193,630</td>
</tr>
<tr>
<td>3. Assuming modality mix of other NSW LHDs applied</td>
<td></td>
</tr>
<tr>
<td>Existing variation from other NSW LHDs</td>
<td>$920,632</td>
</tr>
<tr>
<td>Renal Pathways Program impact</td>
<td>$226,255</td>
</tr>
</tbody>
</table>


The complete Renal Pathways (SWSLHD) Evaluation can be found at Appendix C.
The model of care: *home first* dialysis model

*Home first* dialysis models are planned. They require effort and coordination. They have processes and protocols for communication, and smooth patient transitions supported by predialysis educators, care coordinators and case managers. *Home first* models have home dialysis as the default position – rather than assessing suitability for home, patients are assumed appropriate for home dialysis and then any exclusion criteria applied. *Home first* models prioritise empowering patients to self-manage their condition and their treatment, with support; they prioritise patient and carer education, and preparing the patient’s home environment.

**Graeme’s* story**

“I think everything was explained really well from the beginning. Before the information session I felt alone but after the information was given to me I didn’t feel isolated. The girls in the clinic were very helpful and at the end of the training they felt like family. I had attended 3 treatment option sessions to help me prepare for my dialysis and this helped. I particularly liked talking to the patients that were already on dialysis and hearing their own experience; this helped me make my decision.”

Patient feedback, post-implementation of the predialysis clinical pathway, SWSLHD.

*Not the patient’s real name*

Patients on home dialysis are actively engaged in their care, feel well-supported by their healthcare providers, have greater flexibility in their dialysis schedule and have positive psychosocial outcomes\(^{25,26}\).

The table below\(^{27}\) illustrates some of the aspects of predialysis care being implemented by successful *home first* dialysis models across the state. Across the state, there is great variety in the rates of home dialysis and rates of progression of disease. Likewise, there is a real breadth in the philosophies and processes of care for people with end-stage kidney disease (ESKD). The table below illustrates stages of CKD targeted by the three renal services in the state highlighted by the ACI Clinical Innovation Program. These models reach from earlier (in some cases undiagnosed) stages of progressive chronic kidney disease, through to predialysis planning and home dialysis.

**Home first** dialysis models in NSW

<table>
<thead>
<tr>
<th>Find the condition early</th>
<th>Best care and support in the early stages</th>
<th>Best long term care and support</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>At risk</strong>(^1)</td>
<td><strong>Diagnosed disease</strong></td>
<td><strong>Complex/comorbid disease</strong></td>
</tr>
<tr>
<td>Partnerships, eg. with local General Practice, Aboriginal Medical Services Active casefinding Clinical care with a focus on preventing disease progression Care coordination</td>
<td>“Home first” approach Predialysis pathway Predialysis education Home dialysis assessment Care Coordination Home dialysis training</td>
<td>Home dialysis training Home dialysis support at home Potential to link in for social support Potential for respite in centre dialysis as required</td>
</tr>
</tbody>
</table>

\(^1\) Whilst outside the scope of this paper, the model in place in Northern NSW Renal Service which focusses on early identification of CKD and preventing disease progression is extremely valuable and profiled at Appendix A.
In documenting a model of care, the ACI needed to determine scope. Whilst prevention of ESKD and the need for renal replacement therapy are incredibly important and valuable work, these were determined to be outside the scope of this paper. For the purposes of this paper, a **home first** predialysis model commences at diagnosed CKD that is progressing toward ESKD (represented by the second and third columns in the table above).

**Key elements**

The key elements of the **home first** dialysis model of care are supported by an overarching philosophy of “home first”, with every patient contact from the initial contact considering home based dialysis as the preferred modality of treatment. Each element is informed by the objective of having each patient dialysing at home, if renal replacement therapy is to be undertaken. Each element has this aim at its centre in planning, design and local implementation. **Home first** dialysis is the default position, with strong clinical reason needed to provide care otherwise.

These key elements form the basis of this model document, and are outlined in more detail throughout. Supports for the **home first** dialysis model are outlined in the **Making it happen** section of this document.

**Home first** dialysis model
Predialysis pathway

What it is

The predialysis pathway provides a decision support tool that outlines care expectations for people with progressing chronic kidney disease, based on currently available evidence. It provides clinicians with prompts for services, next steps in care, and supports appropriate multidisciplinary team membership. It provides patients with clear expectations regarding their disease management over time and supports them to engage in active decisionmaking and disease self-management.

The predialysis pathway is a process which supports standardisation and consistent clinical practice, whilst still allowing flexibility for clinician and patient decision making.

The innovation

The SWSLHD predialysis pathway forms part of the patient medical record and provides decision support for clinicians on the basis of patient estimated Glomerular Filtration Rate (eGFR) and clinical judgement. Completion of the pathway is primarily the role of the Predialysis Coordinator, supported by the Renal Access Coordinator and the Home Dialysis Nurse at the appropriate stage of the pathway. The pathway outlines tasks to be completed by different members of the team at different stages of the patient journey. The SWSLHD predialysis pathway is used with patients both in inpatient settings and in the community, and represents a shared understanding of what constitutes high quality care for people with CKD progressing to ESKD. The predialysis pathway at SWSLHD is soon to be implemented as a component of the renal electronic medical record (Renal eMR). A copy of SWSLHD’s predialysis pathway can be found at Appendix B.

The SWSLHD predialysis pathway is stratified according to stage of kidney disease (determined by eGFR, but mediated by clinical judgement).

Pathway components include:

| Milestone 1: Registration (eGFR=30) | • Registration with predialysis coordinator  
| • Participation in predialysis education seminar  
| • Follow up date |
| Milestone 2: Education and Assessment (eGFR=20-25) | • Height/weight  
| • Predialysis education (with predialysis coordinator and social worker), includes provision of written and multimedia information  
| • Psychosocial measures to determine any additional needs (RUDAS, PHQ-8, GAD-7) and prompt to refer to renal psychologist  
| • Assessment for home dialysis (JPAT28)  
| • Predialysis serology and vaccination  
| • Communication with general practitioner |
Milestone 3: Modality Management (eGFR = 20)
- Referral to multidisciplinary team: home therapies, transplant coordinator (identification of potential donor), social worker, dietitian, supportive care, occupational therapist, community nurse
- Communication with consultant

Milestone 4: Dialysis Access (eGFR = 20)
- Attendance at dialysis access clinic
- Access plan
- Surgeon referral
- Attendance with surgeon/team
- Access created
- eGFR at time created

Milestone 5: Review and Follow up
- Regular review of eGFR, based on CARI guidelines to avoid delay in dialysis initiation

Milestone 6: Commencement of Dialysis
- Allocation to predialysis coordinator or home therapies dependent on outcome

Importantly, the SWSLHD predialysis pathway is inclusive of a pathway for access for dialysis (also at Appendix B). This was in recognition that access for dialysis was key to timely dialysis commencement for patients.

The Western Renal Service reviews existing dialysis clients regularly to identify those patients who may be suitable for home dialysis. The Western Renal Service regularly surveys satellite clients to determine if they may be suitable for home dialysis. Additionally, Western Renal Service surveys inpatient lists on a daily basis to identify those patients who may not have been admitted for renal care, but who may also benefit from commencing on the pathway.

**Evidence base**

The predialysis pathway supports practice which is informed by the available evidence base. The use of decision support tools, such as clinical pathways is key in the effective management of people with chronic conditions. The use of predialysis pathways can support early education of and decision making by patients with renal failure, support coordination of the multidisciplinary team and avoid referral delays in the hospital system.

**Enablers/supportive structures**

Local implementation of the predialysis pathway has been supported by a patient centred approach and collaboration by the multidisciplinary team members to develop a tool that is useful, useable and evidence based. As this pathway forms part of the medical record it is “front of mind” for the team. When the pathway is uploaded onto the renal electronic medical record, the information will also be easily communicated with other units (e.g. when patient transitions from home to hospital, vice versa), will be extracted into summary form for easy access and will be accessible across the LHD.

Additionally, the pathway itself is supported by a number of tools, including initial patient interview pro formas, and the JPAT Pre-Training Home Dialysis Assessment; a validated tool used to identify patients who are likely to be good candidates for home dialysis.
Predialysis education

What it is

In this context, predialysis education refers to education about the nature of ESKD, dialysis options, and facilitation of the decision making process. The process involves engaging the patient, providing standard information and anticipating additional educational needs of the patient. This process may be the part of the model with the greatest impact on dialysis modality. Sitting firmly within the philosophy of empowering patients and supporting self-management, predialysis education involves encouraging patient-led decision-making. A key component of predialysis education is to actively engage the patient in decision making regarding their disease treatment options. This includes transplant, dialysis or conservative and supportive care. Predialysis education may serve as the starting point in commencement of a formal predialysis pathway.

Predialysis education may be delivered in different ways – individually and in group settings, by a specialist nursing role or members of a multidisciplinary team. Kidney Health Australia affirms the importance of all members of the multidisciplinary team approaching dialysis treatment options similarly, to ensure patients have clear and consistent information, and to reinforce the benefits of home dialysis.

In a home first dialysis model, predialysis educators work together with patients and carers to actively identify and address potential barriers to home dialysis.

Evidence base

Kidney Health Australia describes predialysis education as “the most significant process in determining choice of modality”. The 2012 Caring for Australasians with Renal Impairment (CARI) Guidelines outline key content of education strategies for people with established and progressive CKD. These guidelines state the importance of addressing different information dependent on stage of disease. Importantly, these guidelines also highlight the importance of a self-management approach.

The innovation

SWSLHD’s education program varies according to the patient’s disease stage. Initial education involves a seminar session outlining the role of the kidneys, chronic kidney disease, and preventing disease progression. Predialysis educators (typically an advanced practice nurse with broad renal experience across dialysis modalities) deliver the program in a group setting. As the patient’s disease progresses, education
shifts toward 1:1 education, and may involve additional team members, for example social workers and dietitians. Education in later stages specifically aims to address the patient’s concerns at that point in time, and to support dialysis modality decision making. SWSLHD restructured and reinvested existing resources to create a renal case manager position, whose role includes closer work with patients with more complex or comorbid disease, those opting for supportive care, or others finding the decision making process more complex.

Western Renal Service’s education program has a particular focus on enabling engaged and informed patient decision making. Predialysis education is key to patients’ physical and psychosocial adaptations to renal replacement therapies and the promotion of independence with home dialysis. Based around the HealthChange Methodology, WSLHD’s program has a strong self-management focus, and supports patients to shift from intent to change to readiness to take action, in relation to their treatment. In practice, this involves working closely with the patient to develop, support and enact their plan of action.

Enablers/supportive structures

Predialysis education is supported by the availability of clinical guidelines, and the predialysis pathway which acts as a prompt for the types of education to be provided at different stages. Importantly, predialysis education across all three innovation sites has a particular team member allocated to the role of educator. This staff member is often an advanced practice nurse, with a clinical background across different dialysis modalities. All three home first dialysis sites visited for the purpose of this model had standard processes and content for predialysis education. In addition, educators used tools (such as the pathway, initial patient interview proformas, home dialysis assessment tools) to identify specific educational needs together with the patient.

Predialysis education is supported by educational materials. One resource used across the three home first models visited in NSW, is the ‘My Kidneys My Choice’ decision aid tool. This tool assists patients to compare the different treatment modalities and highlights the benefits of home dialysis. Services need to ensure that education (and educational tools) is provided in a form that is linguistically and culturally appropriate, and appropriate to the patient’s literacy level.
Home dialysis assessment

What it is
The home dialysis assessment process involves assessing the patient, their support structures and their social and living arrangements to determine if home dialysis will be suitable. In highly innovative home first dialysis models, home dialysis is the default position, with strong clinical reasons required for selection of an alternative modality.

The home dialysis assessment relies heavily on a relationship with the patient, which enables open sharing of information, identification of potential barriers to home dialysis, and active shared problem solving to remove barriers or develop adaptations to make home dialysis possible. Potential barriers to home dialysis are experienced at the individual patient, service and system level. A range of barriers and opportunities to overcome these barriers is described in detail in Kidney Health Australia’s Model for Home Dialysis (2012). The home dialysis assessment may also involve an educative process as potential barriers are addressed. Work to overcome barriers may need to occur across service, agency and even sectoral boundaries. Supporting self-management and empowering patients to engage in the decision making and problem solving process highlights their role as partners in their own care.

Evidence base

Whilst home dialysis is the goal of home first models, this may not be appropriate for all patients. Assessment of the patient’s suitability for home dialysis includes identification of barriers to home dialysis and reduces the chances of resources being expended on home dialysis unnecessarily\(^\text{39}\).

The innovation

The purpose of the home dialysis assessment is to identify potential barriers to home dialysis and systematically address them where possible. Across the state, some services are using standard, validated assessment tools to assess suitability for home dialysis, whilst others are assuming all patients are suitable for home dialysis and using simple checklists to exclude patients. Determination of suitability for home dialysis is supported at SWSLHD by the use of the Jo Pre-Training Assessment Tool for Home Dialysis\(^\text{40}\) (version 2.2). The assessment assists the clinician to identify medical conditions, nutritional status, communication abilities, self-care ability, social supports and psychological suitability for home dialysis. Responses to questions are scored and suitability for home dialysis determined.

The Western Renal Service (WRS) has a particularly strong home first philosophy, with staff actively encouraging patients to dialyse at home. This active home therapies recruitment approach has seen the WRS achieve the highest rates of home dialysis in the state (56% - ANZDATA 2012). Importantly, this service supports patients in what may have been considered unlikely social situations for home dialysis.
This includes a traveller relying on tank water to dialyse, and a patient whose caravan needed to be plumbed especially to support Home HD. The WRS has also implemented broader change outside their service to enable home dialysis. Whilst in the past patients living in Department of Housing accommodation experienced prolonged waits for home modifications for home haemodialysis, WRS has arrived at a local agreement that they will inform the Department (as opposed to wait for permissions) that modifications are underway. Modifications are at the cost of the dialysis machine providers as part of the provider contract.

**Enablers/supportive structures**

Determining suitability for home dialysis can be supported through the use of standard assessments and tools. In addition to an assessment process with the patients, patients’ suitability for home dialysis may also be discussed and determined at multidisciplinary renal team meetings. A team supporting home dialysis may have flexible and/or creative local solutions to overcome barriers to home dialysis.
Care coordination / case management

What it is

Care coordination and case management are key to supporting patients with progressive CKD and ESKD in their care. A strong care coordination approach supports patients along the care pathway, ensures communication across the care team, coordinates access to specific team members such as transplant coordinators and access coordinators (in the case of requiring surgical access for dialysis), and in supporting decision making and supporting those patients who select supportive care. A care coordination approach ensures the patient’s journey and care transitions are smooth, that multidisciplinary care is planned, and care milestones are communicated to involved providers.

Care coordination may involve providing information, encouraging and advocating for patient led decision making, supporting navigation through and across services and supporting patients to actively problem solve issues as they arise. Case management involves more intensive or structured support to achieve the same aims as care coordination.

Evidence base

Care coordination involves supporting patients, building relationships between providers that clarify expectations of care and communication processes, ensuring timely information flow between providers. Care coordination may be particularly useful for those patients with complex or comorbid chronic conditions, who may otherwise experience fragmented care.}

The innovation

At SWSLHD, the renal case manager works specifically with those patients who are finding it more difficult to make a decision regarding ongoing treatment and care. SWSLHD introduced this role as part of the Renal Pathways program, by reallocating existing resources. The renal case manager role is critical to coordinating care for patients and enabling patients to make decisions about their own treatment and care. Often working with the more complex patients, it is the task of the renal case manager to ensure the clinical team works together around the patient and there is appropriate transfer of care amongst the renal team. Informed by a patient centred, self-management approach, the work of the renal case manager is to coordinate care, accept responsibility for the organisation of care on behalf of the patient, as well as facilitating the engagement of the patient in their own care. For those patients who have selected conservative or supportive care, the renal case manager provides linkages with the supportive/palliative care clinic. The case manager is responsible for specific coordination efforts such as linkages with community nursing or surgeons, pain clinics, or live donor assessments.
Enablers/supportive structures

Care coordination is facilitated by use of the predialysis pathway where much of the patient’s journey is recorded. In some services, a staff member is employed specifically in a care coordination or case manager role. The care coordinator/case manager may also utilise a regular multidisciplinary review meeting to highlight a complex patient for discussion.
Home dialysis training and support

What it is

Home dialysis training and support enables patients to develop skills and confidence in home dialysis. Guidelines outlining minimum requirements and expectations of home dialysis training are available from Kidney Health Australia. Patient training aims to ensure safe and effective dialysis in the home environment, with support as needed.

Evidence base

Effective home dialysis training supports patients to self-dialyse at home, avoid infections or complications, and seek help as required. Home dialysis training involves demonstration and practice, the use of visual aids to support learning, written and/or multimedia information, opportunities to check the patient’s competence, troubleshooting and a revision process. Supportive patient training information needs to be linguistically and culturally appropriate.

The innovation

Home dialysis training is delivered differently at the three sites visited by the ACI Clinical Innovation Program. These flexible models of training have been developed within the local context, and the locally appropriate models implemented.

Home peritoneal dialysis training

SWSLHD Renal Service arranges peritoneal dialysis training to be provided in the home where appropriate, and occasionally utilises dialysis companies in the training of patients in peritoneal dialysis. This minimises the staffing resource requirements from SWSLHD. Once the patient is trained, home dialysis support nurses support maintenance of dialysis, following up patients regularly at home. The team at SWSLHD report that one of the strengths of this training model is that patients do not have an experience of centre-based dialysis, which may change their preference from home dialysis. Additionally, training at home enables patients to learn within the environment in which they will be dialysing. Challenges may include travel times to/from patients’ homes.

Home haemodialysis training

Western Renal Service trains home haemodialysis candidates at the at the opposite end of the building from the satellite dialysis clinic, with the renal team and patient supported by a documented plan for home dialysis. The team in at Western Renal Service believe that this planned approach to home dialysis minimises
the potential risk of an experience in a facility-based dialysis environment, as patients are attending the home first dialysis training with a view to implementing at home. To make the most of the available resources, Western Renal Service has also changed its training schedule, training across six days a week (Mon, Wed, Fri and Tues, Thurs, Sat), enabling training of more patients in home dialysis.

**Rural home dialysis training**

Rural and regional services may need to develop creative approaches to home dialysis training, due to large travel distances and times between the dialysis centre or hospital, and the patient’s home. In Northern NSW LHD, patients commence a period of dialysis as inpatients to ensure access is functional and patients are suitably prepared for training prior to going home. Northern NSW LHD also has a residential training arrangement for home haemodialysis training, leasing an apartment close to the hospital to support those rural patients living further from the hospital, where transport times to and from dialysis training may be an issue. There is also a similar accommodation arrangement for those patients participating in peritoneal dialysis training at the renal unit.

**Enablers/supportive structures**

Home dialysis training is supported by training ‘checklists’ used by clinicians to ensure all appropriate training has taken place. Some of the home first dialysis models also have decision support tools for clinicians to use to determine if further training is required.

Tools to support patients to self-manage their dialysis include manuals or instructions. These resources should be linguistically and culturally appropriate, and appropriate to the patient’s literacy levels. NNSWLHD has developed a low literacy version (mostly photographic) of a home dialysis manual and intends to also develop a video which could be accessed via Youtube in the near future.
Making it happen

Two patient stories, before & after implementation

“When K went to Liverpool for the education he went on his own as I wasn’t able to attend, it seemed very generic, not individualised to the patient. The nutritional advice he received was very vague and was received as a generic document stating what he can and can’t eat, not individualised to the patient’s needs and there was no discussion to clarify the reasons behind the dietary advice. From viewing what happens in dialysis units I believe dialysis requires professional nursing assistance, can’t do it on your own, quite scary for the carer, what if something went wrong?”

Patient feedback, pre-implementation of the predialysis clinical pathway, SWSLHD.

“I met with the pre-dialysis coordinator, social worker, dietitian and clinical psychologist. I remembered the education given and all was clear on what to expect. I found that the home visit (home dialysis patient) really reassured me and made me feel that I won’t be left alone once I go home. Keep up the regular home visits.”

Patient feedback, post-implementation of the predialysis clinical pathway, SWSLHD.

Adapting to local context

In adapting the home first predialysis model to the local area, there is a need to assess the local context through asking a series of questions. These may include:

- What is the demand for services?
- What resources are available?
- Who are the target patients?
- What are the barriers that need to be overcome? What is the problem that needs to be solved?
- Can this problem be quantified?
- What might be the local solutions?

Importantly, specific groups within the local community who are likely to be at higher risk of CKD or ESKD, or have more significant support needs, should be specifically targeted.

Western Renal Service has sourced educational resources in local community languages internationally, when no locally produced resources were available.

Northern NSW LHD Renal Service identified significant growth in demand for services, in addition to a significant Aboriginal and Torres Strait Islander community at high risk of CKD. This highlighted an opportunity for increased prevention work in the community. This preventative work was conducted by a Nurse Practitioner who worked in partnership with the local Aboriginal Medical Services (AMS) and General Practices. The Richmond Network within Northern NSW LHD Renal Service where the CKD Nurse Practitioner has been focusing on CKD prevention and management has not experienced any increase in demand for dialysis in the past two years. This is a significant achievement given the increasing rate across the state.
of 4-6% increase per annum, and the local Aboriginal and Torres Strait Islander communities. Their work is described in Appendix A.

**Process**

Central to the success of the *home first* dialysis models is the vision and leadership supporting the models. The design, development and implementation of these models have been reliant on engagement at all stages of the innovation, at all levels. Identification and development of a case for change, leading to a clear plan with executive sponsorship and drive has been key to the development and pursuit of these models.

A gap analysis of the predialysis phase of a patient’s journey was particularly powerful for the SWSLHD Renal Service in terms of engaging the multidisciplinary team and motivating change for improvement. Finally, engaging the multidisciplinary team in the process of translating specific clinical guidelines into a pathway to support clinical practice has facilitated engagement by team members across the patient journey.

**Facilitators/enablers**

**Vision**

Each innovation site expressed the importance of vision to the achievement of objectives and shifting toward a home first dialysis model. A shared vision of the model following improvement was reported to be key to the continual drive toward change, and supported teams to continue even when negotiating significant obstacles. A whole of organisation shift toward home first dialysis, through education, policy, and structural clinical process changes assisted the innovation sites to communicate and achieve their aims.

It is important for services to identify their starting point, prior to beginning their work for improvement. It may be useful for renal services to undertake a self-assessment (see page 27 of this document), and obtain some qualitative and quantitative patient data prior to commencing work.

**Leadership**

To achieve change of this scale, in terms of changing the philosophy of care, the primary model of care, and processes of care, requires leadership across all levels of the organisation. Clinical change champions, together with executive support and leadership were required by services to achieve change. Executive support for the model is required to enable reallocation of existing resources toward a *home first* model of care. Clinical champions support the change in clinical practices required and work together to develop
decision support tools (eg. predialysis pathways) that support consistent clinical practice. Nephrologists are central to the success of a shift toward a home first model, enabling a greater focus on education, leading decisions about appropriateness for home based dialysis, and supporting patients in their decisions to choose conservative and supportive care. The shift toward home first dialysis models may require education of all renal staff in home modalities, together with a shift in how clinicians relate to patients, with a much stronger focus on supporting patient self-management. This shift may be supported through training, the use of new tools and team discussions (for example at regular clinical review meetings).

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 KPIs were reported through to different departments/executive teams.

Tools & decision support

Specific tools used to implement changed processes of clinical care served to educate teams, establish a shared understanding of the expectations of home first practice, and to measure progress toward goals. Decision support tools also facilitate consistency, and coordination of care. Importantly, clinical tools that are built in to existing clinical processes (eg. predialysis pathway forming a part of the medical record) support initial practice change and sustainability of the model over time.

Teamwork

Teamwork in home first dialysis models is key to support a patient centred approach and to manage the complexities associated with clinical care for people with ESKD. Whilst team membership varied slightly across the various home first dialysis innovation sites, teams consistently involved a nephrologist, predialysis coordinator/educator, allied health (social work, dietician, pharmacist, psychologist), case managers/care coordinators and home dialysis nurses. Some teams also had staff specifically responsible for transplant coordination or vascular access coordination. All teams were reliant on positive relationships with surgeons.

Patient centred approach

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 informing and empowering patients to make decisions regarding their own healthcare, respecting decisions made by patients and their carers, and building supportive systems to enact these decisions. Patients of SWSLHD Renal Service described real changes to approaches of care following implementation of their home first model, noting improvements in care, care coordination and continuity and emotional support.

Sustainability

Each of the home first dialysis models involved with the ACI Clinical Innovation Program was built in stages; clear project plans translated into contained actions which were built within/upon existing services and processes. Importantly, service models were designed and implemented using the reallocation of existing resources. For example, allocation of a respite space in the Home HD training centre in Northern NSW LHD.
Renal Service has utilised existing resources to further support patients to sustain home based dialysis. Local innovation teams stressed the importance of building clinical processes and systems that were embedded in usual practice processes, so change was not experienced so significantly by providers. Additionally, allowing time for new processes to become the normal way of working was seen as vital.

**Measuring performance**

Measuring performance is central to identifying the impact of changes (including the unanticipated impacts), as well as providing motivation to teams in times of change. Innovative teams clearly identified the aims of their work prior to implementation, determined meaningful measures and obtained data against these aims before making changes to local practices.

*Home first* dialysis models are required to be truly patient centred to be successful; it makes sense to work with patients to identify their needs, and to work collaboratively with patients on service redesign. SWSLHD Renal Service described the value of working together with patients and their carers in identifying the gaps in service and opportunities for improvement. SWSLHD Renal Service now has valuable qualitative data about their service prior to, and following their home first innovation work. Additionally, some *home first* dialysis models have built peer to peer education into their predialysis education processes which has been received well by patients.
Self-Assessment Tool

This tool may be used by local organisations engaging in local service improvement around *home first* predialysis models. The tool provides agencies with areas to target for improvement, and supports agencies to identify their current level of achievement and track progress over time. It allows organisations to self-rate across three levels of care – basic, advanced, innovative.

The self-assessment tool can be used by services to make judgements about their current services, by noting whether features are *met*, *partially met*, *not met*, or *not applicable* in their services. Services then need to determine if this level/type of service is appropriate for their organisation and develop a plan of action for improvement, where improvement is warranted. It may be revisited following improvement efforts. This model of care document provides agencies with support in identifying opportunities for improvement and opportunities for action.

<table>
<thead>
<tr>
<th>“Home first” predialysis model</th>
<th>Met</th>
<th>Partially met</th>
<th>Not met</th>
<th>Not applicable</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Basic features</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Renal team members (including nephrologists) have participated in education around home dialysis modalities</td>
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<td></td>
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</tr>
<tr>
<td>Renal service policy is developed in support of <em>home first</em> dialysis</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clinical governance structures for home therapies are in place</td>
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<td></td>
<td></td>
</tr>
<tr>
<td><strong>Advanced features</strong></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Policy across the Health District supports a <em>home first</em> philosophy</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Home first</em> dialysis data and key performance indicators are reported regularly through numerous patient care committees at an LHD level</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>A patient centred approach is reinforced through engagement of patients in the evaluation, redesign and implementation of care</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Innovative features</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Home first</em> data and key performance indicators are reported, benchmarked against like services, reviewed and changes made to services and local policy accordingly</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

**Predialysis pathway**

The organisation has a clinical pathway that supports predialysis care for people with progressive CKD and ESKD.

<table>
<thead>
<tr>
<th>Basic components</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Renal team members ensure patient clinical measures are collected and recorded, eg. eGFR.</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>A predialysis clinical pathway based on currently available evidence is in use by the renal unit/team</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patients are screened for additional health / social issues that may impact on their ability to self-manage or to engage in home therapies</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The clinical pathway includes a process for timely access to surgery.</td>
<td></td>
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</tr>
</tbody>
</table>
### Predialysis education

The organisation has a structured process for predialysis education. Education is provided in simple language and supported by tools which are linguistically and culturally appropriate and meet the needs of the patient.

<table>
<thead>
<tr>
<th>Basic components</th>
<th>Education is provided by suitably qualified renal team members</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>The service provides consistent predialysis information/education to patients and their carers</td>
</tr>
<tr>
<td></td>
<td>Predialysis educators provide tailored information to patients to address their individual educational needs over time</td>
</tr>
<tr>
<td></td>
<td>Predialysis education involves a component on active patient-led decision making</td>
</tr>
<tr>
<td>Advanced components</td>
<td>Education is supported by tools which are linguistically and culturally appropriate and meet the needs of the patient. Information may be sought internationally, if required.</td>
</tr>
<tr>
<td></td>
<td>Education is supported by tools in simple language, which are appropriate to the literacy levels of patients.</td>
</tr>
<tr>
<td>Innovative components</td>
<td>Peer educators are involved in home dialysis education programs to support self-management approaches and provide a peer perspective on home dialysis</td>
</tr>
</tbody>
</table>

### Home dialysis assessment

The organisation has a *home first* approach to home dialysis assessment. Patients are assessed for home dialysis suitability using criteria shared and understood by the renal team members.

<table>
<thead>
<tr>
<th>Basic components</th>
<th>Potential barriers to home dialysis are identified</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advanced components</td>
<td>Patients are assessed for suitability for home dialysis using a standard tool, or by using shared criteria and decision support tools</td>
</tr>
<tr>
<td></td>
<td>Potential barriers to home dialysis are identified and addressed by patient together with the multidisciplinary team</td>
</tr>
<tr>
<td>Innovative components</td>
<td>Potential systemic barriers to home dialysis are identified and addressed by the Local Health District. This may involve development of a business case to minimise or eliminate costs to home dialysis patients.</td>
</tr>
</tbody>
</table>
### Innovative components

Services work in partnership to facilitate home dialysis and address barriers, eg. cooperative agreements between LHD and Department of Housing

### Care coordination

A care coordination approach ensures the patient’s journey and care transitions are smooth, that multidisciplinary care is planned, and care milestones are communicated to involved providers.

<table>
<thead>
<tr>
<th>Basic components</th>
<th>Referrals are made to appropriate multidisciplinary team members</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advanced components</td>
<td>Patient care is coordinated across the renal team, so access to care and information sharing is fluid and transitions experienced smoothly by patients</td>
</tr>
<tr>
<td></td>
<td>Care is coordinated across services, and care goals and decisions communicated clearly to members of the treating team</td>
</tr>
<tr>
<td></td>
<td>Local policies and procedures outline the process for care coordination and care planning, and represent the patient’s active role in this process</td>
</tr>
<tr>
<td></td>
<td>Support for clients on home dialysis modalities is available 24 hours a day, seven days a week</td>
</tr>
<tr>
<td>Innovative components</td>
<td>Patients are engaged in case management, facilitating decision making around modality of treatment, or treatment options (including supportive care).</td>
</tr>
<tr>
<td></td>
<td>Care is coordinated across agency boundaries (eg. general practice, community nursing), and care goals and decisions communicated clearly to members of the treating team</td>
</tr>
</tbody>
</table>

### Home dialysis training

Effective home dialysis training supports patients to self-dialyse at home, avoid infections or complications, and seek help as required.

<table>
<thead>
<tr>
<th>Basic components</th>
<th>A standard tool for home dialysis training is used to ensure consistency of training content and processes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Home dialysis training is provided by suitably qualified renal team members</td>
</tr>
<tr>
<td></td>
<td>Visual aids are available to support learning and promote independence</td>
</tr>
<tr>
<td></td>
<td>Home dialysis training reinforces supported self-management, and promotes independence as much as is possible and safe from the first training session</td>
</tr>
<tr>
<td></td>
<td>Services have in place a process for review and follow up for patient following completion of the formal home dialysis training process</td>
</tr>
<tr>
<td>Advanced components</td>
<td>Services provide training in the patient’s home or in a home therapies training unit, dependent on resourcing, services available and philosophy of care</td>
</tr>
<tr>
<td>---------------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td>Training is enhanced by the use of manuals appropriate to the patient group, eg. photographic manuals for patients with low literacy</td>
</tr>
<tr>
<td></td>
<td>Respite dialysis is made available to support patients who may require assistance with troubleshooting, ‘refresher’ training (eg. following an inpatient stay), or need to dialyse outside of their home for a period of time</td>
</tr>
<tr>
<td>Innovative components</td>
<td>Patient autonomy is promoted in in-centre dialysis units, with the potential to transfer patient to home therapies</td>
</tr>
</tbody>
</table>
Appendices
Appendix A: CKD/ESKD Prevention – Northern NSW LHD Nurse Practitioner model

ACI CLINICAL INNOVATION PROGRAM
A preventative model for CKD

Northern NSW LHD’s partnership approach to early identification and prevention of disease progression

Nurse practitioner employed by LHD
Colocated with general practice to provide CKD clinics
Active casefinding in general practice using PEN/CAT
Colocated with local Aboriginal Medical Service for CKD clinics and outreach preventative clinics
Use of CARI evidence based guidelines; lifestyle and medical interventions
Strong links with GP and nephrologist

aims of CKD clinic
* screen for CKD and follow progress of CKD
* use evidence based interventions to slow progression of CKD

the ckd nurse practitioner role has achieved

development of tools to support clinical care
improved relationships across community - hospital interface
eye early identification of CKD, prevention of progression

No increase in demand for dialysis in the past two years for The Richmond Network (part of NNSWLHD)

Prepared for ACI by Hannah Halloran, healthy partnerships 2014
Appendix B: SWSLHD predialysis pathway

Nephrologist

Register patient with predialysis coordinator and invite patient to Treatment Options Seminar (TOPS)

Refer patient to Pre Dialysis Coordinator for pre dialysis education, JPAT assessment and serology. Referral to social worker (RUDAS if required), dietician, clinical psychologist

Referral for Dialysis Access
* fistula mapping & creation
* consultation for Tenckhoff
(see dialysis access pathway)

Does patient have a potential donor? YES - Refer to Transplant Coordinator

Supportive Care
Patient may be referred regardless of eGFR if deemed suitable by consultant

Is patient for home therapies?
YES
Pre Dialysis Coordinator to refer patient’s care to Home Therapies Unit

NO
Patient care coordinated by Pre Dialysis Coordinator

Consultant to notify Pre Dialysis Coordinator when patient due to commence dialysis.

Coordinator will:
* Notify Home therapies (if for home)
* Notify dialysis NUM (if centre-based) - handover care
Notify Transplant Coordinator when dialysis has commenced

Commence on dialysis

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Appendix B: SWSLHD predialysis pathway (cont’d)

**SWSLHD Dialysis Access Pathway**

- **Nephrologist**
  - Referral to Interventional Nephrology Access Clinic (Run by Dialysis Access Co-ordinator)
    - **eGFR > 20**
    - Peritoneal Dialysis Pathway
    - Haemodialysis Pathway
      - Referral to surgeon for AVF creation
      - AVF mapping following consultation
      - Creation of AVF by eGFR 15
      - AVF surveillance (ongoing monitoring of AVF)
      - Dialysis

- **eGFR 20**
  - Refer patient to Interventional Access Clinic or Surgeon for Tenckhoff catheter assessment. Subject to:
    - Rate of decline eGFR
    - Nephrologist opinion
  - Aim for insertion of Tenckhoff before eGFR <10ml/min (discretion of nephrologist)

Reproduced with permission of SouthWestern Sydney Local Health District
Renal Clinical Pathway  Date: ___/___/____

Consultant: ________________________________

Allergies: ________________________________

☐ Documented on Powerchart

eGFR at time of referral: _______  OR

Dialysis Modality at time of referral: ☐ Haemodialysis  ☐ Peritoneal Dialysis   ☐ Tx

DEMOGRAPHIC INFORMATION:  (Confirm details on label)

Patients Name: ______________________________________________________________

Address: ___________________________________________________________________

Phone: (H) ____________________ (W) _____________________ (M) _________________

Next of Kin: ____________________________________ Phone: ______________________

Language spoken at home: ____________________________________________________

Interpreter required:  Y/N (language): ___________________________________________

GP: _____________________________ PH: ____________________ FAX: _________________

Medicare: YES / NO __________________________________________________________

Private Health Insurance: YES/NO _______________________________________________

Primary Renal Disease (ANZDATA): ______________________________ Biopsy: YES / NO

MILESTONE 1: eGFR = 30 Registration

Date of referral: _______________________ Source of referral: ______________________

Registration of patient with Pre dialysis Co-ordinator - Date: ___________ eGFR: _________

Attendance at TOPS: DATE: ___________ eGFR: _______________

Follow up: ____________________________________________________________________
MILESTONE 2: eGFR = 20-25 **Education and Assessment**

Height: ________ cms  
Weight: ________ kgs  

Pre dialysis Education session: YES/NO  
DATE: ____________  
eGFR: _______________

Referral for RUDAS:  
☐ YES  
☐ NO  
☐ N/A

RUDAS Score: _______________

Complete JPAT Assessment Tool – Date: ________________ (Appendix A)

Psychology Assessment: (Appendix B) Patient to fill in for scoring

PHQ – 8 score: ______________  
GAD – 7 score: ______________

☐ Referral to Psychologist if score 10 or above  
☐ Treatment Options Booklet given to patient  
☐ DVD given to patient  
☐ Predialysis Letter to consultant  
☐ Copy of letter to GP

Predialysis Serology: **Hep B sAb, Hep B sAg, Hep C, HIV**

If patient is for Tx check; CMV IgG, EBV IgG, Herpes Simplex IgG, Varicella IgG, Toxo IgG

RESULTS:  
Hepatitis B: NEG/POS  
HEPATITIS C: NEG/POS

Date: ______________  
**Hepatitis B sAb** ______________  
If <10 patient and patient for dialysis or transplant, Hepatitis B vaccination is required

<table>
<thead>
<tr>
<th>Hep B Vaccination (doses)</th>
<th>0 mth</th>
<th>1 mth</th>
<th>2 mth</th>
<th>4 mth</th>
<th>Rpt Hep B sAb (4 weeks after last dose)</th>
<th>Booster Doses</th>
<th>0 mth</th>
<th>1 mth</th>
<th>2 mth</th>
<th>4 mth</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>DATE:</td>
<td>DATE:</td>
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</tbody>
</table>

☐ Recorded on Hepatitis B register

Varicella ________________ if negative patient requires Varicella vaccination (Tx only)

Dose 1 ______________  
Dose 2 ______________  
Repeat Varicella serology ________________

MILESTONE 3: eGFR = 20 **Modality Management**

If patient is for Centre Based Care – remain under Pre Dialysis Coordinator
Refer to Multidisciplinary Team:

<table>
<thead>
<tr>
<th></th>
<th>Date Referred</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Home Therapies</td>
<td></td>
<td></td>
</tr>
<tr>
<td>□ Transplant Coordinator</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Name of Potential Donor:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relationship to Patient:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>□ Social Worker</td>
<td></td>
<td></td>
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<tr>
<td>□ Dietician</td>
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<tr>
<td>□ Supportive Care</td>
<td></td>
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<tr>
<td>□ Occupational Therapist</td>
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<tr>
<td>□ Community Nurse</td>
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</tbody>
</table>

**MILESTONE 4: eGFR = 20 Dialysis Access**

Attendance at Dialysis Access Clinic: DATE: _____________ eGFR: ____________

Access Plan: □ Interventional Tenckhoff Catheter □ Surgical Tenckhoff Catheter □ AVF

Referral form – surgeon (drop down box – printable form)

Is patient for Peritoneal Dialysis? YES/NO

YES: Notify Therapies Unit of planned date for Tenckhoff insertion. DATE: ______________

Attendance with surgeon/Interventional Team: Date: _____________ eGFR: ____________

Date of Operation/procedure: ___________

Surgeon/Interventional Consultant: ____________________

Type of access created: □ Tenckhoff □ Native fistula □ PTFE Graft □ Vein Graft

Location of AVF/AVG: □ Right forearm □ Right upper arm □ Left forearm □ Left upper arm □ Right thigh □ Left thigh

eGFR at time of creation: ____________
**MILESTONE 5: Review and Follow up**

CARI- Monitor GFR quarterly from value 15 – 20mL/min/1.73 and monthly from <10mL/min/1.73m to avoid unintentional delay in the initiation of dialysis

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<th>DATE</th>
<th>Weight</th>
<th>eGFR</th>
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**MILESTONE 6: Commencement of Dialysis**

- Notify Pre dialysis Coordinator when patient needs to commence dialysis: Date: _____________
- Transfer care to Home therapies Unit
- Transfer care to Dialysis Unit

Commencement on Dialysis: _________________________
References

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30 Kidney Health Australia 2012. Ibid
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