HOME DIALYSIS ON THE ROAD

Haemodialysis and Peritoneal Dialysis

HAEMODYNAMIC AND FRACTURE MANAGEMENT
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Introduction

Everyone loves a holiday and this does not change when starting dialysis. For those on dialysis holidays will need some additional planning but many people have still had great holidays on dialysis.

Peritoneal dialysis can be taken virtually anywhere although the manual CAPD bags do travel easier than the overnight machine.

Haemodialysis takes a little more planning. The first option and the most widely used is to dialyse in dialysis centres away from home. The downfall is that the availability of this is often limited and leisure time may be impacted upon.

Dialysis can be done ‘on the road’. This could be in a caravan, vehicle, trailer tent, holiday home, boat or anywhere away from home which is not your usual dialysis place. It does require forward planning and time for you to be safe. This document was developed to start you with understanding both the possibilities and the planning process.

Whilst this document refers to ‘vehicle’ the information could be used for any location of dialysis on the road. It is generally aimed at those travelling within Australia.

Overseas travel is usually limited to centre based haemodialysis or the manual CAPD bags. Visit websites www.homedialysis.org.au or www.kidney.org.au for detailed information on travel overseas.

The first part of this document looks at dialysis on the road from the practical side. The second part is highlights and photos related to some of the stories from patients who have achieved dialysis on the road.

This document does not replace the advice of your local health professionals and technicians.
The practical side of: Home Haemodialysis on the road

To travel with haemodialysis you do need to be established on home haemodialysis.

**Vehicle requirements**
The vehicle needs to be big enough to accommodate:

- Dialysis machine
- Water treatment equipment (internal or external in special storage areas)
- Dialysis chair or bed
- Storage for dialysis equipment and fluid
- Fridge for medications
- Floor covering that can tolerate water or blood spills

*Of note haemodialysis has been done in more remote locations including a tent in a vehicle park but this does have more risks and limitations that need to be discussed with your local medical and technical dialysis team.*

**Location options**
You can dialyse anywhere that has:

- **Water** that conforms with the Australian Water Drinking Guidelines (AWDG)
- A *water pressure* of at least 300kpa (3L/min) – the easy test is can a 3L bucket be filled in 1 minute? (10L in 3 ½ minutes)
- A **240v power supply** capable of delivering at least 2000 watts
- **Drainage** that can accommodate 600 litres of waste water per treatment (all mains sewer services meet this need but you will need to check about capacity if the site has septic tanks)

It is strongly recommended that when pre-booking your vehicle sites you **contact each site** to ensure that they have adequate water and electricity.

If there are concerns about any reverse osmosis water waste, it is only water and salts and therefore is not an infection risk. Dialysis machine waste must go to sewage/septic as with any body fluids.
**Costs and process**
The costs of adaptation such as water and electrical supply for haemodialysis in your portable location are likely to be at your own cost. The electricity adaptation is likely to be the most expensive but should be within $500. A portable RCD 10mA is an option for temporary installations. Check with your local dialysis unit for current regulations and information on how to organize your electricity payments.

A dialysis technician should inspect and approve the final works.

**Obtaining a machine and water treatment equipment**
There are two options – using your equipment from home or having a second set of equipment. Your unit may be able to offer;

- Machines that are no longer being used regularly and that can be permanently installed into your vehicle. You may have to purchase these or they may be free.
- Spare water treatment equipment that can be permanently installed.
- Technical support to move your own dialysis equipment into your vehicle.
- The use or purchase a trolley to accommodate your water treatment equipment.

**Technical Support**
A qualified dialysis technician must either perform or check the water/electricity treatment installation prior to the first use.

The technical staff should also check any electricity **generator** that you plan to use if going remote.

All dialysis equipment should be safety checked and maintained every year.

**Disposal of equipment**
All blood contaminated waste must be double bagged before being placed in the standard waste. Waste **cannot** be recycled.

Sharps must be placed into a specialized receptacle or glass jar. They should be taken to a chemist or local hospital for disposal.
Water

Standard Haemodialysis machines (Fresenius 4000, Gambro AK)

Water treatment on the road is the same as at home. Equipment may be put into the exterior area of a vehicle that is used for carrying gas bottles and water. Alternatively it can be placed in a cupboard or inside the vehicle on a trolley.

Water treatment consists of 3 x filters (1 x carbon, 1 x 1 micron and 1 x 5 micron) and a reverse osmosis unit (RO).

The water supply pipe should have a pressure limiting valve (500kpa), a dual check valve and an isolation tap before it connects to the filters. Usually the main pipe will be copper. A plumber will be needed to complete this work and a dialysis technician should oversee the fittings.

If a spare set of filter housings for the 3 filters are available to be permanently attached this is ideal. Usually you will take your usual reverse osmosis unit away with you.

Recycled Water

There may be options to recycle the water used to make the dialysate but this can only be set up with the support of a local technical expert.

Safety:

- The water for your dialysis should be tested following the same protocols as for home dialysis in your State prior to going on holiday.
- Water treatment filters should be changed as frequently as recommended by your dialysis unit.
Alternative Haemodialysis machines  
(ie Nxstage, new technologies)

With some machines there may be options to use bags of dialysate or low volumes of water instead of making large volumes of the dialysate during the treatment.

Electricity

Technical definitions:

- **Residual current detector**: An RCD is a sensitive safety device that switches off electricity automatically if there is a fault such as a bare wire.
- **Leakage Protection Device** (LPD) performs the same function as an RCD and is rated at 10mA.

Haemodialysis equipment requires:

- **240v** power to provide adequate power
- Two protected 240V sockets; one for the machine and one for the reverse osmosis water treatment equipment.

Home dialysis patients are protected by electrical standards. **One** of these options below will be required to protect you from electrical shocks:

- Standard installation which is a 10mA RCD socket outlet on an existing circuit.
- If existing circuits are overloaded a separate and protected circuit
- For temporary installations a portable 10mA RCD/LPD.

Where necessary a dialysis technician can consult with an electrician to install any appropriate electrical sockets or circuits with LPD protection. On site you connect to the electricity in the usual way for a vehicle.

A **generator** is an option for more remote locations. Honda make a reputable and reliable generator. Maintenance such as oil changes and filter changes are your responsibility.

Prior to purchase talk to your technician to calculate that the generator can deliver enough electricity for the required running time according to the fuel available. Always carry additional fuel.
The practical side of:
Automated Peritoneal Dialysis on the road

Travelling with automated peritoneal dialysis is quite simple but does need advanced planning. You also usually have the option to use manual bags (CAPD) if you need or prefer to.

Vehicle requirements
The vehicle needs to be big enough to accommodate:

- Peritoneal Dialysis machine (within reach of the power outlet)
- Dialysis chair or bed
- Storage for dialysis equipment and fluid
- Fridge for medications
- Sink for hand-washing

Location options
You can dialyse anywhere that has:

- A 240v power supply
- Drainage that can accommodate 20 litres of waste water per treatment (all mains sewer services and septic tanks meet this need)
- Facilities for you to clean your hands

It is strongly recommended that when pre-booking your dialysis location that you contact each site to confirm that they have electricity.

Flying your equipment. You can take a peritoneal dialysis machine and supplies on a plane but it is strongly recommended that you plan well ahead of time. You must adhere to any airline regulations including completing forms. Visit www.homedialysis.org.au holiday pages for more information.

Automated peritoneal dialysis machines can weigh up to 20kg and each bag of fluid weights 2-5kg.

PD companies will usually deliver a machine and fluid to your holiday location(s). However if you require weekly drop-offs of supplies you may incur a delivery charge.
Costs and process
There should not be any costs for adaptation for APD unless your vehicle requires a 240v electricity supply.

Obtaining a machine
There are two options – using your equipment from home or having a machine delivered to your location if you are heading interstate.

Most people will relocate their own dialysis equipment into their vehicle if leaving from home.

Technical Support
All dialysis equipment should be safety checked and maintained on an annual basis.

Water
You will only need water for hand washing.

Electricity
You will need a 240v power point. To protect from electrical shocks you will need either:

- Standard installation which is a 10mA RCD socket outlet on an existing electrical circuit.
- For temporary installations a portable 10mA RCD/LPD.

The bag warmer for the manual CAPD bags does not need any special power supply.

Disposal of equipment
Once you have emptied your PD fluid down a drain or toilet you can place your waste into regular bins. It is recommended plastic waste is bagged as some sites may be concerned about ‘medical waste’. If anyone asks the waste is as safe as nappies or urine going into a toilet.
General Information (all types of dialysis)

Safety on the road
Agreement from a technician for technical support is strongly recommended. This may be at your own cost, depending where you are travelling.

An alternative dialysis plan will make it easier to manage adverse situations (At minimum knowledge of the location of closest hospitals with a dialysis unit.) For those on peritoneal dialysis it is recommended that you take a supply of manual bags and are happy that you know how to use these.

You need to be aware of where you could obtain emergency treatment if you experience any complications.

Mobile phone coverage is recommended. It is recommended you have a plan with a provider who has a good service in your planned travel region.

Before you pack write a list based on anticipated number of dialysis treatments. Work out what supplies you may need and take 20% extra.

Organising Supplies
You will need to give your supply company a minimum one months notice. They may drop supplies at locations you plan to visit but more frequent deliveries than standard may incur a charge. If supplies are being dropped off at alternative locations please notify that location ahead of time and aim for supplies arriving earlier than needed.

Medical Support
You may need medical support so plan ahead with the location and contact details of all major hospitals. You can get these from the dialysis unit guide at www.kidney.org.au

If you are travelling for longer than a month talk to your dialysis nurses or doctor and decide if you need a contact to visit for a check-up or a plan in place to have bloods taken whilst you are on the road.

Make sure you have plenty of your prescription medications, particularly if they are not commonly available and you are travelling more remotely. For those on CAPD or APD ask if you should be educated and provided with antibiotics to treat any infections such as peritonitis.
Holiday Success Stories

Everyone’s experience and holiday ideals are different. These are some patient’s stories and some links for stories that you can look up.

**Peritoneal Dialysis**

**Robert** was on peritoneal dialysis in the Northern Territory. As a camping and fishing enthusiast he continued to pursue these activities. He chose to do the manual bags when he was travelling away from home. Robert actually completed his exchanges on his open fishing boat. Of note this is not a recommended environment for bag exchanges. Careful attention to hygiene and copious use of handgel were used.

**Richard** went to Europe, travelling around multiple places with his peritoneal dialysis. Again he opted for the manual CAPD bags. He organised for delivery to a number of key places that he was visiting. Richard confesses to a few tricky days but overall an amazing experience. These links take you to Richard’s story and holiday snaps.

[http://travellingwithdialysis.wordpress.com/](http://travellingwithdialysis.wordpress.com/)

**Haemodialysis**

**Allyson and Jim** live in Hervey Bay. Haemodialysis did not stop them following their travel plans to spend time in the far north of Queensland. They were supported by the Fresenius Technician who along with the Hervey Bay Nursing team “did an amazing job”. They did find the water quality poor in Bowen and therefore had to divert to Townsville to continue with dialysis.

***Ros*** who resides in Victoria obtained an old AK95 Gambro machine which was fitted permanently into a vehicle. She was diagnosed with Kidney reflux at birth, and was on PD from the age of 18months. She had a transplant for 34yrs and is now on home haemodialysis. Ros & Charlie worked closely with Austin Health & technicians to fit out vehicle and undertake trip from VIC, SA, WA & NT and to the Kimberley. Charlie tests the water quality before setting up and they make their decision on dialysis based upon the result. They did have to adjust along the way, when filters didn’t cope with the water.

Visit this site for more information about Ros’s journey. [http://dynamicdialysis.wordpress.com/](http://dynamicdialysis.wordpress.com/)
Robert from the Northern Territory has also been on home haemodialysis and has travelled all over the world with some very special arrangements for machines even in Europe.

http://www.youtube.com/watch?v=pLfsKlqzDRC

The New Zealand Vehicles/motorhomes have been widely used and there are many positive stories. If only their walls could talk. Using a pre-fitted dialysis vehicle may be a way to experience dialysis on the road before organizing your own personalised transport. They are already fitted with dialysis equipment and can be booked;

http://www.kidneys.co.nz/Dialysis/Holiday-Dialysis/
Further Information and Holiday Resources

Websites:

Information only: www.homedialysis.org.au/health-holidays

Information only: www.kidney.org.au

Call the TelEconnect service via 1800 454 363 and you may be able to talk to someone with holiday experience

Visit the chat forum www.homedialysis.org.au and post questions on our holiday page

International dialysis units: www.globaldialysis.com

UK dialysis holidays: http://www.dialysisholidays.co.uk/

Other Contacts:

Dialysis Escape Line

Australian, not-for-profit organisation that is run by two dialysis (now transplanted patients). Annual cruise and land excursion is popular amongst Australian Kidney Patients.

The idea behind the business is that the facility, treatment, medical support, care is all subsided and the patient pays the price of cabin, airfare, travel related costs. (Annual Membership fees apply must get in quick as places are limited and fill up very quickly).


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