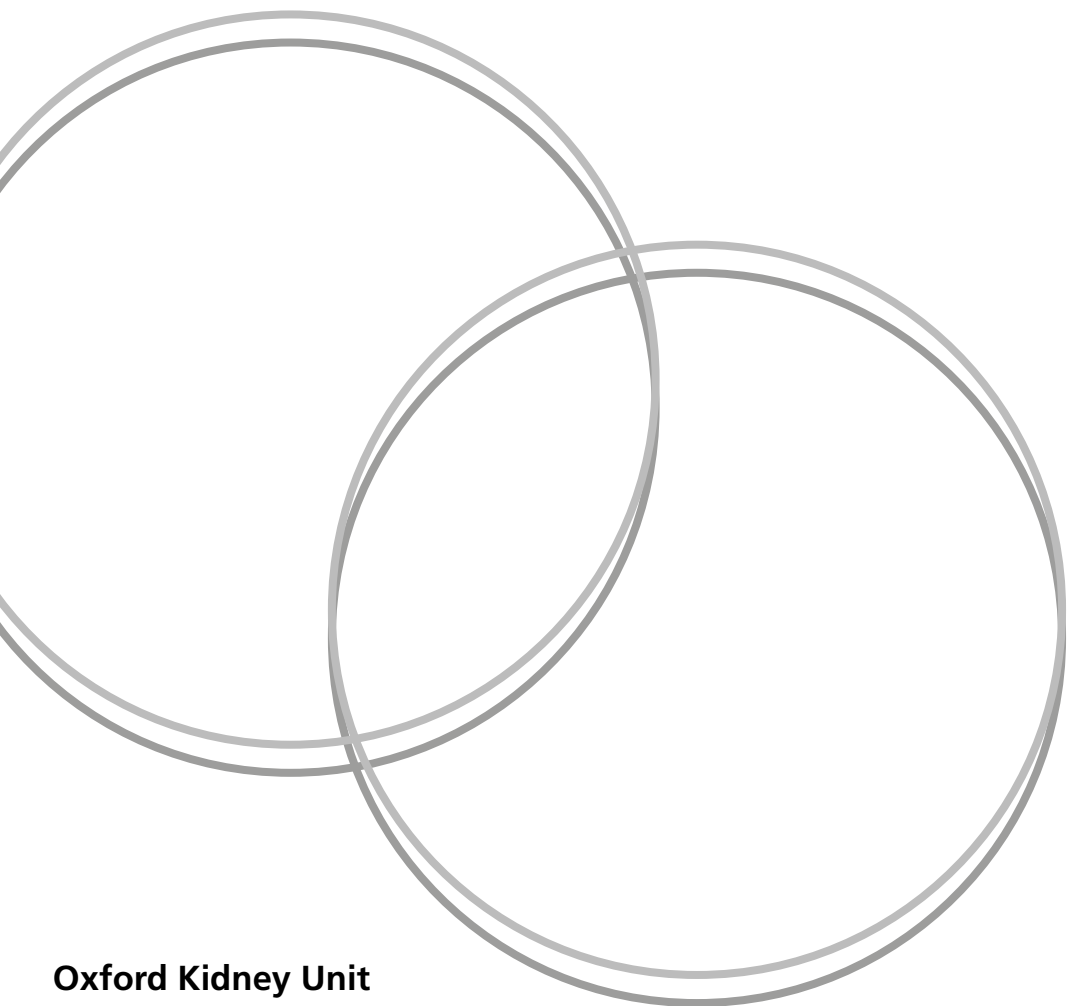




Oxford University Hospitals
NHS Foundation Trust

Renal: Understanding your blood and dialysis results

Information for patients



Oxford Kidney Unit

Kidney disease alters the level of minerals and chemicals in your blood. This leaflet will help you understand these changes, what levels are safe, how we can help you and what you can do.

Your kidney function is measured from a simple blood test. Once you start dialysis we no longer measure it. There is a separate leaflet on chronic kidney disease which explains about measuring your kidney function.

People on peritoneal dialysis (PD) or haemodialysis (HD) have their blood and/or urine tested regularly so we can make sure your dialysis is working well.

People on PD will also have samples taken of their PD fluid. If your treatment isn't working as well as it should be we can make changes to your medications or dialysis treatment.

If you are on haemodialysis your bloods will be taken at the beginning of each month. If you are on peritoneal dialysis a nurse will organise for your bloods to be taken every other month. These can be taken by your GP/hospital/home visit nurse.

If you have any questions please speak to a member of the renal unit.

Blood test Albumin	Ideal range Greater than 35g/l	What does this do in my body? Albumin is the most abundant blood protein.	How will it affect me? You may feel tired and lack energy if this is low. People on peritoneal dialysis need to eat more protein. A low level may tell us that someone isn't as well on dialysis. It may also indicate sepsis or inflammation.
Blood test Bicarbonate	Ideal range 18-24 mmols/l	What does this do in my body? Bicarbonate controls the acid level in your blood and your kidneys help regulate this. If it is too low we can alter your dialysis or prescribe you sodium bicarbonate.	How will it affect me? The bicarbonate will be replaced by dialysis to help maintain an appropriate acid-base balance in your blood. If the bicarbonate level is too low, it can increase your risk of getting metabolic acidosis, a condition when you have too much acids in your body, which can be very dangerous.
Blood test Blood Glucose If you have diabetes your blood sugar level will be measured using a test called HbA1c.	Ideal range Good 6.5 - 7.5% 48 - 59 mmol/mol High 7.5 - 8.0% 59 - 64 mmol/mol Very high more than 8% 64 mmol/mol	What does this do in my body? This shows how well controlled your blood sugar levels have been for the past 2-3 months. Blood glucose is a form of sugar that is carried to the cells all over your body through bloodstream to produce energy.	How will it affect me? A high HbA1c indicates poor diabetic control. We will refer you to your local diabetic clinician.

Blood test

Corrected Calcium

Ideal range

2.2 - 2.5mmol/l

What does this do in my body?

This mineral is important for healthy bones and muscle function.

How will it affect me?

Calcium levels can fall in kidney failure, leading to brittle bones, twitching and tingling. Vitamin D tablets help to control calcium levels.

Blood test

Creatinine

Ideal range

This will depend on the amount of muscle you have and your size.

What does this do in my body?

This is a waste product of muscle breakdown in your body.

How will it affect me?

It is partially removed from your body by dialysis and therefore the level will remain higher than the normal. Normal levels depend on how much muscle you have, the more muscular a person is the higher the creatinine.

Blood test

Ferritin

Ideal range

This should be between to 200 and 700 micrograms/L.

What does this do in my body?

Ferritin is a protein in your blood that stores iron. An adequate supply of iron is required for the production of haemoglobin thereby preventing anaemia. Low ferritin indicates that you have iron deficiency.

How will it affect me?

You may lack energy. You need more ferritin if you are taking erythropoietin.

Blood test Haemoglobin (Hb)	Ideal range 100 - 120g/dl	What does this do in my body? This is a measurement of the level of red blood cells in your blood, which are important for carrying oxygen around your body.	How will it affect me? Low haemoglobin (anaemia) is common in chronic kidney disease, as the kidneys don't produce the hormone (erythropoietin) which is needed to make red blood cells. Anaemia can make you feel tired, short of breath and lack energy. You will probably be prescribed erythropoietin and iron injections. There are leaflets about this, please ask if you would like a copy.
Blood test Parathyroid hormone (PTH)	Ideal range Normal levels of PTH are different when measured in different labs. In kidney disease it may not be best to keep PTH levels completely normal – some guidelines suggest just keeping it less than 2 or 3 times the normal level. 24–108 pmol/L	What does this do in my body? This hormone regulates the levels of calcium and phosphate in your body.	How will it affect me? A high PTH level can lead to high calcium and phosphate levels, causing brittle bones, aches and pains in your joints and chalky deposits in your blood vessels. Vitamin D tablets can help to control your PTH level. If you have very high levels you may need a special medication or an operation to remove your parathyroid glands.

Blood test Phosphate	Ideal range 1.1 - 1.7mmol/l	What does this do in my body? This mineral is important for keeping your bones healthy, it works with calcium.	How will it affect me? High levels of phosphate can lead to chalky deposits building up in your blood vessels, brittle bones and may make you itchy. Phosphate is not removed easily by dialysis. Phosphate binding tablets help to reduce phosphate levels in the blood. Your dietitian will advise you on phosphate in your diet and we can give you a CKD mineral bone disorder leaflet.
Blood test Potassium	Ideal range Normal 3.5 - 5.0mmols/L OK 5.1 - 6.0mmols/L High 6.1 - 6.9mmols/L (needs urgent review) Very high greater than 7mmols/L (needs very urgent treatment)	What does this do in my body? This is a mineral in the body regulated by the kidneys. It is essential for maintaining electrical impulses throughout the body, including the heart.	How will it affect me? If your potassium level is too high or too low it can lead to problems with your heart rhythm, which can be very dangerous. Your dietitian will advise you on potassium in your diet.

Blood test			
Urea	Ideal range Less than 25mmol/l. It will vary between dialysis sessions.	What does this do in my body? This is a waste product of protein broken down in your body.	How will it affect me? It is removed easily from your body by dialysis. Other problems such as bleeding, poor nutritional intake, dehydration and liver disease can also affect the result.

Blood pressure			
	Ideal range	What does this do in my body?	
	Top reading (systolic) Good 130 - 140 High 140 - 160 Very high more than 160	High blood pressure may cause heart disease; this increases the risk of having a heart attack or a stroke. Low blood pressure can make you feel dizzy and increase your risk of falling over. If your blood pressure is very high or low you may need adjustment of your dry weight or medication. We will talk with you about this. The guideline for blood pressure targets change on a regular basis.	

Bottom reading (diastolic) Good 70 - 85 High 90 - 100 Very high more than 100

Haemodialysis tests URR (urea reduction ratio)	Ideal range Greater than 65% if you are on dialysis three times a week and have little or no urine output.	How will it affect me? URR indicates how well haemodialysis is cleaning your blood of urea, which is one of the toxins that builds up in kidney failure. It is measured every 3 months. To measure your URR, a sample of your blood is taken before and after dialysis.
Haemodialysis tests Blood flow rate on haemodialysis	Ideal range Greater than 350mls/min	How will it affect me? Higher blood flows improve the quality of your dialysis, because more of your blood is cleaned.
Haemodialysis tests Transonic result of the flow of your fistula or graft. Greater than 600mls/min	Ideal range This is different for each person; ask your dialysis nurse what yours is.	How will it affect me? Early identification of problems with fistula/graft flow rates, and appropriate treatment, avoids poor dialysis and helps to make sure your fistula/graft remains well. These readings are taken every three months or as required.
Haemodialysis tests Average inter-dialytic fluid gain (the amount of fluid that you put on between dialysis treatments)	Ideal range As low as possible Less than 1.5kg between each haemodialysis session.	How will it affect me? Too much fluid in between haemodialysis sessions can lead to high blood pressure and heart failure. Excessive fluid removal during haemodialysis causes cramps and low blood pressure. If you are struggling to manage your fluid allowance, please speak to your dialysis nurse or dietitian. We also have a leaflet available that will give you some tips on managing your fluid allowance.

<p>Peritoneal dialysis tests</p> <p>Dialysis adequacy KtV</p> <p>Creatinine clearance</p>	<p>Ideal range</p> <p>Greater than 1.7</p> <p>Greater than 50L/wk/1.73m²</p>	<p>How will it affect me?</p> <p>Your dialysis adequacy and clearance measures how well are you are dialysing and that enough waste products are being removed from your body. This is calculated by measuring the amount of creatinine and urea in both your blood and 24 hour PD fluid sample. We measure this every 6 months or if the PD team are worried about you.</p> <p>Recent evidence suggest that it is not a good marker of how well someone is dialysing and that other parameters should be taken into account, such as how well you are eating and managing life. If you are well we may not change your dialysis treatment.</p>
<p>Peritoneal dialysis tests</p> <p>Peritoneal Equilibrium Test (PET)</p>	<p>Ideal range</p> <p>There are 4 categories: high, high average, low average and low</p>	<p>How will it affect me?</p> <p>A PET test measures the movement of fluid and toxins across your peritoneal membrane. This will help your PD nurse adapt your PD to suit your membrane. It is measured once a year, as your membrane changes over time on PD. Your PD nurse will tell you more about this.</p>
<p>Peritoneal dialysis tests</p> <p>Urine volume</p>	<p>Ideal range</p> <p>No ideal range</p>	<p>How will it affect me?</p> <p>This is measured every 6 months, or if your PD nurse is worried about your dialysis. Your urine volume will probably reduce the longer you are on dialysis. Some people may not pass any urine.</p>

Peritoneal dialysis tests

Total volume PD and urine output

Ideal range

Greater than 750mls in 24 hours

How will it affect me?

We may need to alter your dialysis treatment if it is less than 750mls in 24 hours. A PD nurse or dietitian will talk with you about fluid and volume control.

Where can I get further information?

Oxford Kidney Unit

Lots of information about the Oxford Kidney Unit for patients and carers.

Website: www.ouh.nhs.uk/oku

Kidney Patient Guide

Information for patients with kidney failure and those who care for them.

Website: www.kidneypatientguide.org.uk

Six Counties Kidney Patients Association

The SCKPA is run for patients by patients or family members.

They offer support to people suffering from kidney disease or who are on dialysis. They work closely with the Oxford Kidney Unit and have branches in Oxfordshire, Northamptonshire, Buckinghamshire, and Milton Keynes, and parts of Wiltshire, Gloucestershire and Berkshire.

Website: www.sixcountieskpa.org.uk

Health for Me (patient portal)

Health for Me enables you to access your digital health record via the OUH patient portal.

It is an online system which you can view parts of your digital health record safely and securely, from a computer or smartphone.

If your bloods are taken through the Oxford Kidney Unit you will be able to see the results through the portal.

Please ask a member of the renal team to sign you up to the patient portal.

NHS Choices

NHS Choices has a wide range of information about health related illness.

Website: www.nhs.uk

National Kidney Federation – Kidney Patients UK (NKF)

UK kidney patient charity with lots of information on all aspects of kidney treatments.

Website: www.kidney.org.uk

Kidney Care UK

Kidney patient charity providing advice, support and financial assistance.

Website: www.kidneycareuk.org

Further information

If you would like an interpreter, please speak to the department where you are being seen.

Please also tell them if you would like this information in another format, such as:

- Easy Read
- large print
- braille
- audio
- electronic
- another language.

We have tried to make the information in this leaflet meet your needs. If it does not meet your individual needs or situation, please speak to your healthcare team. They are happy to help.

Author: Jayne Woodhouse, Advanced Nurse Practitioner, Peritoneal Dialysis
May 2022
Review: May 2025
Oxford University Hospitals NHS Foundation Trust
www.ouh.nhs.uk/information



Making a difference across our hospitals

charity@ouh.nhs.uk | 01865 743 444 | hospitalcharity.co.uk

OXFORD HOSPITALS CHARITY (REGISTERED CHARITY NUMBER 1175809)

