Minimum standards for providing haemodialysis at home

This document sets out the minimum standards for providing haemodialysis at home to guide Victorian health services. It focuses on services which should be provided *in addition* to those routinely provided for patients undertaking haemodialysis therapy in a dialysis facility.

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| Home haemodialysis is a form of kidney replacement therapy performed at home, which provides benefits to the patient in terms of quality of life and increased survival. For health services, home haemodialysis is cost-effective, and frees up in-centre and satellite haemodialysis chairs for other patients to use.  Patients who are performing haemodialysis at home require regular support and supervision by the renal health service providing care. |

# Background

In response to a Coroner’s recommendation, Safer Care Victoria (SCV) has reviewed protocols and procedures for home haemodialysis across Victoria, with the aim of developing a more standardised approach to delivering home haemodialysis and improving patient outcomes.

## **How these minimum standards were developed**

SCV held a risk analysis workshop to review the risks of performing haemodialysis at home and to identify opportunities for improvement.

Following the workshop, a working group (comprising members from each of the Victorian renal hub health services, including nurses, nephrologists and technicians, along with consumers) was established to standardise policies and procedures to improve the safety and quality of home haemodialysis. The group surveyed Victorian renal hub health services on the issues raised in the workshop and identified unwarranted variation in practice. Using the results of the survey, working group members prioritised services that were most important to be provided to support patients having haemodialysis at home safely.

Based on this work, the working group generated recommended minimum standards for providing home haemodialysis.

## What these standards cover

1. Assessment of suitability
2. Training of patient and/or carer that includes safety, troubleshooting and appropriate escalation responses
3. Agreed patient responsibilities for home haemodialysis
4. Support of patients undertaking home haemodialysis
5. Review of patients performing dialysis at home
6. Technical safety features
7. Staff resourcing and training

# **Assessment of suitability**

Assessment of suitability for home haemodialysis should be undertaken by a multidisciplinary renal team, with contributions from a nephrologist, home dialysis nurse, and other health professionals or technicians as appropriate.

Assessment should consider a broad range of factors.

## **Cognition**

Whether assessed formally or informally, this includes the patient’s ability to learn the appropriate techniques required for home haemodialysis, and ability to troubleshoot and employ safety measures.

## Physical capacity

This includes characteristics such as vision, dexterity and mobility which may impact on the patient’s ability to set up the machine and perform haemodialysis safely.

## Mental health

Including the impact this may have on the patient’s ability to perform haemodialysis independently at home.

## **Motivation**

The patient’s reason for wanting to do haemodialysis at home, which may impact the success of home haemodialysis.

## **Support**

Whether the patient’s support networks are sufficient to allow them to perform haemodialysis safely and comfortably at home.

## The home environment

Whether it will permit safe and appropriate haemodialysis. This will include assessment of physical limitations (such as space, water supply, plumbing) and patient environment (such as cleanliness).

Consider the person’s ability to perform haemodialysis at home alone, or the need for a patient to have a carer. If a carer is required for home haemodialysis, assess the capacity of the carer according to the above criteria, taking into consideration the potential impact of caregiver burden.

Assessment should carefully balance between encouraging home haemodialysis, acknowledging patient preference, and consideration of safety concerns.

# **Training of patient and/or carer that includes safety, troubleshooting and appropriate escalation responses**

Home haemodialysis units should have an established and reproducible training program based on adult learning principals. The program should be structured and responsive to individual learning styles and needs.

At a minimum training should cover the following broad areas.

## Basic functions of the kidney

## Basic principles of dialysis

## Basic physical assessment

* Assessment and maintenance of ideal weight and blood pressure.
* Care of the vascular access including:
  + cannulation of the arteriovenous fistula for haemodialysis or central venous access device for haemodialysis
  + examination of the vascular access before needling or connecting lines
  + how to recognise problems with the vascular access and how to respond.
* Recognising signs and symptoms of deterioration and when to report them to the home dialysis unit.
* When haemodialysis would be better deferred (for example, if the patient is too unwell).

## Care of the haemodialysis machine

* Preparing for haemodialysis.
* Going on and coming off haemodialysis.
* General maintenance of haemodialysis equipment and a safe home environment.

## A focus on when things go wrong

* How to respond to issues and faults.
* Where to find help (telephone or training manual or other dialysis unit resources).
* What to do in the event of power failure, water failure or complete machine failure.
* Emergency care during haemodialysis, including how to give extra fluid, how to return blood via the circuit, and how to get off the haemodialysis machine successfully.
* Emergency responses, including escalation responses, such as emergency contact numbers (pre-programmed), and immediate phone access (mobile or landline).

## Essential use of safety features (such as wetness detector, blood detector)

Adherence to recommended filtration rates and maximum fluid removal goals

* Importance of adhering to the dialysis unit recommended filtration rates (fluid removal) limits and maximum fluid removal goals to ensure a stable dialysis treatment and reduce the risk of low blood pressure.

## Importance of maintaining an ongoing relationship with the home dialysis team

# **Agreed patient responsibilities for home haemodialysis**

Provision of haemodialysis at home requires a close collaborative working relationship between the patient and their treating renal team.

Patient responsibilities that should be discussed include:

* maintenance of regular contact and communication between the patient and dialysis staff
* being available for home visits by the dialysis nursing staff
* access to haemodialysis machine is made available for home visits by the dialysis technical staff, for machine maintenance or repair. Someone should be at home for these visits, however it does not need to be the patient
* attending regular nephrologist review appointments (outpatient or privately) at least every three months
* notifying dialysis staff of any change in management of care or change in managing nephrologist
* regular performance of monitoring blood tests
* agreement that these results may be reviewed by the broader home dialysis health care team.

Where required by the dialysis team, instruct patients to comply with agreed stocktake and ordering protocols for supplies and equipment.

Patients should be involved in decisions about their care and treatment choices.

On infrequent occasions, a change in physical or mental health, or social circumstances may mean that a patient is no longer safe or able to continue to perform haemodialysis at home.

* It is recommended that you discuss this possibility with the patient at the start of home haemodialysis, and agree together on a plan for how to manage this situation. This should enable a planned and orderly transition to facility haemodialysis if appropriate.
* If the patient is assessed to be unsafe but resists stopping home haemodialysis, support (such as supplies) may be withdrawn by the dialysis team*.*

Signed informed consent for home haemodialysis is recommended, and should include information about benefits, risks, rights and responsibilities relevant to home haemodialysis patients.

[Download our consent policy and templates](https://www.bettersafercare.vic.gov.au/clinical-guidance/renal/getting-informed-consent-for-maintenance-dialysis) <https://www.bettersafercare.vic.gov.au/clinical-guidance/renal/getting-informed-consent-for-maintenance-dialysis>

# **Support of patients undertaking home haemodialysis**

## Reassessment and re-training

Undertake reassessment of competency, with re-training if necessary, at regular intervals, covering:

* cognition
* mental health
* support networks
* the home environment
* physical capabilities.

This will help you identify any change in the patient’s situation which might impact their ability to continue to perform haemodialysis safely at home.

Assessment should be done annually, or more frequently if needed, and after an incident or complex admission.

## Access to telephone support

Telephone support should be available during the hours that a patient is performing haemodialysis.

The minimum level of support is a nurse experienced in haemodialysis (ideally home haemodialysis).

## Access to technical support

Access to technical support is required but may not need to be immediate and could be triaged by the dialysis nurse. In most instances, the technical problem can be dealt with during regular hours, within the next 24 to 48 hours.

If the issue cannot be resolved promptly, alternative timely arrangements for dialysis will need to be made.

## Availability of respite

‘Respite haemodialysis’ is when the patient performs haemodialysis for a period of time within the home dialysis unit or other satellite unit rather than at home. This can provide a period of rest and relief to the patient and carer, and help maintain the patient at home in the long term.

The indication for respite haemodialysis may be an acute illness in patient or carer, or the need for a period of relief from the responsibilities of performing haemodialysis (or supervising haemodialysis) at home.

Assess patients regularly for the need to access respite haemodialysis.

Dialysis facility planning should consider the need for respite haemodialysis in home haemodialysis patients.

# **Review of patients performing dialysis at home**

## Multidisciplinary meetings

Multidisciplinary meetings should be held every four to eight weeks. These provide opportunity for the dialysis team to assess overall health, specific dialysis issues (including blood tests) and any other concerns about the patient having dialysis or wider unit matters.

Members of the multidisciplinary team may include a nephrologist, home dialysis nurses, nephrology registrar, renal technicians, pharmacists and allied health personnel.

## Home visits by dialysis nurses

Home visits provide an opportunity to see how the patient is functioning in their home environment, and can form an important part of regular reassessment.

A dialysis nurse should visit a patient at home regularly. It is recommended that visits occur at a minimum every 12 months, or more frequently if clinically indicated.

Staff should make contact prior to the visit to ensure necessary equipment is available (e.g. personal protective equipment (PPE)) and the environment is safe to enter. Undertake a risk assessment over the phone prior to the visit.

## Home visits by dialysis technician

Technical staff routinely do a home visit at the time of installation of a haemodialysis machine (and sometimes before). Future technical visits should be performed annually at a minimum, and additionally according to need and manufacturer specifications, and may be influenced by several factors, such as who changes the water filters.

## Frequency of contact with dialysis staff

It is essential that open lines of communication between the patient and home dialysis staff be maintained. Nurse contact should occur every four to eight weeks, and updates should be communicated to multidisciplinary team meetings.

## Process for review and critical analysis of adverse events and safety problems

As part of routine contact with patients, staff should ask and document any safety concerns. This should include:

* needle falling out
* clotted circuit
* unusual or excessive bleeding from cannulation site
* infections at vascular access site
* loss of consciousness
* air in circuit
* low blood pressure while performing haemodialysis
* other.

Dialysis units should have an audit process in place. This could be incorporated into multidisciplinary meetings, or may be conducted at a separate meeting.

Consider options to share learnings between health services, for example through a community of practice. It would be helpful to develop a more formal system for sharing quality and safety learnings within the wider home dialysis network. Systems of shared learnings must remain consistent with legislated privacy obligations.

Adverse patient safety events resulting in serious harm or death must be reported as a sentinel event. Contact [sentinel.events@safercare.vic.gov.au](mailto:sentinel.events@safercare.vic.gov.au).

# **Technical safety features**

## Minimum safety requirements

* Moisture detector devices for the vascular access (detects leaks from the vascular access: needles or catheters).
* Water detector devices (detects leaks from the machine hydraulic system and bloodlines or reverse osmosis).
* Blood detector or sensor for machine to run (currently a feature of some but not all haemodialysis machines). Correct use of a blood detector or sensor minimises the risk of blood loss from circuit misconnection, such as accidental running of blood into the drain bag.
* Compliance with electrical safety standards.

Instruct patients and carers that it is essential to use available safety features every time they perform haemodialysis. Education about machine safety features must be included in home haemodialysis training, as well as subsequent competency reassessments.

Establish filtration rate (fluid removal) limits and maximum fluid removal goals, to reduce the risk of low blood pressure which could result in the patient ‘going flat’ (worsening of a patient’s condition). The risk of a patient going flat may be reduced by using extended hours dialysis, especially for patients performing home haemodialysis without a carer.

## Water quality standards and monitoring

Achieving acceptable water standards can be a particular challenge for providing home haemodialysis in some regional and remote areas. However it is essential that these water standards are met. Water standards are set by the Association for the Advancement of Medical Instrumentation (AAMI) or International Organization for Standardization (ISO) and apply to all haemodialysis machines.

# **Staff resourcing and training**

## Staff resourcing

An adequate level of staff allocation is required to provide a safe standard of care to patients having haemodialysis at home, addressing the minimum standards outlined in this document. While nurse to patient ratios may not need to be as high in a home haemodialysis service compared to a satellite centre, they must be sufficient to allow provision of the training, supervision and support described in previous sections.

Challenges include maintaining staffing levels, ensuring specialised skills required are available, addressing loss of staff, covering staff leave, and limited resources in smaller size centres (low staff and patient numbers). A standard nurse to patient ratio may not be possible, given the challenges and varying size of services and resources across the state.

It is essential that a multidisciplinary team service is provided to manage the care of patients performing haemodialysis at home.

## Training

The service should encourage and enable ongoing continuing professional development and education for home haemodialysis staff.

Systems for supervising and mentoring junior staff by more senior staff should be in place.