

Haemodialysis Self Care Guide

Name:

Hospital Number:

Dialysis Unit:

Introduction

This booklet has been developed as a self care education/training guide to assist you to learn how to participate in your own haemodialysis care. Initially you will be taught how to undertake some of the simple tasks involved in dialysis. As your confidence grows you may wish to learn more about the whole dialysis procedure.

The teaching will be done by your own unit nurses at your own pace. The booklet will become a record of your progress and every time you attend for dialysis you can see how you are doing and what comes next. The competency section should be signed by yourself and your nurse when you both feel that a level of competency has been achieved according to the definitions given.

What if I am unable to self care?

We realise that self care is not for everyone and if you do not wish to be involved you will be cared for by the nursing staff as at present. You will not be pressurised to do anything beyond your wishes or capabilities.

Example Page

Preparing for dialysis

Competency	Date: 01.02.05	Date: 03.02.05	Date: 05.02.05	Date: 08.02.05	Date: 10.02.05
Weight	O (AB)	P (AB)	P (AB)	P(AB)	((AB)
Blood pressure	O (AB)	P (AB)	P(AB)	P (AB)	((AB)
Temperature	O (AB)	P (AB)	P (AB)	((AB)	

Key O = Observed P = Practiced C = Competent

In our opinion a level of competency had been achieved in this section

Nurse signature

Print name

Date

A. Brown (AB)

A. Brown

10.02.05

Patient signature

Print name

Date

A. Green

A. Green

10.02.05

1. Functions of the kidney and principles of dialysis

Topic	Date:	Date:	Date:	Date:	Date:	Date:	Date:	Date:	Date:	Date:	Date:	Date:
Normal kidney function												
What happens when kidneys fail												
Principles of haemodialysis												

In our opinion an adequate level of understanding had been achieved in this section

Nurse signature

Print name

Date

Patient signature

Print name

Date

1. Discussion should include:

Normal kidney function

- Filtering the blood to remove excess waste and water
- Producing the hormone erythropoietin to prevent anaemia
- Keeping the bones strong by balancing calcium and phosphate
- Keeping acid and alkaline levels balanced in the blood
- Controlling blood pressure

What happens when kidneys fail

- There is no cure, so kidney function needs to be replaced by dialysis or transplantation
- Dialysis is not as effective as working kidneys but enables many people to live a long and full life

Principles of haemodialysis

- Explain the blood circuit briefly mentioning heparin to stop the blood from clotting and the air detector to prevent air in blood. (These will be elaborated on later)
- Show/explain the water inlet and waste outlet
- Show/explain the dialyser (artificial kidney); bloodlines and blood pump, bicarbonate cartridge/dialysis fluid
- Blood is cleaned in the dialyser; blood flows through the semi-permeable membrane, with the dialysate fluid flowing around the outside. The dialysate contains small amounts of substances normally present in the blood, the membrane has tiny holes so that the excess fluid and wastes can be removed. At no point do blood and dialysate come into contact with each other

2. Preparing for dialysis

Competency	Date:	Date:	Date:	Date:	Date:	Date:	Date:	Date:	Date:	Date:
Weight										
Blood pressure										
Temperature										

Key O = Observed P = Practiced C = Competent

In our opinion a level of competency had been achieved in this section

Nurse signature

Print name

Date

Patient signature

Print name

Date

2. Competency definitions

Weight:	able to accurately weigh him/herself unaided and to be aware of target weight
Blood pressure:	able to accurately record B/P unaided and to be aware of his/her normal B/P aware of causes of high and low B/P can recognise signs of fluid overload and dehydration
Home HD only:	able to monitor B/P during dialysis as required and aware of causes of low B/P
Temperature:	able to accurately record temperature and to be aware of what is a high temperature and the possible reasons for this

3. Preparing the dialysis machine

Competency	Date:	Date:	Date:	Date:	Date:	Date:	Date:	Date:	Date:	Date:
Start machine										
(Home HD - Switch on reverse osmosis unit)										
Start heat disinfect										
Collect equipment										
Connect concentrate										
Attach dialyser										
Attach arterial and venous blood lines										
Attach heparin syringe										
Prime blood circuit										
Attach BiCart										
Re-circulate with sodium chloride										
Attach dialysis fluid tubes to dialyser										

Key O = Observed P = Practiced C = Competent

In our opinion a level of competency had been achieved in this section

Nurse signature Print name Date

Patient signature Print name Date

3. Competency definitions:

Start machine: } able to switch on machine; start rinse drain & heat
Start rinse drain: } disinfect; understands the reason for doing this
Start heat disinfect: } prior to each dialysis

Collect equipment: aware of what equipment is needed and where to locate it

Connect Concentrate: aware of correct concentrate [enter type here:] and able to connect safely and securely

Attach dialyser: aware of correct dialyser [enter type here:] and be able to connect safely and securely

Attach arterial and venous blood lines: able to attach lines correctly and securely

Attach heparin syringe: understands the action of heparin; able to prepare heparin according to unit protocol and attach safely and securely

can identify when heparin dose and stop time may need to be altered (Home HD)

Prime blood circuit: understands the reason for priming blood circuit prior to dialysis; able to do this correctly and activate air detector

understands the route of the arterial and venous blood lines and the functions of the compartments on the route (Home HD)

Attach BiCart: able to attach safely and securely

Re-circulate with sodium chloride: understands the reason for re-circulating prior to dialysis; able to do this correctly

Attach dialysis fluid tubes to dialyser: able to attach lines correctly and securely

4. Programming the dialysis machine

Competency	Date:	Date:	Date:	Date:	Date:	Date:	Date:	Date:	Date:	Date:
Dialysis time										
Fluid loss/ ultrafiltration volume										
Heparin dose and stop time										
(Home HD) Display panel: <ul style="list-style-type: none"> • Hygiene and Therapy buttons • Treatment Overview • Standby • Display and Setting 										

Key O = Observed P = Practiced C = Competent

In our opinion a level of competency had been achieved in this section

Nurse signature

Print name

Date

Patient signature

Print name

Date

4. Competency definitions:

Dialysis time:	able to programme in correct dialysis time
Fluid loss/ Ultrafiltration volume:	understands concept of target/dry weight understands relevance of pre dialysis weight and B/P understands how to calculate ultrafiltration (UF) volume able to programme correct UF volume
Heparin dose and stop time:	able to programme correct heparin dose and stop time and prime heparin tubing. Understands the action of heparin and side effects
(Home HD) Display panel:	understands the display panel and able to set the treatment buttons on the display panel in each group understands and able to correct any alarms/ attentions in each group of buttons <ul style="list-style-type: none">• Hygiene and Therapy buttons• Treatment Overview• Standby• Display and Setting

5. Caring for your fistula

Competency	Date:	Date:	Date:	Date:	Date:	Date:	Date:	Date:	Date:	Date:
Hand hygiene										
Prepare 'put on pack'										
Check fistula										
Clean fistula										
Assess needling sites										
Apply local anaesthetic										
Insert needles										
Apply tapes										
Flush needles with saline										

Key O = Observed P = Practiced C = Competent

In our opinion a level of competency had been achieved in this section

Nurse signature

Print name

Date

Patient signature

Print name

Date

5. Competency definitions:

Hand hygiene:	able to clean hands according to unit protocol
Prepare 'put on pack':	able to collect and set out pack correctly and hygienically
Check fistula:	able to check fistula for bruit and signs of infection; understands importance of doing this daily as well as pre dialysis
Clean fistula:	able to clean fistula according to unit protocol; understands importance of this in reducing infection risk
Assess needling sites:	understands how to assess best sites for insertion of needles (according to unit protocol)
Apply local anaesthetic:	able to apply local anaesthetic according to unit protocol
Insert needles:	able to insert arterial and venous needles safely according to unit protocol
Apply tapes:	able to apply tapes to needles safely and securely
Flush needles with Saline	able to flush needles with saline and understand the reasons for doing this

6. Caring for your Central Venous Haemodialysis Catheter (CVHC)

Competency	Date:	Date:	Date:	Date:	Date:	Date:	Date:	Date:	Date:	Date:
Is familiar with unit guidelines for commencing dialysis with CVHC										
Collect and prepare 1st 'put on' pack and disposables										
Assess wound site										
Remove old dressing and redress CVHC site if required										
Prepare 2nd 'put on' pack and disposables										
Remove luer-lock caps and aspirate locking solution										
Assess patency of CVHC										
Take blood samples if required										

Key O = Observed P = Practiced C = Competent

In our opinion a level of competency had been achieved in this section

Nurse signature

Print name

Date

Patient signature

Print name

Date

6. Competency definitions:

Unit guidelines: fully understands the unit protocol for infection control, hand hygiene and commencing dialysis with a Central Venous Haemodialysis Catheter (CVHC)

Prepare 'put on' pack: is able to locate packs and prepare correctly and hygienically

Assess wound: is able to check CVHC and decide if dressing needs changing

Redress CVHC: is aware of signs of infection and action to take, understands the importance of this in reducing risk of infection

Prepare 2nd pack: is aware of the importance of maintaining a hygienic field

Remove luer-locks: is aware of the importance of removing locking solution according to unit guidelines

Assess patency: is able to fully assess the patency of the CVHC and is aware of the protocol for a non-functioning CVHC

Take blood samples: Is aware of the need for routine blood sampling

7. Starting dialysis

Competency	Date:	Date:	Date:	Date:	Date:	Date:	Date:	Date:	Date:	Date:
Stop re-circulation										
Attach arterial & venous lines to fistula needles/dialysis catheter										
Switch off saline										
Start blood pump										
Check arterial & venous pressures										
Check: <ul style="list-style-type: none"> • Blood light • dialysate light • time & UF vol. • heparin dose & stop time • dialysate concentrate 										
Increase blood pump to desired rate										
Give heparin bolus as per unit protocol										

Key O = Observed P = Practiced C = Competent

In our opinion a level of competency had been achieved in this section

Nurse signature

Print name

Date

Patient signature

Print name

Date

7. Competency definitions:

Stop re-circulation: able to stop re-circulation

Attach arterial & venous lines to fistula needles: able to attach lines correctly, safely and securely

Switch off saline & start blood pump: Understands importance of switching off saline before starting blood pump

Check arterial & venous pressures: Can identify how to check pressures and understands the implications of this, e.g. needle positioning/flows in dialysis catheter

Check: Can identify these checks on the machine and understands the importance of carrying out these checks at this time

- Blood light
- dialysate light
- time & UF vol.
- heparin dose & stop time
- dialysate concentrate

Able to record information as required

Increase blood pump to desired rate: Able to identify desired blood pump speed and understands how to do this while checking arterial & venous pressures and needle sites

Give heparin bolus: Able to programme the machine to give correct heparin bolus and understands the reason for doing this

8. Stopping dialysis

Competency	Date:	Date:	Date:	Date:	Date:	Date:	Date:	Date:	Date:	Date:
Aware of completion of dialysis										
Connect saline to arterial line										
'wash back'										
Disconnect dialysis lines from fistula needles										
Remove needles, apply pressure, apply plasters.										

Key O = Observed P = Practiced C = Competent

In our opinion a level of competency had been achieved in this section

Nurse signature

Print name

Date

Patient signature

Print name

Date

8. Competency definitions

Aware of completion of dialysis:	can identify completion time on machine
Connect saline to arterial line:	able to safely and securely connect 'connector' to saline and saline to arterial line
'wash back':	able to perform 'wash back' to ensure all blood is returned
Disconnect dialysis lines from fistula needles:	able to safely disconnect arterial and venous lines from fistula needles
Remove needles, apply pressure, apply plasters:	able to safely remove needles, apply moderate pressure, ensure bleeding has stopped and apply plasters

9. Stopping dialysis with a Central Venous Haemodialysis Catheter (CVHC)

Competency	Date:	Date:	Date:	Date:	Date:	Date:	Date:	Date:	Date:	Date:
Aware of completion of dialysis time										
Perform close 'wash back'										
Disconnect blood lines from CVHC										
Flush and lock CVHC										
Attach luer-lock caps										

Key O = Observed P = Practiced C = Competent

In our opinion a level of competency had been achieved in this section

Nurse signature

Print name

Date

Patient signature

Print name

Date

9. Competency definitions:

Aware of completion of dialysis:	is fully aware of the need to complete dialysis treatment and can identify completion time on the machine
Perform close 'wash back':	is aware of the unit guidelines on performing closed 'wash-back' and can recognise any contraindications for doing so
Disconnect blood lines:	is able to safely disconnect arterial and venous blood lines from CVHC
Flush and lock CVHC:	is able to flush lines to maintain patency and is fully aware of locking guidelines and able to identify appropriate solution
Attach luer- locks:	is able to attach luer-locks securely and is fully aware of the rationale for doing this

10. After dialysis

Competency	Date:	Date:	Date:	Date:	Date:	Date:	Date:	Date:	Date:	Date:
Strip machine and dispose of all equipment										
Press rinse drain										
Record weight & B/P										
Record temperature										
For home HD: <ul style="list-style-type: none"> • When rinse drain button flashes press it again • Press heat disinfect • Switch off dialysis machine • Switch off RO • Press red button on softner to start regeneration (This takes 2hrs – it will switch off automatically) 										

Key O = Observed P = Practiced C = Competent

In our opinion a level of competency had been achieved in this section

Nurse signature

Print name

Date

Patient signature

Print name

Date

10. Competency definitions

Strip machine and dispose of all equipment:	able to strip down machine, remove lines etc and understand how to safely dispose of all equipment including sharps
Press rinse drain:	able to disinfect machine according to unit protocol
Record weight & B/P:	able to accurately record weight and B/P unaided and able to understand the significance of these readings
Temperature:	able to accurately record temperature and to be aware of what is a high temperature and the possible reasons for this
For home HD only:	able to manage the home HD equipment safely record ACC volume (litres processed)

11. Problem Solving

(Mandatory for home haemodialysis training)

Competency	Date:	Date:	Date:	Date:	Date:	Date:	Date:	Date:	Date:	Date:
Aware of different alarms: <ul style="list-style-type: none"> • Attention button • Continuous alarm • Intermittent alarm 										
Hypotension (low B/P) on dialysis <ul style="list-style-type: none"> • causes • symptoms • actions 										
Air detector alarm <ul style="list-style-type: none"> • causes • actions 										
Venous pressure alarm <ul style="list-style-type: none"> • causes • actions 										
Arterial pressure alarm <ul style="list-style-type: none"> • causes • actions 										
TMP alarm <ul style="list-style-type: none"> • causes • actions 										

Temperature alarm <ul style="list-style-type: none"> • causes • actions 										
Conductivity alarm <ul style="list-style-type: none"> • causes • actions 										
Spanner <ul style="list-style-type: none"> • causes • actions 										
Ph <ul style="list-style-type: none"> • causes • actions 										
Blood leak <ul style="list-style-type: none"> • causes • actions 										
Water failure <ul style="list-style-type: none"> • causes • actions 										
Power failure <ul style="list-style-type: none"> • causes • actions 										
Clotted needle, circuit, dialyser <ul style="list-style-type: none"> • causes • actions • heparin pump overload 										
'blown needle' <ul style="list-style-type: none"> • causes • actions 										

Prolonged bleeding from fistula • causes • actions										
Able to take blood samples • pre • post										

In our opinion an adequate level of understanding had been achieved in this section

Nurse signature

Print name

Date

Patient signature

Print name

Date

11. Competency definitions:

Alarms:

- Attention button (hand symbol)
This alerts you to a problem
- Continuous alarm
This alerts you to a problem that you need to rectify
- Intermittent alarm
This is a prompt rather than an alarm

Hypotension (low B/P) on dialysis

Causes:

- Removing too much fluid causing B/P to drop

Symptoms:

- Feeling faint, dizzy, nauseous, hot

Actions:

- Ask for help if dialysing in the unit
- Stop fluid removal
- Check B/P
- Give saline until feeling better
- Re-assess target weight

Air detector alarm

This is a potentially serious alarm as air in the blood can be dangerous

Common causes:

- blood lines not connected securely

Actions:

- Ask for nursing assistance if dialysing in the unit
- Check blood lines for evidence of air bubbles
- If no air visible re-set air detector
- Check all connections are secure
- If air is visible you may need to 're-circulate' (you may need help to do this)

Arterial and venous pressure alarms

Common causes:

- Needle needs re-positioning
- Blood line occluded (blocked)
- Clotting
- Fistula/catheter problem

Actions:

- Reduce blood pump speed
- Check needles & re-position if necessary (you may need help to do this)
- Check for occlusion in blood lines
- Check lines and dialyser for signs of clotting (you may need to adjust your heparin dose if clotting is visible)
- Rectify problem & slowly increase blood pump

TMP alarm

Causes

- High – the machine is removing too much fluid or the circuit is clotting
- Low – the machine is removing too little fluid

Actions

- Check TMP alarm limits
- Check UF rate
- Observe circuit for clotting

Temperature alarm

Causes

- Machine problem

Actions

- Call technician

Conductivity alarm

Common causes:

- Machine not picking up the correct amount of dialysis fluid/bicarbonate, often caused by loose connections

Action:

- Check connections
- Check dialysis fluid/bicarbonate containers are not low/empty

Spanner

Causes:

- Machine problem

Actions:

- Call technician

Ph

Causes:

- Machine problem

Actions:

- Call technician

Blood leak

Causes:

- Ruptured membrane in dialyser

Actions:

- Discontinue dialysis - do not 'wash back'

Water Failure

Causes:

- Insufficient water supply to the machine

Actions:

- Check water supply is on
- Check water inlet tube for kinks
- Call technician / discontinue dialysis

Power failure

Causes:

- Power failure to your house
- Power point turned off accidentally

Actions:

- Check above causes
- Turn machine off
- Turn blood pump slowly by hand
- If power does not return, 'wash back' & discontinue dialysis
- Observe venous line carefully for air as the air detector will not be active when the power is off

Clotted circuit, needle, dialyser

Causes:

- Insufficient heparin
- Heparin pump overload

Actions:

- Check heparin pump for clamps or kinks & check pump is not empty
- If clots are visible you may need to change the circuit, you will be taught how to do this

'Blown needle'

Recognised by arterial or venous pressure alarm, pain at needle site and signs of a small 'balloon' at needle site

Actions:

- You will need to re-circulate and insert a new needle (you may need help to do this)

Prolonged bleeding from fistula:

Causes:

- Too much heparin used
- Clotting/fistula problem

Actions:

- Apply pressure until bleeding stops
- If still bleeding after 1 hour contact unit for advice
- Reduce heparin on next dialysis

Able to take blood samples:

- Understands when to take blood samples
- Able to take blood samples safely and accurately

12. For home HD only

You will be shown how to carry out these procedures in your home by a technician

Competency:	Date:	Date:	Date:	Date:	Date:	Date:	Date:	Date:	Date:	Date:
Once a week: Check salt level in softner										
Once a month: Clean reverse osmosis unit Change filters										

Key O = Observed P = Practiced C = Competent

In our opinion a level of competency had been achieved in this section

Nurse/technician signature Print name Date

Patient signature Print name Date

Competency definition:

- Able to safely carry out the procedures outlined above and understands the importance of doing so as advised by the technician

Competency:	Date:	Date:	Date:	Date:	Date:	Date:	Date:	Date:	Date:	Date:
IV medication										

Key O = Observed P = Practiced C = Competent

Competency definition:

- Able to safely administer I.V. medications as prescribed
- Aware of action and side effects of medications

(Please tick appropriate box)

Patient is dialysing independently in the unit

Patient is competent and confident to start dialysing at home

For home HD only:

If you feel unwell please ring unit for advice before dialysing

If you feel unwell during dialysis ring unit for advice and/or discontinue dialysis

In case of an emergency dial 999

Nurse signature Print name Date

Patient signature Print name Date

Written by:

Ros Tibbles, Service Improvement Nurse, Modernisation Initiative; Colin Jamieson, Charge Nurse, Home Haemodialysis (GSTT); David Gandy, Technician (GSTT); Laura Hearn, Sister Dartford Renal Unit (KCH)

August 2007