Ontario Health
Ontario Renal Network

Home Dialysis Assessment Document

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Home Dialysis Assessment Document

Background

The Ontario Renal Network (ORN) is part of the provincial agency, Ontario Health, and advises the Ontario government on chronic kidney disease (CKD) and manages dialysis services across Ontario. As part of the Ontario Renal Plan 3, the ORN set out a strategic objective to promote and enable dialysis at home. Home dialysis, including both peritoneal dialysis (PD) and home hemodialysis (HHD), is associated with improved quality of life and greater independence for patients[1]. To enable patients to start on home dialysis, the identification of potential candidates for home dialysis is a key initial step. The approach to assessing candidates for home dialysis is highly variable across Regional Renal Programs (RRPs) and within kidney care teams. Confidence and knowledge about home dialysis modality options vary among kidney care team members, which in turn, may lead to lower adoption of home dialysis modalities by patients. This is often driven by common misconceptions, for example, that home dialysis is intended only for the youngest and healthiest patients.

A list of common barriers to home dialysis and corresponding supports and solutions can provide RRPs with a consistent set of guidelines to reference during the patient's care journey. Assessment for home dialysis modalities should be conducted on an individualized basis, recognizing that barriers and corresponding supports may vary by patient.

Benefits of Home Dialysis

Starting or transitioning a patient with CKD onto a home dialysis modality has many benefits, including[2]:

- Ability to dialyze in a familiar environment.
- Flexibility to decide when to dialyze, providing more independence and control over their life and preservation of autonomy. For example, this may minimize interruption to their family and home routine or avoid relocation from a rural or remote location to an urban centre to maintain connection to community and culture.
- Reduction in travel time to and from the dialysis unit for treatment and parking, and travel costs. Home dialysis patients attend clinic visits approximately every six to eight weeks.
- Opportunity to dialyze longer and more often. This is associated with improved symptom management and improved quality of life and may reduce dietary restrictions and complications.
- Economic benefits to the health care system as home dialysis is less resource-intensive than in-centre hemodialysis.

[1] Ontario Renal Network, n.d.-1
[2] Ontario Renal Network, n.d.-2

Purpose

To support patients to dialyze at home by providing RRPs with a list of common barriers and corresponding supports to consider when assessing candidates for home dialysis modalities.

Intended Audience

It is recommended that this document be reviewed and referenced by Multi-Care Kidney Clinic (MCKC) care team staff to support modality education and treatment decisions. Additional kidney care team members, including nephrologists, home dialysis teams, transition unit teams, transplant teams, Body Access (BA) and Home Dialysis (HD) Coordinators, and all other in-centre staff are also encouraged to reference this assessment document to support patients with appropriate home dialysis modality education at every step of their care journey.

Patients and their caregivers and others that are part of Patient and Family Advisory Councils across RRPs are also recommended to reference this assessment document. Given that patients' needs and opportunities to conduct home dialysis may change their care journey, patients and their caregivers may benefit from early identification of ways to support the decision to do home dialysis.

Approach

A jurisdictional scan was undertaken to identify common barriers to home dialysis and corresponding supports. The barriers and corresponding supports included in this document were consulted on by home dialysis leads, nephrologists, hospital renal directors, nurses, allied health representatives, and patient advisors from across the province.

How to Use This Document

It is recommended that all kidney care teams proactively reference this document when providing modality education and assessing patients for home dialysis. This document will help the kidney care team support patients to start home dialysis or reassess opportunities to transition to home dialysis, as appropriate, based on the patient's goals of care (Figure 1). While this process typically begins in the MCKC care setting before a patient starts dialysis, it may occur first in other settings (e.g., urgent starts in the in-centre units). Kidney care teams should use this document in conjunction with the MCKC Best Practices.

Barriers and corresponding supports as identified in Tables 1 to 3 outlined in the document can be discussed with patients and their caregivers during their education visits and at other points of their care journey (for example: if a patient is currently on an in-centre modality but may be a candidate for home dialysis). Table 1 provides a list of general common barriers and corresponding supports for home dialysis; Table 2 provides a list of barriers and corresponding supports specifically for home hemodialysis; and Table 3 provides a list of barriers and corresponding supports specifically for peritoneal dialysis. Additionally, there are circumstances that would prohibit a patient from dialyzing at home and these are identified as absolute contradictions in Table 4.

The following points are considerations when using this document, with recognition that not all considerations are possible and may need to be revised throughout the patient's journey of care:

- Patient assessment for use of home dialysis modalities should be conducted on an individualized basis, recognizing that goals of care, barriers and corresponding supports may vary by patient;
- Assisting patients in starting home dialysis may take multiple, consistent conversations with the patient, their caregivers and kidney care team members;
- Patients, caregivers, and kidney care team members are encouraged to work collaboratively to find solutions where possible;
- Patients and caregivers should have access to a variety of kidney care team members to ensure they are making the best decision as they may benefit from having multiple conversations;
- Innovative strategies, modified training, collaborations with community health services, and newer technologies should be considered when discussing home dialysis modalities and assessing patients as appropriate candidates for home dialysis

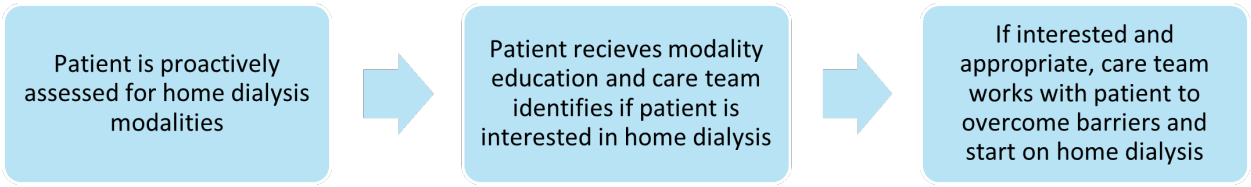

Figure 1: Ideal clinical workflow for assessing patients for home dialysis. Note: this conversation should be revisited and continue throughout the patient care journey (as appropriate) across the various settings the patient may be seen in.

Considerations for First Nation, Inuit, Métis, and Urban Indigenous People

First Nation, Inuit, Métis, and urban Indigenous people often face unique barriers to home dialysis related to equity, structural racism, remoteness, community infrastructure, and cross-jurisdictional health care provision. The Indigenous health care and social services landscape is diverse and complex. There are various models of health care delivery and many Indigenous health service providers who provide unique health services that are grounded in Indigenous world views and culture. Indigenous world view is relational and often described as one in which the whole is valued more than its parts. Decision-making related to health care and allocation of community resources such as housing are made through extensive collective discussion and consultation. Additionally, patients' support systems often extend beyond their immediate family or caregiver.

Given the diversity of the First Nation, Inuit, Métis, and urban Indigenous people living in Ontario, a 'one size fits all approach' to addressing barriers and improving access to home dialysis should be avoided. The ORN has attempted to capture supports for our First Nation, Inuit, Métis and urban Indigenous communities where possible and acknowledges that the presented content may be limited in its applicability and relevance and may not consider all the varying needs of our communities. Given this, the ORN encourages RRPs to work directly with Indigenous patients, their communities, and local Indigenous health organizations to identify and overcome barriers to home dialysis and identify the most appropriate supports.

Barriers and Corresponding Supports

Tables 1 through 3 outline a list of common barriers to home dialysis, alongside potential corresponding supports that may be used to help overcome the barriers. These barriers have been identified by care teams and potential corresponding supports are written from the perspective of solutions that providers, care teams and/or the patients' caregivers can explore. The following lists are not exhaustive nor compulsory, and the appropriate support(s) will vary based on the patient and supports available at the RRP. Multiple supports may be appropriate and may be used in conjunction to address one or more needs of patients and caregivers. More information on ORN Supports can be found on page 12.

Table 1: General Common Barriers and Potential Supports

This table refers to common barriers and potential supports that are general and applicable to both PD and HHD.

Barrier	Potential Supports
Challenges with self-management or managing home environment due to patient condition • Frail or unable to walk/stand • No use of either hand • Patient unable to maintain personal hygiene • Home is unclean or health hazard and patient unable to correct • Unstable medical conditions (e.g., uncontrolled arrhythmia, seizure disorder) • Controlled or managed active substance abuse • Controlled or managed active psychiatric issues • Severe neurocognitive impairment	• Assisted-PD or assisted-HHD • Community nursing/PSW support for other home care (e.g., hygiene supports such as bathing) • Caregiver education and supports (e.g., respite care or mental health supports) • Peer support system (e.g. through the Kidney Foundation[3]) • Backup plans for missed appointments (e.g., virtual care appointments, a back-up appointment date) • Support from other providers within patient's circle of care (e.g., primary care provider) • Support from medical geriatric or elder clinics • Medications to reduce agitation and slow progression of syndromes such as dementia
Unreliable electricity that cannot be addressed	• Continuous Ambulatory Peritoneal Dialysis (CAPD) or APD with supports for backup generators
Visual impairment	• Assisted-PD or assisted-HHD • Extended training time and increased practice time • Educational materials in black and white with enlarged font to heighten visibility • Resources in Braille

[3] Kidney Foundation, n.d.

Barrier	Potential Supports
Visual impairment (cont'd)	• HHD and PD equipment technologies that offer voice commands or ability to display in large font • Audio recording of training steps while health care provider trains patients and their caregivers • Audio recording of training describing the procedure for patient to take home if they have difficulty reading manuals • Use of separate vibration machine to wake up patient on HHD
Hearing impairment	• Assisted-PD or assisted-HHD • Home dialysis machines that have audio (noise activation), light (light flashes), or vibration alarms or modifications that can be made to existing machines • Involvement of American Sign Language (ASL) translators where possible • Use of HHD and PD equipment or technology that offers hearing assistance
Language barriers	• Translator services if available or other health care providers who may speak preferred language to assist with translation • Virtual translation tools such as LanguageLine Solutions or Google Translate (if appropriate) • Support from family members or caregivers and encouragement for them to be present during training and clinic visits • Training and necessary supports for patients for machine troubleshooting if assistance is required outside of clinic hours • Support for patient on identifying flags for when treatment should be stopped and initiating discussions with the kidney clinic staff • Translation of training manuals to patient's preferred language • Video setups for training or reference • Set of picture or cue cards • Use of HHD and PD equipment or technology that offers language assistance
Inability to read and/or write, severe learning disability, and/or poor short-term memory	• Assisted-PD or assisted-HHD • Education adaptation through providing extra one-on-one help and repeating information and procedures many times • Dialysis machine and modality with less complexity – e.g, use of CAPD for patients comfortable with manual exchanges and lower technology use or APD for patients comfortable with machine use overnight with greater technology use • Set of picture or cue cards • Shorter episodes of training with a longer overall duration for information retention • Chronologically organized checklists (e.g., 'step by step' processes) for successful self-care management
Patient's residence has insufficient storage space for supplies and equipment	• Frequent delivery of home dialysis supplies (e.g., weekly, or biweekly deliveries) • Exploration of alternate storage opportunities - within the same building but not within the patient's unit or in alternate setting

Barrier	Potential Supports
Patient's residence has insufficient storage space for supplies and equipment (cont'd)	• Equipment or technologies that minimize need for supplies if storage for dialysate may be challenging • Letters of support issued from RRP to encourage landlords to collaborate and support building modifications • Collaborations with First Nations, Inuit, Métis and Urban Indigenous communities for renovations and identification of alternative locations for equipment and supplies • Support for patient in optimizing home space to create storage space (e.g., decluttering)
Patient's spouse, family, or caregiver is unwilling or unable to support home dialysis	• Encouragement of family or caregiver involvement during the initial home assessment • On-going support and conversations with the patient and care partner to address the barrier (e.g., facilitate joint meetings with social worker, nurse, and nephrologist) • Opportunity for patient or caregiver to join a peer support system (e.g., through formal support programs, the Kidney Foundation, or one-on-one pairings to increase familiarity and comfortability with home dialysis modality-related topics) • Assisted-PD or assisted-HHD as bridge to independent home dialysis • Respite or support opportunities for caregiver
Has no assistance/help (family, caregiver, other helper)	• Assisted-PD or assisted-HHD • Telehealth options and/or remote home monitoring with video capabilities • Local peer support (e.g., through the Kidney Foundation) • Advocacy from RRP for travel supports for patient and/or caregiver that are covered by Non-Insured Health Benefits (NIHB)
Patient is bedridden and/or has tracheostomy or ventilator dependent	• Assisted-PD or assisted-HHD • Further education and/or peer support system for caregivers (e.g., formal support groups, the Kidney Foundation, one-on-one pairings, existing patients)
Reduced awareness or ability to report body symptoms	• Assisted-PD or assisted-HHD • Telehealth options and/or remote home monitoring with video capabilities • Further education and/or peer support system for caregivers (e.g., formal support groups, the Kidney Foundation, one-on-one pairings)

Table 2: Home Hemodialysis Common Barriers and Potential Supports

Barrier	Potential Corresponding Supports
Fear of self-cannulation or catastrophic event	• Introduction of cannulation early in training • Extended training and increased practice time with nurse as part of cannulation training including practice with mannequin/dummy arm consistently to help overcome fear • Ongoing home monitoring as needed • Support from peer mentor with similar experience • Central venous catheter as an initial access with ongoing training and opportunities to practice self-cannulation • Topical anaesthetics to increase patient comfort • Provision or facilitation of psychological and/or psychiatric supports (e.g., renal psychologist or psychiatrist) • Support from BA Coordinators • Consideration of starting patient with one needle • Revise patient's training schedule and focus based on patient fear and readiness
Contraindication to anticoagulant use during dialysis	• Intermittent saline flushes • Techniques such as BioFlo or hemodiafiltration
Residence has no running water, poor water quality, or low water pressure	• Systems to minimize need for running water (e.g., NxStage, if available) for intermittent water supply • Routine water quality testing for urban and rural settings • Newer HHD machines may have option of using premixed sterile dialysate bags, production of ultra-pure dialysate using reverse osmosis and deionization in small tanks, or sorbent regeneration of dialysate, or other new water minimizing technologies • Support from RRP to fund in-home systems (e.g., electrical, or septic systems) • Collaborations with First Nations, Inuit, Métis, and Urban Indigenous community leadership to address barriers (e.g., alternative housing, alternative location for dialysis equipment, or addressing jurisdictional barriers for adequate water supply) • Assessment of water pressure pump, water tank use and alternate systems if required • Assessment of water treatment systems and alternate systems if required

Barrier	Potential Corresponding Supports
Cost of electricity is too high to sustain	• ORN Home Hemodialysis Utility Grant[4]
No phone or internet service	• Options to provide patient access (e.g., RRP funding support, prepaid mobile phone)
Remoteness	• Installation of two hemodialysis machines to ensure 100% redundancy and ensure patient safety • Emergency response plan development with community and local health services • Telehealth options and/or remote home monitoring with video capabilities • Mobile clinics via bringing in laptops into patient's home

Table 3: Peritoneal Dialysis Common Barriers and Potential Supports

Some providers may consider the following items as absolute contraindications. However, home dialysis experts strongly recommend reviewing risks versus benefits and individual patient circumstances for each of the listed barriers.

Barrier	Potential Corresponding Supports
• History of multiple or complex abdominal surgeries • Hernia risk or recurrence after mesh repair • New intra-abdominal foreign bodies (abdominal vascular prosthesis) • Intolerance to PD volumes necessary to achieve adequate PD dose • Class III Obesity (BMI ≥ 40.0) • Large abdominal aortic aneurysms • Uncorrectable mechanical deficits that prevent effective PD or increase the risk of infection (e.g., surgically irreparable hernia,	• Assessment on a case-by-case basis for consideration for PD, and consider risk versus benefit for the patient's individual circumstance • Use of PD functional assessments prior to access creation for all new and potential PD starts • Assessment of patient's ability to manipulate clamps, connectors, and to lift bags for dexterity and strength and alter patient education according to skill level and/or ability • Access to experienced laparoscopic surgery and percutaneous insertions • Psychiatrist that specializes in CKD/transplant/dialysis to support patient in overcoming mental health challenges associated with barriers to using PD *For history of multiple or complex abdominal surgeries, studies have demonstrated:* • History of abdominal surgeries do not appear to compromise peritoneal membrane function or technique survival[5]

[4] Ontario Renal Network, n.d.-3
[5] Dias Da Silva et al., 2021

Barrier	Potential Corresponding Supports
stomas/conduits, G-tubes, diaphragmatic hernia) • Other chronic intra-abdominal conditions that may increase risk of infection (e.g., recurrent or chronic diverticulitis, inflammatory bowel disease) • Colostomy in place • Surgical risk	• Abdominal scars and prior peritonitis do not predict the extent of adhesions and should not be used to judge eligibility for PD[6] *For class III obesity (BMI ≥ 40.0), studies have demonstrated:* • Obesity is not a contraindication to PD and that PD may be performed successfully in obese individuals[7] • Similar technique survival and mortality outcomes in obese and non-obese patients starting PD[8] • However, the potential increased risk of infection, catheter malfunction, hernias and leaks in obese patients must be balanced against patient choice to initiate PD[9] *For hernia risk or recurrence after mesh repair:* • Use of a night cycler or smaller exchange volumes

Table 4: Absolute Contraindications to Starting or Staying on Home Dialysis

The items below describe scenarios that are permanent, unlikely to change, were not modifiable following RRP advocacy, and/or are not reversible for the foreseeable future:

Absolute Contraindications
General • Patient is homeless   ○ *Note: Homelessness may be transient, and appropriateness for home dialysis can be reassessed in the future* • Patient lives in a residence that does not permit home dialysis • Patient has uncontrolled or unmanaged active substance abuse • Patient has uncontrolled or unmanaged active psychiatric issues
HHD Specific Contraindications • Conditions that may cause abrupt loss of consciousness (e.g., severe and unstable intradialytic hypotension) and no help or assistance is available • Patients' residence has unreliable electricity

[6] Eroglu et al., 2022
[7] Diwan et al., 2020
[8] Quero et al., 2020
[9] Diwan et al., 2020

Absolute Contraindications
PD Specific Contraindications • Documented loss of peritoneal membrane function or extensive abdominal adhesions that limit dialysate flow • Frequent episodes of diverticulitis and not surgically repairable • Patient has a large inoperable abdominal hernia (PD specific)

ORN Supports

Exploring Opportunities to Grow Home Dialysis in Ontario: Provincial Site Report
This 2019 report summarizes success and challenges in growing home dialysis across Ontario that emerged from site visits conducted by the ORN. RRPs are encouraged to reference this document to understand how other RRPs have approached overcoming common barriers and apply similar strategies to grow their home dialysis.

Home Dialysis Mentorship Model
The ORN has a Home Dialysis mentorship model in place to support RRPs in promoting and enabling dialysis at home. The mentorship program supports pairing a high performing program with one that requires encouragement in finding opportunities to increase their home dialysis rates. This formalized approach for knowledge sharing has helped to improve culture, education, policies, and patient awareness regarding home dialysis across RRPs.

Assisted-PD and Assisted-HHD
Assistance may be available to patients in conducting PD and/or HHD at home through the Home Dialysis Assistance Program (HDAP) or to patients conducting PD through their local Home and Community Support Services (HCCSS). HDAP is an ORN initiative that expands assistance for both PD and HHD by providing RRPs across the province with the flexibility to implement models of care that will best meet the needs of their patient population.

Home Hemodialysis Utility Grant
The Home Hemodialysis Utility Grant is available to people conducting hemodialysis at home. The purpose of this grant is to help offset the added electricity and water costs related to HHD.

Remote Dialysis
The ORN works with RRPs to ensure that remoteness is not a barrier for Indigenous people living in remote locations. Accessing HHD is supported by additional funding to cover expenses that typically would not be incurred with a home dialysis patient (e.g., an additional HHD machine and additional freight charges for delivery of hemodialysis supplies).

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Glossary

The following terms are used throughout the assessment document:

Absolute Contraindication: An obstacle or circumstance that would prohibit a patient from accessing, starting and/or utilizing a home dialysis modality, which can be permanent, unlikely to change and/or not modifiable for the foreseeable future.

Assisted-PD or Assisted-HHD: Treatment option where a patient receives PD or HD in the home, in a long-term care home or other community setting with the assistance of staff aids such as personal support workers (PSWs), nurses, or other care team staff.

Barrier: An obstacle or circumstance that would prevent a patient from accessing, starting and/or utilizing a home dialysis modality, which may be overcome with the appropriate support(s) or intervention(s).

Caregiver: Family member, friend and/or member of the patient's community such as other community member, volunteer or neighbour who wishes to be a support for the patient. These individuals provide critical and ongoing personal, social, psychological, and physical support, assistance, and care, without pay.

Corresponding Supports: A solution, service or strategy that can assist in overcoming a barrier that would prevent a patient from accessing, starting and/or utilizing a home dialysis modality.

Kidney Care Team: The multidisciplinary team of staff caring for patients – including, but not limited to: MCKC teams, nephrologists, home dialysis teams, transplant teams, BA and HD Coordinators, and all other in-centre dialysis staff.

PD Functional Assessment: A standardized tool and/or process used to assess patient readiness for PD. PD functional assessment use and types vary across RRPs.

Preferred Language: The language most preferred for communication.

Remote: Communities without year-round road access or that rely on an alternate mode of transport (e.g., train, airplane, ferry) for travel to a larger dialysis centre.

Rural: Communities in Ontario with a population of less than 30,000 and are greater than 30 minutes away in travel time from a community with a population of more than 30,000.

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