HAEMODIALYSIS AND PERITONEAL DIALYSIS

A Guide for Patients

BOOK 2

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2nd Edition

Beaumont TRANSPLANT FOUNDATION
The Beaumont Transplant Foundation was founded in 1988 with the purpose of providing patient care education and research in the field of kidney transplantation in Ireland. Since that time, the Beaumont Transplant Foundation has allowed many new developments to take place and has assisted, in several education and research programmes, in the area of kidney transplantation. These programmes have been made possible through hard work and great support from individuals, companies and sporting organisations throughout Ireland. This support and generosity has facilitated many groundbreaking programmes and enabled the Transplant Unit, at Beaumont, to become a world leader in its field.

Since 1992, the Transplant Unit has been performing simultaneous kidney and pancreatic transplants on diabetic patients. At present, the Beaumont Transplant Unit is the only facility in the 32 counties that can perform this surgery concurrently. The benefits of this surgery are inestimable. As a centre for excellence, in the field of transplantation, the Beaumont Transplant Unit has also developed a ‘living donor’ programme.

In 2009, the Beaumont Transplant Foundation celebrated 45 years of kidney transplantation. Over the last 45 years, 3,700 people in Ireland have received the ‘gift of life’ through kidney transplantation, with patient outcomes improving consistently.

The Beaumont Transplant Foundation will continue to organise fund-raising events, on an ongoing basis, in order to develop programmes to provide patient care education and research programmes. If you or your family or friends are interested in participating, in any of these events, we would love to hear from you, and would appreciate your support, no matter how big or small. Whether you would like to become a fundraiser or a sponsor, your efforts are warmly appreciated.

**IRISH KIDNEY ASSOCIATION (IKA)**

The Irish Kidney Association is a national voluntary organisation of patients and carers which offers support for all patients with end stage kidney disease. Through its local branches, patients can meet other kidney patients and share experiences, problems and, most importantly, solutions.

On a national and local level, the IKA organise many functions to raise awareness of kidney disease in Ireland, not least of these being their annual national Organ Donor Awareness Week.

The IKA also provide holidays, every year, for kidney patients who are either receiving dialysis treatment or, are transplanted. They also maintain/administer a Support Centre, in the grounds of Beaumont Hospital, which offers a place of refuge for families of kidney patients and short-term accommodation for the families of seriously ill patients from outside the Dublin area.

**IRISH KIDNEY ASSOCIATION**, Donor House, Block 43A, Parkwest, Dublin 12. **Ph:** 01-6205306. **Lo-Call:** 1890-543639 (1890-KIDNEY). **Email:** info@ika.ie. **Web:** www.ika.ie.
In 1983, Dr Michael Carmody wrote the first edition of *Living with Kidney Disease*. For more than 20 years this book was used as the major patient education booklet for patients experiencing kidney disease. During the last 20 years, the technology concerning the treatment of kidney disease, has changed radically. As a result, we have produced this series of books to assist patients and their families when diagnosed with kidney disease.

This is the second edition of the second book in a series of four, aimed at helping patients with kidney disease learn more about their illness. This edition outlines the different forms of kidney replacement therapies, including Haemodialysis, Peritoneal Dialysis and Kidney Transplantation.

**BOOK 1** deals with the functions of the kidney, types of kidney diseases, diagnostic tests and medicines used to treat kidney conditions. **BOOK 3** covers Kidney Transplantation in more depth, whilst **BOOK 4** addresses the area of the ‘living donor’ programme. Please use these books as a guide and reference tool, but any worries or issues you have should be discussed with your medical team. The text includes contributions from many members of the Beaumont Hospital Renal Unit team and has been supported by the Beaumont Transplant Foundation together with the Irish Kidney Association.

*We do hope you find it helpful.*

Prof. Peter J Conlon FRCPI
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April 2011
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The information contained within this book is correct at time of going to press. This book essentially pertains to the practices at Beaumont Hospital. Other Kidney Units may use different practices. This book should be used as a guide and reference tool only.

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Kidney function is essential to sustain life. If your kidneys are showing signs of disease, your doctor and nurse will discuss options with you.

These include:

- Haemodialysis (HD)
- Peritoneal Dialysis (PD)
- Kidney Transplantation
- Conservative Management of Kidney Disease.

In general, if at all possible, your doctors and nurses will discuss these options many months or years before you actually need them, as planning your treatment can make your journey much simpler. Remember knowledge is power; the more information you have, the more able you are to make a decision about the best form of treatment suitable for you.

Dialysis is a process in which your blood is filtered to remove waste products and excess fluid which build up because your kidneys are not working properly. Dialysis uses a filter (membrane) and a special solution (dialysate) to remove the fluid and waste.

Dialysis: The Theory

Here comes the science bit. Dialysis is essentially an exchange, within the body of fluids and chemicals, made up of the normal waste products our bodies produce. The two ways that the body can do this are called Diffusion and Ultrafiltration. Dialysis aims to mimic these.
**DIFFUSION**

Diffusion is the process which removes the waste products from your blood. Chemicals will move across a semi-permeable membrane from where they are in high concentration to an area in which they are in low concentration. In your case, chemicals are in high concentration in your blood and in low concentration in the dialysate fluid. The semi-permeable membrane is either the dialyser (Haemodialysis) or your peritoneum (Peritoneal Dialysis).

**ULTRAFILTRATION**

Ultrafiltration is the removal of water from the blood. Ultrafiltration requires an extra force in order to remove the fluid. In the case of Peritoneal Dialysis, the glucose in the dialysate provides the extra force. The haemodialysis machine is programmed to provide the extra force.
Usually, when you start on dialysis you will be admitted to hospital. Most people have 3 sessions over a three-day period, starting with a two-hour session; this is increased at the next session to two and a half hours and then 3 hours. This allows your body to get gradually used to the procedure and the toxins are removed slowly.

It is normal to feel very anxious at first but do not worry. You will feel less anxious once you are connected to the dialysis machine.

Do not be afraid to express your anxieties to your nurse. It is amazing how anxieties can be put to rest by discussing your concerns.

One of the patients said: “I was really worried as the machine kept bleeping, I thought it was not working. The nurse told me the machine can bleep frequently, throughout the treatment, and that it was nothing for me to worry about.”

When you have your first treatment, the nurse will connect you to a blood pressure monitor and cardiac monitor. This is routine for all new patients.
HAEMODIALYSIS & DIALYSERS EXPLAINED
Generally speaking, the dialyser is essentially a filter. It is a cylinder that contains very thin plastic fibres that act as a dialysis membrane. Your blood runs along the middle of the fibres and the dialysis fluid is pumped on the outside of the fibres. There is no contact between the blood and the dialysis fluid.

In the dialyser, toxins and excess water (which are the equivalent of the urine produced by the healthy kidneys) pass from the blood into the dialysis fluid (dialysate). The cleansed blood is then returned to the body at the same rate at which it is removed; approximately 200-300mls per minute.

In the dialyser the blood flows along one side of a semipermeable membrane made of cellulose or a similar product, with the dialysate flowing on the other side.

The different molecules pass through the dialyser, at different rates, until a suitable concentration is achieved.

FLUID AND WEIGHTS EXPLAINED
Dry weight is the weight that you are with no excess fluid accumulated in the body. Your weight may drop if you have been unwell or not eating. It can also rise if you have had an increase in appetite and gained body weight. Before and after your dialysis treatment you will be weighed.

This monitoring of your pre- and post-dialysis weight allows the nurse to calculate how much fluid needs to be removed from your body. During dialysis the fluid you accumulate between dialysis sessions is called the intradialytic weight gain. For example: If you gain 1kg of weight we would aim to remove 1.5 litres of fluid. This is because 1kg of weight gain is equal to 1 litre of fluid. The extra 0.5 litre is to account for the fluid you receive during your treatment.

Your dry weight will be adjusted regularly, based on how much you are eating, your blood pressure and if there is swelling (fluid) on your ankles.

MONITORING ON DIALYSIS
Each month, “monthly bloods” are taken to ensure you are receiving the best possible treatment. These tests include:
- Haemoglobin levels
- Iron studies
- Urea and electrolyte and calcium and phosphate levels.

Esmeralda was one of the few who really liked dialysis
One of the most important means of controlling your blood pressure, when you are on dialysis, is by adjusting your dry weight. If your blood pressure rises, your doctor may advise that you have your dry weight reduced. If you are feeling dizzy and light-headed after dialysis or having cramps, your doctor may increase your dry weight.

The amount of fluid to be removed is individualised, and depends on how you are feeling, the amount of urine you may pass, your blood pressure and how much fluid removal you can tolerate.

Each person can tolerate different amounts, depending on a number of different factors. It might be useful to measure the cup/glass that you use at home, and this will help you to limit your fluid intake as discussed with your team. It is important that you adhere to the advice given by your dietitian and limit the intake of fluids.

**WHAT HAPPENS WHEN YOU ARRIVE FOR DIALYSIS?**

The dialysis unit will arrange transport to the unit, if you require. This may be either by minibus or taxi. When you come into the dialysis unit you will meet your nurse, who will discuss with you any difficulties since your last treatment. All patients have a medical file which is kept up-to-date with all relevant information.

When you arrive, for dialysis, ensure you empty your bladder if you still have a urine output. You will be asked or helped to weigh yourself. It is important to wash your hands prior to starting your treatment, after which you will sit in a dialysis chair/bed, according to your preference, in order to receive your treatment. The nurse will carefully clean your dialysis access: the skin, if you have a fistula, or the end of your permcath.
If you have a fistula, two needles will be carefully inserted which is necessary to connect you to the dialysis machine. As the blood pump starts, you will see your blood going into the machine and then returning to you. The dialysis process will take 3 or 4 hours. During this time you should relax, read a book, or watch television. Throughout the dialysis treatment, you will be monitored closely: Your blood pressure and pulse being measured frequently. If you feel weak, you should let your nurse know straight away as this can be quickly corrected by giving you some extra fluids. When the dialysis treatment is complete, your dialysis needles will be removed and pressure applied to the sites until the bleeding stops, or your dialysis catheter will be redressed. It is important not to jump up or stand up quickly, after your treatment, as some patients’ blood pressure can drop and can cause them to feel dizzy.

You will then be weighed again to determine how much fluid has been removed during the treatment. It is advisable to stay in the dialysis unit for a short period before you go home.

After each use the dialysis machine is carefully chemically disinfected to prevent any transmission of blood borne infections between patients.

**WHAT TO DO IF YOU ARE FEELING UNWELL**

If you are unwell at home, you should contact the hospital and explain your symptoms. You will be advised on what to do (contact numbers are located at the back of this book).

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Once you have settled into a dialysis pattern that is right for you, you will be given a fixed schedule of treatment times. Most patients have dialysis three times a week, every second day, Monday, Wednesday, Friday or Tuesday, Thursday and Saturday.

When you are discharged, every effort will be made to ensure that you will be given dialysis times that suit your needs. However, staff may have to change your times based on the physical needs of other patients. If you need to change times, for a special occasion, please ask the nurse manager who will try and facilitate you.
Once you have commenced haemodialysis, you will be allocated a specific time and day for your dialysis treatment. This is normally a fixed appointment, although the hospital can change the times and days, either as a one-off for a specific reason, or if the allocated time does not suit you.

Within Beaumont Hospital, two units provide haemodialysis. St. Martin’s Ward, on the lower ground floor has two rooms and St. Peter’s on the fourth floor. We also supervise patients in the Northern Cross Haemodialysis Unit. This is an off-site unit, run by Fresenius Medical Care, who are a large dialysis provider.

Northern Cross provides the same dialysis treatment as Beaumont Hospital, under the supervision of the Consultants from Beaumont Hospital. Dietetic and counselling services are also provided to Northern Cross patients from Beaumont Hospital staff.

You may discuss your dialysis unit preference with your doctor or Patient Care Co-ordinators. They will do their best to accommodate your requirements.
HYPOTENSION (Low blood pressure)

Hypotension means low blood pressure. This is related to the speed and amount of fluid removed from your blood. Giving you some intravenous fluids can easily reverse this. Symptoms can vary. Tell the nurse if you experience dizziness, nausea, cramps in legs or any ‘funny feeling’. The best way to prevent this is for you to stick to the fluid restrictions that are set for you so that you avoid gaining too much fluid/weight between dialysis sessions.

FLUID OVERLOAD

Between sessions, patients can some times develop a condition called fluid overload. This is due to excess fluid building up in your body. Fluid overload can be mild and manifest itself as swollen ankles, or high blood pressure, or severe breathlessness.

Constantly becoming fluid overloaded is not good for you, as it causes the blood pressure to rise and eventually damage the heart. If you think you are overloaded, contact the dialysis unit to organise extra dialysis to remove the fluid. If you are breathless or unwell, do not delay in contacting the dialysis unit.

BLEEDING FROM YOUR ACCESS SITE

After dialysis, the needles will be removed from your fistula or graft. Your nurse will take every care to ensure that bleeding has stopped before you leave the unit. If you should develop further bleeding, from your access site, apply a dry dressing to the site, apply gentle pressure to the area, and return to the unit immediately. If possible, call the unit to let them know.

INFECTION

See information in Chapter 7.

HIGH POTASSIUM

In medical terms, this is known as hyperkalaemia. This means that there is too much potassium in the blood. This can be dangerous and life-threatening. High potassium can affect the muscles of the body including the heart, which could stop beating.

By sticking to the diet, that the dietician has prescribed for you, you can avoid this serious complication. (See section on diet).
HOLIDAYS ON DIALYSIS

When you commence dialysis it is essential that you continue to get your dialysis treatment for the rest of your life or until you receive a kidney transplant. This does not mean that you cannot continue to take a holiday. You will still be able to take a holiday within Ireland and abroad. This will require prior planning so that you can receive your dialysis while you are away. Your dialysis Nurse/Patient Care Co-ordinator will help you to make arrangements and identify a suitable dialysis unit close to your holiday destination. They will send the necessary information to the unit, prior to your journey. This will include a recent Hepatitis B + C blood level and HIV level.

There may be a charge for holiday dialysis. This can be discussed further prior to your holiday.

It is essential that a minimum of two months notice is given to staff prior to your travel.

The Irish Kidney Association also provide respite holidays for patients on dialysis and patients with a kidney transplant. These holidays are available in the form of holiday homes in Tramore, Co. Waterford and Tralee, Co. Kerry. Please speak to the staff in your unit, who will give you further details.

On your return from holidays, it is necessary to obtain further Hepatitis blood levels. This will need to be checked once a month for three months.

If you are away, for more than 14 days, on return to Beamont Hospital you may need to have dialysis in isolation until the blood results become available.
CHAPTER 4

ACCESS FOR HAEMODIALYSIS

To perform haemodialysis, an access must be created. An access is a site from which blood can be safely removed and returned to your body. The access site is often referred to as your ‘lifeline’.

There are two main types of haemodialysis access - anteriovenous fistula and central venous catheters.

PERMANENT ACCESS OPTIONS

The arteriovenous or AV fistula is a type of vascular access, involving a direct connection between an artery and a vein. This connection is made underneath the skin with a surgical procedure that will only require a short stay in hospital. The connection between a vein and artery allows for adequate blood flow during dialysis. This increased blood flow leads to larger and stronger veins and makes repeated needle insertions easier. Fistulas are the preferred vascular access for long-term dialysis patients because they last longer than any other vascular access and are less prone to infection and clotting.

ONE PATIENT REPORTED:
“I’ve had my fistula for 22 years - the entire time I’ve been on dialysis. I make sure to take care of it because it’s my ‘lifeline’ and it allows me to receive dialysis.”
The fistula is usually placed in the forearm. AV fistulas may also be placed in the upper arm, if a previous AV fistula has failed or if the arteries or veins in the forearm are unsuitable for the creation of a fistula. It is preferred that the fistula be placed on the ‘non-dominant’ arm or the arm that you do not use as frequently.

8-12 weeks is usually needed to allow the fistula to properly develop, although it may take longer in some cases. Once the fistula has developed, you are ready to commence haemodialysis treatment.

A nurse will insert two needles into the fistula, one for withdrawing blood from the body and the other to return dialysed or filtered blood to the body.

Not everyone is suitable for an AV fistula. It can be difficult to create, in some patients, due to small veins and other conditions. Your surgeon may order a test to show the blood flow in your arms, to determine if you are suitable for a fistula.

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**PROS AND CONS OF AN ARTERIOVENOUS FISTULA**

**PROS**
- Best overall dialysis performance
- Considered the best vascular access
- Less chance of infection than other types of access
- Tend to last many years
- Predictable performance

**CONS**
- Visible on the forearm
- May take time to develop
- May require temporary access while fistula matures
- May bleed after dialysis needles are removed
- Some fistulas may fail to mature
- Steal Syndrome - Poor circulation

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“Not everyone is suitable for an AV fistula. It can be difficult to create in some patients due to small veins and other conditions.”
GRAFTS

Grafts are similar to AV fistulas. Unlike the fistula, which is created by the direct connection of the artery to the vein, the graft is formed by using a synthetic tube to connect the artery to the vein. Therefore, grafts are typically used when patients have small or weak veins that will not develop properly into a suitable fistula. Like a fistula, this type of access is usually implanted under the skin in your arm. A surgeon performs a brief procedure, in order to properly place the graft.

The graft is usually a soft, synthetic tube that connects to an artery at one end and a vein at the other. The tube acts like a natural vein, allowing blood to flow through it.

Following the surgery, you may experience pain and swelling, in the area, over the graft for three or four weeks. You will be prescribed pain relief to take during this time. The arm should be kept elevated. After the swelling goes down, a graft can be used for haemodialysis. Grafts can be used repeatedly for needle insertion during dialysis treatment.

### PROS AND CONS OF A GRAFT FOR ACCESS

<table>
<thead>
<tr>
<th>PROS</th>
<th>CONS</th>
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<tbody>
<tr>
<td>Can be readily implanted.</td>
<td>Increased potential for clotting.</td>
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<tr>
<td>Predictable performance.</td>
<td>Increased potential for infection.</td>
</tr>
<tr>
<td>Can be used faster than an AV fistula (within 3 to 4 weeks).</td>
<td>Does not usually last as long as a fistula.</td>
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<tr>
<td></td>
<td>Steal Syndrome.</td>
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RISKS OF AV FISTULA OR GRAFT

Not every fistula or graft will work first time. The success with a fistula is about 70%. Some patients have to come back to have a new fistula made a second or third time.

Occasionally, when a fistula is made it takes too much blood from the hand, resulting in what’s called ‘steal syndrome’. If this happens, it may require that the fistula be reversed and another access created for dialysis.

A graft may be prone to developing an infection. If this does develop, you will require a prolonged period of IV antibiotics.

Occasionally, a fistula or graft will clot and it will not be possible to use for dialysis. If this occurs it may be necessary for the surgeon to remove the clot to ensure your access functions again.

Care for Fistulas and Grafts

The following information is important to remember in order to ensure your fistula stays working for the longest time possible.

- Do not wear constrictive clothing or watch straps on the fistula arm.
- Avoid trauma to the fistula arm, such as cuts and abrasions.
- Do not allow anyone to take blood samples, blood pressure readings or insert an IV cannula (drip) into your fistula arm.
- Avoid dehydration. This may occur if you lose excessive amounts of fluid (for example, if you develop diarrhoea or are unwell and unable to drink your fluid allowance).
- Maintain a high standard of hygiene. It is preferable to have a daily shower. Before and after your dialysis treatment, your fistula arm must be washed well up to the elbow with Hibiscrub (pink solution), which is located at all sinks within the dialysis unit.
- Should you develop any signs of infection such as redness, swelling, pain, tenderness or discharge from your fistula, contact your dialysis unit immediately.
- You will be shown how to assess your fistula. If you notice the buzz is gone, contact the unit immediately.
- Do not sleep with your access arm under your head or body.
- Do not lift heavy objects or put pressure on your access arm.
- Learn how to properly hold the gauze after the dialysis needles are removed. If your fistula starts bleeding, apply pressure to the fistula site until bleeding stops and contact your unit immediately.
- To ensure safety, during your dialysis treatment, your fistula should be in view of nursing staff at all times.
TEMPORARY ACCESS

A dialysis catheter is a flexible, hollow tube which allows blood to flow in and out of your body. They are most commonly used as a temporary access for up to three weeks. This is often undertaken when a patient first needs dialysis immediately and is waiting for a fistula or graft to mature.

They are also used when a permanent access fails and a patient is too unstable to delay treatment. Catheters can be placed in a number of different locations, including the neck, upper chest or upper leg (femoral vein).

After a catheter has been placed, needle insertion is not necessary to receive haemodialysis treatment, dialysis lines are directly connected onto the catheter.

CARE OF YOUR DIALYSIS LINE

Protecting your dialysis access is crucial to you.

PROS AND CONS OF A DIALYSIS CATHETER

**PROS**
- Dialysis can be performed immediately.
- Easy removal and replacement.
- Avoids needle insertion for each treatment.

**CONS**
- Not ideal as permanent access.
- May cause narrowed central veins.
- High infection rates.
- Blood flow may not be sufficient to complete your dialysis treatment.

**PROS**

- Dialysis can be performed immediately.
- Easy removal and replacement.
- Avoids needle insertion for each treatment.

**CONS**

- Not ideal as permanent access.
- May cause narrowed central veins.
- High infection rates.
- Blood flow may not be sufficient to complete your dialysis treatment.
The following tips will help you care for your dialysis line.

- The dialysis staff will change your line dressing at the end of each dialysis session.
- Most daily activities are not affected by having a dialysis line. However, you should avoid swimming & contact sport.
- Take extreme care when dressing/undressing to avoid pulling accidentally on your catheter.
- If you have a bath, do not allow the dialysis catheter or dressing to come into contact with the bath water.
- If you have been taught how to dress your own exit site, by dialysis staff, then you may take a shower and redress the line as shown.

**IMPORTANT POINTS TO REMEMBER AFTER INSERTION OF YOUR DIALYSIS LINE**

When you are discharged home, from hospital, you will be given an emergency pack containing:

- Blue dialysis clamps
- Gauze dressings
- Spare dressings

Please keep this pack with you at all times. In the unlikely event that the catheter becomes damaged or leaks, lie flat with your legs elevated. Place the blue clamp from the emergency pack above the leak as close to your exit site as possible and contact the unit immediately.

Remember - keep sharp objects such as razors or scissors away from your dialysis line.

In the unlikely event of your dialysis catheter falling out, lie flat with your legs elevated, place gauze or a clean towel over the area and apply pressure for at least 5 minutes or until the bleeding has stopped. **Contact the unit immediately.**

Never open the clamps or sealing caps between treatments.

If you feel or observe fever, chills, redness, swelling, pain at exit site or, feel generally unwell, **contact the unit immediately,** as you may have a catheter infection that will need to be treated.

**LONG TERM RISKS OF CATHETERS**

Catheters can cause a number of long-term risks including infection. Catheters that have been in place, for a long time, may cause narrowing or blockage of the central veins in the body, interfere with the functioning of a fistula or cause swelling of an arm or the face. This is sometimes called central venous stenosis. If this occurs, it may be necessary to have a new line inserted.

Poor flow - Catheters may develop a small clot, at the tip, causing poor flow of blood in the line. This can lead to inadequate dialysis and result in you feeling poorly.

In rare cases, catheters that are in place for a long time can become embedded, making their removal very difficult.

“**Remember - keep sharp objects such as razors or scissors away from your dialysis line.**”
Home Haemodialysis (HHD) in Beaumont Hospital is an option of kidney replacement therapy. This is an ideal therapy for patients who will be waiting a prolonged time or, who are unsuitable for a kidney transplant.

Once you have discussed this option with your consultant, you will be referred to the home therapies team. An appointment will be made, with you, to discuss this option in more detail. This discussion usually takes about an hour. Your partner/friend is encouraged to attend this appointment with you both for support and to listen to the information being delivered to you.

Prior to commencing the programme, you must have a functioning arterio venous fistula and the skill to self-needle your fistula (this skill will be taught to you, over a period of time in your dialysis unit). However, if you have a dialysis line you might also be referred for HHD.

It will be necessary for a house assessment to be carried out to assess the suitability of room size, electric and plumbing access and water quality. This assessment is completed by the service provider and a member of the haemodialysis training team. The water testing results take up to six weeks to be reported on and it is essential to have these results before training commences. When they are available, the team will organise a date to commence training.

When you arrive at Beaumont Hospital to commence your training, it will take place in a designated HHD room and one-to-one care and training will be provided. Training takes place on Monday, Wednesday and Friday at 08.00am for approximately 6 weeks. The first five weeks of training will take place in Beaumont, and, if you and the team feel you are ready, the last week (week 6) is provided in your home. Depending on where you live, the days and times may vary. During your training in Beaumont, you will also meet with the renal nurse counsellor and the dietician.

WHAT PATIENTS SAY:
“Self-needling is a ‘mind-set’, and ‘mind-sets’ are made to be conquered.”

“Self-needling is rarely a technical problem.”

“The rest is practice and repetition.”
Your house conversion will commence on the second week of your training. This involves creating an electricity supply, water and draining access in the room chosen as your dialysis area. A shower tray, for the dialysis machine to stand on, is fitted and the floor will have lino fitted, which is required as part of the hygiene, health and safety standards. The conversion is essential to the safely perform this therapy in your home. There is no cost to you for this conversion.

The service provider will also organise and set up all the required equipment in your home prior to week 6. This will include:

- Home Haemodialysis Machine;
- Dialysis chair;
- Dialysis table;
- Weighing scales;
- Waste disposal equipment including a sharps bin, healthcare risk waste bags and a wheelie bin.

There must be a designated area to store the necessary stock for your treatment.

Your first week (or longer if required) at home is fully supervised and supported by the home therapy nurse. This is a good opportunity to troubleshoot any problems you may encounter during your treatment at home. The service provider have a 24 hour, 7 days a week helpline and your clinical support team, at Beaumont, also have a dedicated 24 hour, 7 days a week helpline.

Once you are settled into home life, on home dialysis, it will be necessary to attend Beaumont clinic, once a week initially for review, and to have an opportunity to express any worries or concerns. Other support staff (for example a dietician or nurse counsellor), will be available to you as you require. To help with the reviews it will also be necessary to send bloods to the home therapy team on a monthly basis. This is an essential part of your treatment and will help the team make decisions about your therapy.

If you decide this is the right mode of treatment for you, you will benefit by:

- Not needing to travel to and from the hospital 3 times a week for dialysis.
- Having your dialysis when it suits you, as discussed with your home dialysis team.
- Choosing to have longer dialysis sessions and, more often than the three times weekly. This will certainly benefit your health and you can be more flexible with what you eat and drink.
- Taking more control of your condition.

Some disadvantages to HHD therapy include:

- You have to set up and dismantle your own dialysis machine for each treatment.
- You require a dedicated space in your home for storage of dialysis equipment.

Home Haemodialysis may not be right for you at this time. You may want to think about self-care dialysis in a unit, perhaps then deciding to make the move to home haemodialysis.
Peritoneal dialysis is another form of kidney replacement therapy. The peritoneum is a membrane which lines the abdominal cavity. Surrounding and protecting many of the body’s internal organs, it has a rich blood supply, making it an ideal area in which to carry out dialysis. Peritoneal dialysis involves the use of the peritoneal membrane, as a filter, to remove waste products from the body and to correct body fluid and biochemistry.

This is achieved by inserting a catheter (tenckhoff) into the peritoneal cavity by way of a minor operation. About 15 cms of the catheter remains outside of the body, providing a means for attaching a bag of special dialysis fluid (dialysate). The dialysate fluid and the peritoneum work together to remove waste and excess fluid from your body.

Peritoneal dialysis exchanges can be performed, by the patient themselves, during the day time (Continuous Ambulatory Peritoneal Dialysis) or by a small machine at night while you sleep (Automated Peritoneal Dialysis).

Both methods are easy to learn. Once trained by the peritoneal dialysis staff, dialysis is carried out in your own home. Patients will be assisted by their renal team in choosing the dialysis therapy that best suits their medical and personal needs.
Both peritoneal dialysis and haemodialysis are equally effective for treating kidney disease in the short to medium term. Your choice of treatment depends on the way you want to live your life.

- In haemodialysis (HD), you receive your treatment every second day. You will have 4 days off every week. With peritoneal dialysis (PD), you need to do your treatment daily in either four 20 minute exchanges or 8-10 hours overnight whilst you sleep.
- In HD, the nurses carry out the procedure when you come into the unit. PD is a self-care treatment.
- With PD, it is sometimes easier to work or have a good quality family life. Your treatment is performed at home. Therefore, you are not making as many trips to the hospital.
- It is often easier to arrange a holiday on PD. Your dialysis fluids can be delivered to your destination, home or abroad.
- PD often works well for people who have had difficulties with dialysis access.
- PD allows you to drink more fluids, as the excess can be taken off each day.
- With PD, you need to have reasonable eyesight and manual dexterity to carry out the exchanges.
- Patients who have had extensive abdominal surgery will generally not be suitable for PD. Your nephrologist will sit down with you and discuss, in detail, which form of dialysis best suits your situation. It is often possible to switch from PD to HD or HD to PD after a period of time, on each treatment, if it does not agree with you.
Equipment required to perform a dialysis exchange

CONTINUOUS AMBULATORY PERITONEAL DIALYSIS (CAPD)

With PD, dialysis is taking place inside you without you being aware of it. CAPD is a process by which 2-2.5 litre bags (depending on your prescription) of dialysis fluid are instilled into your peritoneum, four times a day, via your Tenckhoff catheter. Different strengths of dialysis fluid are available, and your doctor and PD nurse will explain which fluids best suit you.

Each dialysis fluid bag contains different amounts of glucose. The three main types of fluid used in Beaumont are 1.36%, 2.27%, 3.86%. The stronger the glucose solution, the more fluid will be removed from your body. This fluid is left in the abdominal cavity and removed 4-6 hours at the next exchange, and then fresh solution instilled, which takes approximately 30 minutes.

Before you connect the bag of fluid, to your catheter, you will need to wash your hands and prepare a clean area. The bags we use at present are a ‘DISCONNECT’ system. When you are prepared to carry out an exchange, you will connect the new bag to your catheter, open the seal and allow the fluid in your abdomen to drain out. Once the fluid is completely drained, you will clamp that bag and open the new bag and allow the fluid to drain in. Once the full amount of fluid has drained into your abdomen, you will disconnect the bag and then go about your business for another 6 hours.

If you decide to opt for peritoneal dialysis, a small operation is needed to place the catheter into your abdomen. The catheter is allowed to rest for a few weeks before it can be used. Once the catheter is ready for use, you will be admitted to the hospital to receive the training required to carry out peritoneal dialysis.
AUTOMATED PERITONEAL DIALYSIS (APD)

APD is an overnight treatment ranging from 8-10 hours, this treatment involves the use of a machine, to perform the dialysis whilst you sleep. A small volume of fluid remains in the abdomen all day, and at night when connected to the machine, the fluid is removed and replaced at intervals.
As a patient, on dialysis, it is very important to be careful about the amount of fluid you drink. Your doctor/nurse will inform you of the amount of fluid you can take on a daily basis. This amount is reviewed regularly, as it may change taking into consideration urine output. However, most patients lose their urinary output within the first year of dialysis treatment. The amount of fluid removed, at each session is determined by the type of dialysis bag that is used. By increasing the concentration of glucose in the bags, more fluid can be taken off. The three main types of fluid used in Beaumont are 1.36% (light bags), 2.27% (medium bags), and 3.86% (heavy bags). There is also a very strong bag called Extraneal, which has the strongest fluid removal capacity. You and your doctor will develop a prescription of the PD treatment, using, for example, three light bags and one extraneal bag, or one light bag, two heavy, and an extraneal at night. The prescription will be individualised, for yourself, and may change over time.

It is important to record your dialysis prescription, weight and the amount of fluid that is removed on a daily basis. This shows clearly how well dialysis is working for you. It is important that these records are brought along to clinic appointments, so that your team can review them, and make changes in your treatment if required.

**CONTROL OF FLUID AND DRY WEIGHT ON PD**

**Peritonitis**

Peritonitis or infection in the peritoneal space is the major complication of PD. Sometimes bacteria may enter into the abdomen, either through the tube or along the skin at the exit site. If this develops, it can be quite a severe illness requiring urgent treatment.

Peritonitis will be recognised by the development of pain in the abdomen, usually associated with the development of the fluid bags looking very cloudy after they have been drained out. If you develop peritonitis it is important that you contact the kidney unit immediately. You will need to bring the cloudy bag of fluid for analysis by the laboratory.

Although patients worry a lot about peritonitis, it is, in fact, relatively uncommon, occurring on average once every two years. It is also true to say that the majority of peritonitis episodes will be treated by a short course of antibiotics. When you come to the hospital your doctor will order a white cell count on the PD fluid and a culture of the fluid. You will be started on antibiotics and the fluid will be analysed, daily, to determine if the peritonitis is getting better. Occasionally, if the peritonitis is persisting, the nephrologist may recommend the catheter to be removed, in which case you would have a small surgical operation to take out the catheter.

If the catheter has to be removed there may still be the possibility of going back on PD some months after the infection is cleared up. In the meantime you will be required to change to haemodialysis treatment and will need to have a permcath inserted. It is a big mistake to delay having the catheter removed if the peritonitis is not getting better as you may become very ill. Generally, once the catheter is removed, you start to feel better in a few days.

**COMPLICATIONS OF PERITONEAL DIALYSIS**

PD, like any form of dialysis, carries a risk of a number of complications. The major complications include:

- Peritonitis.
- Exit site infection.
- Fluid leak.
- Loss of ultrafiltration/inadequate dialysis.
- Catheter blockage.
Fluid leaks
For PD to function, the fluid that is put into your abdomen must remain in the watertight space called your peritoneum. Sometimes you may develop a leak in this membrane which causes fluid to leak out around the catheter site. Depending on where the leak is, it may require a small operation to repair. You might need to change to HD treatment, until the wound/leak has healed.
Large amounts of fluid, in the abdomen, may cause small hernias to develop around the abdomen button or in the groin. If these develop, they will require surgical procedures to repair them.

Catheter blockage
From time to time, the Tenckhoff catheter may become blocked. This may result for a number of reasons. Firstly, constipation can affect dialysis flow rate. If this happens you should take some laxatives to keep the bowel regular.
The catheter may move position in the abdomen so that it is no longer sitting in the pelvis. If this happens and cannot be unblocked, the catheter may need to be repositioned, by way of a small operation. Occasionally, the catheter becomes blocked by way of a little fibrin plug in the abdomen. This can often be unblocked by flushing the abdomen with fluid.

Exit site infection
Where the catheter enters the skin, this is called the exit site. This area is prone to infection, particularly early after the catheter is inserted. It is important that this area is observed every day, and if you notice redness or fluid draining from it, you should inform your nurse immediately. This may require treatment with tablet antibiotics or antibiotic cream. If this infection is not treated promptly, it may go on to form what is called a ‘tunnel tract infection’ where infection develops in the tunnel through which the tube passes. This is more difficult to treat.

Loss of ultrafiltration/inadequate dialysis
When you have been on peritoneal dialysis, for many years, the peritoneal membrane may become somewhat scarred, resulting in less efficient dialysis and inability to remove fluid. This can be examined by measuring the KT/V and a PET test. If you are not feeling well, and these parameters suggest the peritoneum is becoming scarred, you may need to switch to haemodialysis permanently. If this problem becomes severe, it may result in considerable scarring in the peritoneum treatment called sclerosing peritonitis.

FOLLOW-UP
If you select PD as your treatment choice, you will have continued support from the kidney team. You will be reviewed by your consultant at a special PD Clinic once, every 2 months or sooner, if needed. However, you have the choice to contact the kidney ward, at any time, to speak to staff. PD staff are provided from 7.45am to 8.30pm. A home visiting service is available from the Beaumont PD staff.
When dialysis was first introduced, its availability was reserved for the younger, fitter and employed person. Over time, these restrictions were lifted, and dialysis is now offered to all patients, regardless of age or co-morbidity (having other health problems). This has resulted in many patients enjoying a longer life than would have been possible years before.

If you are reading this article, it probably means that you, or one of your family members, are facing the prospect of your kidney function advancing to the stage that a decision is required as to whether or not you/they will need dialysis to prolong life. Before making that decision, get as much information as you can about what is involved in dialysis, what to expect, and how it might affect you.

Not all patients do well on dialysis, and, for some, there is a marked deterioration in quality of life, though this is not entirely predictable. Some patients may experience dialysis as an excessive burden, which provides no net benefit. People who are already struggling with health problems, over many years, may reasonably wonder if dialysis will make their life any better or will it prolong their suffering.

Is the onset of end stage kidney disease a sign that natural life is coming to an end? Is the option of dialysis a burden to be faced or an opportunity to prolong life?

The best way to make these very important choices is preferably in discussion with your doctor and medical and nursing team. This includes your GP, your Nephrologist (kidney specialist) and their team, and the specialist nurses. They will be in a position to give you the facts relating to your individual situation. It is also advisable to include your family in the discussions as, obviously, your welfare will be of concern to them and their support will be important to you, whichever decision you make.

**POSSIBLE REASONS WHY PEOPLE MAY OPT NOT TO HAVE DIALYSIS**

- **Age / Frailty** – “Am I too old?”
- **Co-morbidity** – “I already have heart disease, or diabetes, or chronic lung disease or many other conditions.”
- **Malignancy** – I have cancer. How will dialysis affect that?
- **Psycho social issues** – “I live alone, how will I manage? Who will help me?”

Many patients with some, or all of these questions, do quite well on dialysis, so use this list to help you make the right decision, rather than to steer you away from dialysis.

No one can predict the specific time/date of death of another, but it may be helpful to ask your doctor how long you might be reasonably expected to live with or without dialysis.
WHAT IF I CANNOT DECIDE?
If you find it difficult to decide, you can opt for a trial of dialysis. This means that, for an agreed period, such as 6 weeks, 3 months, or whatever you decide with your doctor, you will have dialysis treatment to see how you get on with it. After a trial, you may decide to continue with dialysis or stop dialysis treatment altogether.

WHAT IF I DECIDE NOT TO GO ON DIALYSIS AT ALL?
The doctor and his/her team will respect your decisions and make plans to continue your care under a programme called Conservative Management. This means that you will receive all other aspects of kidney care, with the exception of dialysis.

Before this commences, the doctor will want to discuss your decision with you, to ensure that all possible interventions have taken place, to optimise your medical management. It is also likely that an assessment, for depression, will be offered to ensure that a depressive episode is not a contributory factor to your decision. Sometimes, an assessment of cognitive function and capacity is required.

Symptoms will be reviewed and appropriate medications prescribed to manage these. Your GP will be notified regarding your care and, depending on your circumstances, e.g., distance from the hospital, it might be beneficial for your care to be managed, by your GP regularly, with access to the kidney team for support as the need arises.

You will be guided through what to expect by the Ambulatory Care Sister whom you will meet at the clinic. She will liaise with the Patient Care Co-ordinator and your Public Health nurse will be notified. Help and support, from your local health service, will be requested as and if you require them.

WHEN WILL I DIE?
This is a very difficult question to ask and to think about. It is also a difficult subject to talk about with your family. The sad reality is that death will eventually be the outcome of kidney disease, without dialysis. The timing of death will be different for everyone, depending on what kidney function, if any, you have, other medical problems, your age and other factors. People, managed conservatively with chronic kidney disease, have lived from 5 years to a few weeks.

Being in a position to make decisions for yourself, about what you want, when the time comes, can actually be a help. Most people would choose to die at home, and this is possible with support from family and community nursing.

Other options include hospital or local hospice care, depending on which area of the country you live.

Patients, already resident in nursing homes, may remain there and be cared for to the end of life. What is important to know is that you will not be alone. You will continue to be offered expert medical advice regarding management of your condition and its progress.

Specialist Palliative Care is available if your condition becomes complex. The aim of conservative management is to keep you as comfortable as possible until natural death occurs, supported by family and community services.
WITHDRAWAL OF DIALYSIS

If dialysis treatment is no longer possible or tolerable, the aim will be to make you as comfortable, as possible, by carefully managing symptoms and supporting for you and your family through all stages of the dying process. No two people will experience discontinuation of dialysis in the same way, so each person’s circumstances will be supported as appropriate to them. Some people will opt to die at home, supported by their GP and community nursing services. Others may prefer to be in hospital when the time comes.

While talking about end of life issues are difficult, many people experience a sense of relief at bringing the discussion into the open. It helps ensure that your wishes are known and can be honoured. It is also helpful, to your family, to know beforehand what your wishes are.

The staff of the kidney unit welcomes the opportunity to discuss and explain further any issues raised in this article.

HOW WILL I DIE?

This is impossible to predict. As time goes on and as the end gets closer, some people become progressively weaker and may slip into a coma. Symptom management will be adjusted to provide maximum comfort at this stage.

WHAT ABOUT MY FAMILY?

Help and support will be offered to your family throughout your on-going conservative management, as required. Contact details will be provided at the kidney clinic.

IF I START DIALYSIS, CAN I STOP IT?

Yes. Any patient who opts for dialysis is entitled to stop dialysis if it becomes too much for them. Sometimes, the patient comes to this decision first and other times it may be suggested, by the medical team, if it is apparent that dialysis is no longer suitable or beneficial to the patient.

“Any patient who opts for dialysis is entitled to stop dialysis if it becomes too much for them.”

PEACE OF MIND

To ensure your peace of mind it is advisable, at this time, to consider the following:

1. Making a will.
2. Discussing with your family personal preferences about your future care, in the event that you were unable to make decisions for yourself. Given that you may live for a number of years with conservative management, would you want to be resuscitated if you suffered a cardiac or respiratory arrest? Would you want to be put on a ventilator?

These are very difficult questions, but, by you giving them some attention now, you might prevent a very difficult situation for your family.

- Should you decide not to opt for resuscitation, this will be clearly documented in your chart.
- You have the right, at all times, to change your mind and opt for dialysis and / or resuscitation if this is medically feasible.
To receive a kidney transplant you must be in reasonable general health apart from kidney disease. To determine your health, you will need to undergo a complete medical evaluation. This will be undertaken by your own kidney team and will include an extensive list of blood tests, including tissue typing bloods, hepatitis B test, HIV test and many others. There will also be a test of your kidneys and cardiac function. It is possible to begin the process of going on the kidney transplant list, before your kidneys have failed completely, although your kidney function does need to be less than 20%.

Once these tests are completed, your kidney team will refer you to Beaumont Hospital where you will be asked to come and meet the Beaumont transplant team. At this visit, the pros and cons of a kidney transplant will be discussed. You will be given the opportunity to discuss any issues you have at this point. If all your test results are acceptable, you will be placed on the kidney transplant waiting pool. It is very important that, while you are on the transplant waiting pool, you remain contactable. A suitable kidney may become available at any time of the day or night. You must let the transplant co-ordinators know if you are away or change your contact details.

While you are on the transplant waiting pool, you must send blood samples to the transplant laboratory, at Beaumont, at least every 3 months. If you are on dialysis, this will probably be done automatically for you but, if you are not yet on dialysis, you will be sent a letter to organise an appointment for you to have your bloods taken. It is your responsibility to ensure that these samples are taken, by your doctor/nurse, and sent to the hospital every month.

THE TRANSPLANT PROCESS

Kidney transplantation is a very big area with lots to learn about. We have published a booklet ‘Kidney Transplantation - A Guide for Patients’ that tells you all you need to know about receiving a kidney transplant. Your nurse will give you a copy of this on request.

A kidney transplant is undoubtedly the best long-term treatment for patients who have developed irreversible kidney disease. While this sounds very daunting at first, the procedure is performed, fairly frequently, with excellent long-term results. However a kidney transplant is not for everyone. Very elderly patients, or those with significant problems such as heart or lung disease, might not be medically suitable to undergo transplantation. Your team will discuss the best options for you.
If these blood samples are not kept up-to-date, your name will be suspended from the transplant waiting pool.

When you receive a call, regarding the possibility of a suitable transplant, it is of vital importance to travel to Beaumont Hospital as quickly as possible. You will be asked to fast from that point. You will go to St. Damiens Ward on the 4th floor.

In St. Damiens you will again undergo many different blood tests, x-rays and heart monitor, etc. You will also be seen by the surgeon and anaesthetist.

Only after all these evaluations are available will the final decision be made to go ahead with the transplant.

In some situations, the cross-match test will come back positive, which means that this kidney is not suitable for you. This can be extremely difficult and disappointing for you and your family. The kidney team will be there to support you, through this time, in the hope that a better match for you appears next time.

**THE TRANSPLANT OPERATION**

If the kidney is making lots of urine and the serum creatinine is falling, it implies that the kidney is functioning well. About 10% of patients will experience a rejection episode, where the body attacks the transplanted kidney, resulting in a rise in creatinine. If this happens, you will probably need to have a transplant biopsy and then undergo a ‘boost’ of high dose intravenous steroids for 5 days. The good news is that the vast majority of rejection episodes respond to this treatment.

**Kidneys for transplantation can be:**

- Cadaveric donors
- Living donors

**CADAVERIC KIDNEY TRANSPLANTATION**

At present, in Ireland, this is the commonest form of kidney transplant. A person who has had an irreversible brain injury, usually from an accident or brain haemorrhage, becomes a kidney donor. In Ireland this is only done, with the consent of the patient’s relatives. The brain stem is responsible for the capacity for consciousness. If brain stem is irreversibly damaged, this constitutes brain stem death, which constitutes death of the person. The donor is taken to theatre, where their kidneys and frequently many other organs are removed for transplant purposes. The problem with this approach is that there are far more patients in need of a kidney transplant than there are kidneys for transplant available. The average waiting time for a kidney transplant is two, to two and a half years, although there can be enormous variation, with some patients waiting less than 6 months and some patients waiting more than 5 years because of the difficulty of matching the new kidney to particular needs.
LIVING DONOR

This is the best solution for the long-term treatment of kidney disease. It provides the best long-term results, in terms of patient and graft survival, and commonly means the patient does not need an extended period of dialysis. The disadvantage is that a live healthy person needs to undergo a very significant operation to have one of their kidneys removed. This procedure carries risks to the donor. These risks can also include the occasional risk of the donor dying in the process. This is extraordinarily rare but does happen about one time in three thousand. There are a few essential rules that the donor must fulfil before being considered a potential live related donor.

- They must be a compatible blood group
- They must be fully informed of the risk and benefits of the procedure, and be willing, of their own free will, to undergo the procedure
- They must be in perfect health
- The final cross match test must be negative.

The potential living donor will have to volunteer themselves and make contact themselves with the Transplant Office phone: 01-8528397. The donor will undergo a very extensive medical and psychological evaluation to determine that they are suitable. This will include a number of special investigations and examinations by an independent doctor.

The one-year success rate of a living donor is about 95% and, on average, a living donor kidney will last 16 years. However, if your donor is a ‘perfect match’, on average such a kidney will last 28 years.

A booklet called ‘Live Donor Transplantation’ is available from the Transplant Office.

To access the transplant list, fairly strict rules are in place. Priority is given to patients with a perfect match between the donor and recipient. After that, the major criterion used to allocate kidneys is the length of time patients have been waiting. Children are also prioritised, and patients with very difficult life-threatening clinical situations occasionally are considered as priority. On average, the one year success rate of a kidney transplant is 92% and, on average, a cadaveric kidney lasts 14 years.

For patients with Type 1 Diabetes it is also possible to receive a combined kidney/pancreas transplant. You should discuss, with your kidney team, if you think you might be suitable for this.
Following the transplant, you will need to remain on transplant medicines for the rest of your life. The actual dose, that you take, will change from time to time, particularly in the early months. After the transplant, they will be rapidly reduced. **If you ever stop taking the transplant medicines, you will lose your transplant kidney through rejection.**

There are many transplant medicines, such as Prednisilone, Prograf (Tacrolimus) and CellCept (Mycophenolate Mofetil). These medications, while effective, cause a number of side effects.

Steroids can make you gain weight, become puffy around the face, increase your blood pressure, and sometimes increase the risk of diabetes.

Prograf is a powerful immuno-suppressant. It can, however, make you more susceptible to infections. Other side-effects include skin cancer, and other cancers, and, in the long-term, kidney damage. Your doctor will try to achieve a balance between using the lowest possible dose to avoid rejection, and to minimise the risk of kidney damage and other side effects.

CellCept is also a powerful immuno-suppressant. It has many of the side effects of Prograf, but it does not damage the kidney. It can cause diarrhoea and stomach upset initially.

### COMPLICATIONS OF KIDNEY TRANSPLANTATION

- A kidney transplant does not last forever. On average, it lasts 14 to 16 years. If the transplant fails your doctors will aim to put you back on the transplant list for another kidney transplant.
- The transplant operation is a significant undertaking and the risk of dying from the procedure is about 3%.
- Infection is an important problem after transplantation. In the first 6 months, you are at risk of developing a viral infection called CMV. If your doctor determines, by a blood test, that you are at risk of CMV, he will prescribe a 3 month course of Valgancyclovoir, which is very effective at preventing it. You will also be prescribed a 3 month course of Septrin to prevent you developing a lung infection call Pneumocystis (PCP). Even after the first 3 months there is an increased risk of bacterial infections of the skin, lungs and urine.
- Cardiovascular Disease. After a kidney transplant, you are at a higher risk than the general population of developing heart disease. Your kidney team will, therefore, take great care to ensure that your blood pressure and cholesterol are kept in the normal range. This may frequently require you to take medications.
- Cancer. After a kidney transplant, the risk of most forms of cancer is increased compared to the general population. There are two particular forms of cancer which cause particular concern - skin cancer and lymphoma (a form of cancer of the lymph glands). Skin cancer will develop in up to 25% of kidney transplant recipients, mostly in sun-exposed skin of the hands and face. This is usually easily treated with local excision or by freezing it. This form of cancer can be dramatically reduced by avoiding sun exposure and wearing high factor sun block. The other form of cancer we worry about is lymphoma, which occurs in about 1 in 200 transplant patients (0.5%). This is a serious problem that requires reduction or elimination of immunosuppressant drugs and might also require chemotherapy and radiotherapy.
Infections are spread by:
- Air (e.g., TB, chicken pox).
- Droplet, sneezing and coughing (e.g., mumps, rubella, common cold).
- Direct contact (e.g., salmonella from eating uncooked chicken, and sexually transmitted diseases such as syphilis).
- Indirect contact (e.g., salmonella from a sandwich made by the unwashed hands of a person infected with salmonella).
- Vectors - e.g., mosquitoes spreading malaria.
PREVENTING INFECTION
The human body has developed general and specific defences against infection. General defences protect the body against all infections and examples include skin, secretions such as tears, cilia (tiny hairs), which filter air entering the lungs, and body washings, such as flow of urine from the bladder, which washes away bacteria with the urine.

Specific defences develop when the body’s immune system produces antibodies against certain diseases. These antibodies develop after an infection (e.g., chicken pox) or after vaccination (e.g., whooping cough, rubella) and ensure that infection or re-infection very rarely occur.

People with kidney disease have an immune system that does not work as efficiently as normal. In addition, some complications of common illness such as pneumonia after flu can be dangerous for people with kidney disease. However, everyone can assist his or her natural immune system preventing infection by:

- Eating a well balanced diet and taking regular exercise.
- Good general hygiene will help keep the skin in good condition.
- Regular hand washing, especially before eating, and after using the toilet.
- Attending for regular check-ups with your kidney specialist and GP will ensure that your kidney function and general health are maintained.
- Attending your GP or the kidney unit promptly if you are not feeling well.

INFECTIONS AND KIDNEY DISEASE
People with kidney disease are vulnerable to the same infections as the general population, such as flu, measles and mumps. However, they are more vulnerable to certain infections due to the treatments used (haemodialysis, peritoneal dialysis and transplantation) and due to regular hospital admissions (MRSA, VRE, and C.Difficle).

Infection complications associated with haemodialysis treatment
Haemodialysis treatment is known to be a risk for:

1. Bacterial infections associated with access, i.e., catheters, fistulas and grafts.

Access infections
See chapter 4 for detailed information on infection associated with access.

Blood borne infections associated with haemodialysis (HD)
Outbreaks of viral blood infections (Hepatitis B and C) have happened in haemodialysis units. As a result, our unit takes infection control very seriously indeed and make every effort to reduce the risk to an absolute minimum.

The measures include the following:

- All patients are screened on admission and routinely for hepatitis B & C & HIV.
- All staff are vaccinated against hepatitis B.
- All patients are strongly recommended to be vaccinated against hepatitis B.
- Patients with known infections are treated in single rooms, on special machines.

All equipment used, on each patient, is either disposed of after each use or cleaned and disinfected after every use.

Infection complications associated with Peritoneal Dialysis
See chapter 5 for detailed information on infection associated with Peritoneal Dialysis.

Infection complications associated with Transplantation
See chapter 8 (Book 3) for information on infection, associated with transplantation.

MRSA, VRE AND C.DIFFICLE
People who have regular hospital admissions, such as kidney patients, are at increased risk of acquiring MRSA, VRE and C.Difficle.
MRSA
What is MRSA?
MRSA is the shortened term used when referring to **Methicillin Resistant Staphylococcus Aureus**. Staphylococcus aureus (S. aureus) is the name of the bacteria. The sensitive strain is found in the nose and skin of 20-30% of healthy people. The resistant strain (MRSA) means that it cannot be treated with antibiotics normally used to treat the sensitive strain.

Where is MRSA found?
MRSA is most often found in hospitals or nursing homes where antibiotics are used frequently therefore encouraging the development of resistant strains of bacteria.

How does a person acquire it?
MRSA is transferred from one person to another by human contact. The main method is on hands, during patient care. Patients, who are carriers, may pass it on to other patients if they are in close contact.

Does MRSA make a patient more ill?
Some patients are colonised with MRSA and others have infections caused by MRSA. A patient is colonised with MRSA when he/she has no signs or symptoms of infection. It does not alter their treatment and is not a reason to stay in hospital.

MRSA infection, like other infections, varies from mild to severe and depends on other factors, such as where the infection is, and the patient age and underlying conditions. A person found to be colonised or infected with MRSA will be nursed separately from other patients, in a single room (isolation), or in a room with others who also have MRSA (cohorted).

What is the treatment for MRSA?
A patient, colonised with MRSA, is treated with special washes and ointments.
A patient, infected with MRSA, is treated with antibiotics, in tablet or by a drip into a vein.

VRE
What is VRE?
VRE is the short-term used when referring to **Vancomycin Resistant Enterococci**. Enterococci are bacteria found in the faeces of humans. Most of the time enterococci are part of the normal bacteria of the bowel and do not cause disease. A strain of enterococci has developed resistance to vancomycin, which is an antibiotic used to treat serious infections including MRSA infections.

Where is VRE found?
VRE is found in hospitals where patients are very unwell, such as intensive care, kidney and transplantation wards. Enterococci can survive on surfaces, ledges and floors.

How does a person acquire VRE?
VRE may be transferred from one person to another by direct contact, particularly from hands, during patient care.

Does VRE make a person more ill?
This varies from patient to patient. The majority of patients are colonised, whilst some are infected. Colonised means that the VRE is not causing infection. The presence of VRE colonisation does not alter their treatment and is not a reason to stay in hospital. VRE infections can vary from mild to severe and depends on factors such as the site of the infection and the patient’s overall condition.

Patients with VRE, in a wound or in a urine specimen or those having diarrhoea, need to be nursed in a single room (isolation) or nursed in a room with other patients with VRE (cohorted).

What is the treatment for VRE?
Infection, with VRE, is treated with antibiotics usually given in a drip in a vein. Colonisation with VRE does not require any special treatment.
C. DIFFICILE (CLOSTRIDIUM DIFFICILE)
What is Clostridium Difficle (C. Diff)?
C. Diff. is a bacteria that causes diarrhoea and may cause intestinal conditions such as colitis. It is a common injection in hospitals and long-term facilities.

The use of antibiotics alters the normal bacterial content of the bowel and, thereby, increases the risk of developing C. Diff. diarrhoea.

Where is C. Diff found?
C. Diff is found in the bowel of some people and can also survive for a long time on surfaces.

How do people get C. Diff?
Healthy people are not at risk from getting C. Diff. People who have other illnesses or conditions requiring prolonged use of antibiotics and the elderly are at risk of infection. They can become infected if they touch items that are contaminated and then touch their mouth.

Does C. Diff make a person more ill?
In most patients, the symptoms are mild and discontinuing treatment with antibiotics and fluid replacement results in rapid improvement. Sometimes, it is necessary to give a specific antibiotic, by mouth, for the condition. Unfortunately, 20-30% of patients relapse and need further courses of antibiotics.

Patients need to be nursed in a single room (isolation) or, in a room with other patients with C. Diff (cohorted), until bowel movement has returned to normal.

VACCINATIONS RECOMMENDED FOR PEOPLE WITH CHRONIC KIDNEY DISEASE
As prevention is always better than cure, the Department of Heath and Children advise that certain vaccinations be given to people with kidney disease. Your kidney doctor or GP will advise you when you need to start getting vaccinated, but, in general, once a diagnosis of chronic kidney disease is confirmed, the vaccinations listed below should be given:

- **Pneumococcus** - This bacterium can cause serious infection in the lungs (pneumonia), the blood (bacteraemia) and covering of the brain (meningitis). Vaccination consists of a single injection, followed by a once-off booster dose 5 years later.

- **Influenza (flu)** - An annual flu vaccine is advised, as infection can be complicated by pneumonia, which is dangerous for people with chronic illness.

- **Hepatitis B** - Hepatitis B is a serious illness and as haemodialysis is a recognised risk for acquiring Hepatitis B vaccination is advised. The vaccination course varies, depending on the product used, but it is usually 3 or more injections, over a 6-month period, with a follow-up blood test to check if immunity has developed. Some people need an additional injection (boost) or a repeat course to develop immunity. In addition, people on haemodialysis or peritoneal dialysis have a blood test, yearly, and, depending on the result, may need a boost.

- **Varicella** (chicken pox) - Vaccine for patients not immune and planning to receive a transplant. People should not get the vaccines if they ever had a life-threatening allergic reaction to yeast (Hepatitis B), eggs (flu) and/or to a previous dose (all vaccines). Pregnant women should discuss vaccination, with their doctor, and people who are ill should defer vaccination until feeling better.

While a vaccine, like all medicines, is capable of causing a serious problem, such as severe allergic reaction, the risk of vaccinations causing serious harm, or death is extremely small. **Getting vaccinations is much safer than getting the disease.**
WHAT CAN PATIENTS DO TO HELP REDUCE THE SPREAD OF INFECTIONS IN HOSPITALS?

Patients can help reduce the risk of all infections spreading by:

- Washing hands or using alcohol gel after using the toilet and before meals.
- Reminding staff to wash their hands, or use alcohol gel before they care for you.
- Advising visitors who are feeling unwell not to visit.
- Advising visitors to wash their hands before and after visiting and to avoid going from one ward to another during visiting time.
- Seeking advice from ward staff if young children wish to visit.
- Complaining to the ward sister/consultant or any staff member if the general ward hygiene is not satisfactory or if staff are not washing their hands.

PREVENTING THE SPREAD OF ALL INFECTIONS IN HOSPITALS

This hospital, along with all hospitals in the country, is working hard to reduce the spread of all infections in hospitals by:

- Improving hygiene throughout the hospital;
- Improving hand hygiene of staff and patients;
- Implementing antibiotic policies;
- Education of staff, patients and visitors;
- Increasing space between beds and number of single rooms especially as new wards are built.
MAINTAINING or returning to good health involves more than medical matters. It involves accepting chronic kidney disease, learning to live with it, and getting on with your life. To adjust to living with kidney disease, you are going to need the help and understanding of your family, your friends, and your healthcare team.

But, the most important person is YOU, the person with kidney disease.

The impact kidney disease has on your life depends on you. If you let kidney disease rule your world, it will. Successfully living with kidney disease takes a positive attitude, a commitment to succeed, and a determination to maintain your usual lifestyle - and the results are worth it.

To help you with this process, we are going to discuss:

- Learning to live with chronic kidney disease
- Sexual issues
- Staying healthy and enjoying life

For many people, discovering that their kidneys have failed comes as a great shock. For others who have known, for years, that they have kidney problems, it is perhaps less of a shock. But still, being told you have end-stage kidney disease is never welcome news. It takes time to accept this fact and to adjust to it.

STAGES OF ACCEPTANCE

Many people go through a number of emotional stages after being told their kidneys have failed. Of course, not everyone goes through the same stages, or in the same order. These stages may include denial, anger, bargaining, depression, and acceptance.

Read the following descriptions and see if you recognise any of them. You will be happy to know that, with time, most people adjust emotionally to chronic kidney insufficiency and return to their former outlook on life.

Denial

At first, many people deny they have chronic kidney insufficiency and might need kidney replacement therapy. They cannot believe this is happening to them. Some are convinced that, somehow, the laboratory has mixed up their blood test with someone else’s. For many, this is the first chronic, irreversible disease they have ever had to face, and they are not able to accept it right away.
The people who have the most difficulty accepting their diagnosis are usually those who have had the least warning. One day they may be feeling fine; the next day they are told their kidneys have failed. That is a big mental hurdle to overcome.

Those who have the least difficulty are usually those who have known for years that this was a possibility and have prepared themselves, emotionally, for this day. With time, most people get over this stage and accept that their kidneys are failing or have failed.

Anger

Anger is a common response for many people when told their kidneys have failed. They are angry at themselves for getting sick or angry at their doctor because the problem was not diagnosed sooner or cannot be cured. Sometimes, they are angry at everyone, including their friends, family and healthcare team, simply because they feel angry.

Of course, no one’s really to blame – not you, your doctor or anyone else. There is probably nothing you could have done to prevent the disease, and your treatment would probably have been the same, even if your doctor had diagnosed the problem sooner. This stage does not usually last very long. Anger fades, as you adjust to living with chronic kidney insufficiency.

Bargaining

Most people respond to bad news by trying to bargain their way out of it. So it is not surprising that, when some people are told their kidneys are failing or have failed, they try to bargain their way out of the situation. They promise themselves that if they can have working kidneys again, they will go on a diet, exercise regularly, and give up smoking and drinking. Though these changes are likely to benefit your health, they will not change the diagnosis of kidney disease. Unfortunately, chronic kidney disease is one of those things you cannot bargain your way out of – no matter what you promise.

At this stage, it is often helpful to find out everything you can about kidney disease and the different treatments. There have been recent advances in treatment strategies, for kidney disease, prior to kidney replacement therapy. There also have been advances in dialysis and transplant technology. There are many reasons why you should be able to live a productive and enjoyable life.
Depression

Many people feel depressed when they discover their kidneys have failed. Even after treatments have started, and you are feeling much better physically, the thought of having regular dialysis, perhaps while waiting for a kidney transplant, might leave you feeling depressed.

You may feel dependent, on others, for the first time and this may affect your ability to live the life you once enjoyed. Emotional support, from family and friends, may also decrease as the shock of diagnosis fades. Often, you might have difficulty accepting their support or they might not know how best to offer it.

However, with time and increased understanding of kidney disease, people do adjust. Each person has different ways of adapting. However, if depression continues for some time, it is a good idea to speak to your healthcare team because depression can be effectively treated.

Acceptance

Fortunately, most people learn to live with chronic kidney insufficiency. Although they would rather have healthy kidneys, they realise that, with the proper treatment and lifestyle changes, they will be able to live as usual.

Acceptance does not always come quickly or without help. Many people find it useful to talk to someone besides family and friends about their feelings. If you feel you need a person to talk to, do ask a member of your healthcare team to recommend someone. It can make a big difference.

Being told you need to go on dialysis comes as a great shock. People naturally worry about how they are going to cope. Common emotions felt at this time are:

- **Fear** about the treatment, death, the future, the unknown.
- **Anger** “Why did this happen to me?” “It is not fair.” “Why now?”
- **Denial** “It can’t be true.” “There must be some mistake.” “I feel fine.”
- **Anxiety** about what to expect - prolonged periods of feeling uneasy and finding concentration difficult.
- **Worry** about how the treatment will affect your life, your plans, your future, your family.

While most people will experience some or all of these emotions, the actual experience of being on dialysis is unique to each individual. The good news is that, after the initial shock, most people do come to terms with it and cope effectively in their own way. The more support and help a person has, the easier it is to adjust.
ADJUSTING TO LIFE ON DIALYSIS

Adjusting to life on dialysis can be achieved by the following:

**Educate yourself** - Find out as much as you can about dialysis and the treatment options available. Ask questions; the renal team is there to help you. It can be difficult to take it all in at first because there seems so much to learn.

**Seek support** - Be prepared to talk about how you feel and your concerns. The renal team comprises members who can offer specialist advice and support, and their roles are explained in this book. Counselling is available for both you and your family and can be arranged by speaking to any member of the renal staff.

**Maintain relationships** - Being on dialysis at first can make you feel ‘different’ from your family and friends. Remember that they do not know what to expect any more than you do. Talk to them and stay involved with them.

**Do not let dialysis take over your life** - Yes, changes are inevitable, because adjustments have to be made to facilitate dialysis in your life. However, it does not mean you have to put your life ‘on hold’.

Despite the restrictions on your time, stay involved as much as practically possible with your other interests such as family activities, work, education, leisure pursuits.

**Try to stay positive** - This can seem a difficult task. However, if you work at it, it can be managed. Try to concentrate on what you can do rather than what you cannot. Do things that help you to relax.

**Take control** - Take charge of yourself. Familiarise yourself with your treatment, your drugs, and your diet and fluid restrictions. They are prescriptions to keep you well, and if you work with them, rather than fight against them, they will help you cope and feel better.

**The Irish Kidney Association** - Support from the patients’ association is very helpful and it is advisable to join. Even if you cannot actively attend local meetings, you can be informed about forthcoming events and other support services for patients in their quarterly newsletter.

**Healthy lifestyle** - Do not forget the basics. Keeping well means taking care of yourself physically, emotionally, socially and spiritually. Eating well and healthily within your dietary restrictions, getting enough sleep, taking some exercise, getting fresh air and relaxation are all important. Also, not smoking and alcohol consumption, in moderation within the fluid/dietary restrictions, will all help you to cope.

**Seek help** - If you feel unable to cope, talk to a member of staff and consider counselling. Counselling provides a one-to-one confidential opportunity to talk about your problems and receive help to cope. Counselling is available for you and your family.

DO I HAVE TO GO ON DIALYSIS?

Yes, if you want to keep living. However, for some people who may be coping with other serious or chronic illnesses or have a poor quality of life due to illness, the option of dialysis might appear to offer prolonged suffering rather than relief. Dialysis is a treatment choice, not a cure for kidney disease. You have the right to choose not to go on dialysis, or to have dialysis for a trial period, to see how you get on with it. You have the right to stop dialysis if you feel it is not for you.

This is a very difficult decision to make, and one, which affects you and your family. The kidney team is available to discuss all options with you.
# Glossary

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
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<tbody>
<tr>
<td><strong>AKD - Acute kidney disease</strong> <strong>ALSO CALLED</strong> AKI Acute kidney injury</td>
<td>A sudden loss of kidney function that is often reversible.</td>
</tr>
<tr>
<td><strong>AVF - Arteriovenous fistula</strong></td>
<td>Vascular access for dialysis; joining an artery and vein together.</td>
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<tr>
<td><strong>Anaemia</strong></td>
<td>A shortage of red blood cells in the blood. One of the functions of the kidneys includes EPO (erythropoietin) production. When the kidneys fail, EPO is not made leading to anaemia.</td>
</tr>
<tr>
<td><strong>ANCA - (Anti-neutrophil cytoplasmic antibody)</strong></td>
<td>A type of antibody that is associated with vasculitis conditions.</td>
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<tr>
<td><strong>APD - Automated peritoneal dialysis</strong></td>
<td>Also known as CCPD. This is a form of peritoneal dialysis which is carried out overnight.</td>
</tr>
<tr>
<td><strong>Arteries</strong></td>
<td>Blood vessels that carry blood from the heart to the rest of the body.</td>
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<td><strong>Blood Tests</strong></td>
<td>A blood test that is used to measure many substances in the body to ensure they are within normal/safe range.</td>
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<tr>
<td><strong>Blood Pressure (B/P)</strong></td>
<td>The pressure that the blood exerts against the walls of the arteries as it flows through them.</td>
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<tr>
<td><strong>CAPD - Continuous ambulatory peritoneal dialysis</strong></td>
<td>Infusion of fluid into the peritoneum, prolonged dwell period and then drainage.</td>
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<tr>
<td><strong>Central Venous Catheter (CVC)</strong></td>
<td>Also known as permcath. A catheter with two ports inserted into a major central vein for the purpose of haemodialysis.</td>
</tr>
<tr>
<td><strong>Creatinine</strong></td>
<td>A waste substance produced by the muscles when they are used. The higher the blood creatinine level, the greater the indication of kidney disease.</td>
</tr>
<tr>
<td><strong>Chronic kidney disease (CKD)</strong></td>
<td>Slow onset of kidney disease which is irreversible.</td>
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<tr>
<td><strong>Dehydration</strong></td>
<td>Not sufficient water in the body to maintain normal function.</td>
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<tr>
<td><strong>Dialysis (HD)</strong></td>
<td>An artificial process, which removes chemical substances and water from the blood, by passing it through an artificial kidney.</td>
</tr>
<tr>
<td><strong>End Stage Kidney Disease (ESKD)</strong></td>
<td>Advanced kidney disease.</td>
</tr>
<tr>
<td><strong>Erythropoietin (EPO)</strong></td>
<td>Hormone involved in production of Red Blood Cells.</td>
</tr>
<tr>
<td><strong>Fluid Overload</strong></td>
<td>The body contains excess water. This occurs in kidney disease as one of the functions of the kidney is to remove excess fluid.</td>
</tr>
<tr>
<td>TERM</td>
<td>DEFINITION</td>
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<tr>
<td>Graft</td>
<td>A type of access for dialysis. A small plastic tube that connects an artery to a vein.</td>
</tr>
<tr>
<td>Haematuria</td>
<td>Blood in the urine.</td>
</tr>
<tr>
<td>Hepatitis</td>
<td>An infection of the liver. Can be passed on by blood contact.</td>
</tr>
<tr>
<td>Kidneys</td>
<td>Two bean-shaped body organs where urine is produced. Functions of the kidney include removal of toxic waste, removal of excess fluid, controls blood pressure helps to produce red blood cells and helps to keep bones strong and healthy.</td>
</tr>
<tr>
<td>Nephrone</td>
<td>Small filtering unit in the kidney, made up of blood vessels and tubules.</td>
</tr>
<tr>
<td>Oedema</td>
<td>A build up of fluid causing swelling, especially ankles and the lungs.</td>
</tr>
<tr>
<td>Oliguric</td>
<td>Passing low levels of urine.</td>
</tr>
<tr>
<td>PD Catheter</td>
<td>Also known as tenckoff. A tube that is inserted into the peritoneal cavity for the purpose of peritoneal dialysis. A small operation is required to insert the catheter into the abdomen.</td>
</tr>
<tr>
<td>Peritoneum</td>
<td>A natural membrane that lines the inside of the wall of the abdomen and that covers all the abdominal organs.</td>
</tr>
<tr>
<td>Peritonitis</td>
<td>Infection of the peritoneal cavity of patients who have a PD catheter insitu. Most episodes are easily treated with antibiotic medication.</td>
</tr>
<tr>
<td>Potassium</td>
<td>A mineral that is normally present in the blood. Too much or too little can cause complications.</td>
</tr>
<tr>
<td>Semi-Permeable Membrane</td>
<td>A membrane which will not allow certain products to pass through.</td>
</tr>
<tr>
<td>Steal Syndrome</td>
<td>Condition where the blood supply to an area has been decreased/minimised.</td>
</tr>
<tr>
<td>Subclavian Vein</td>
<td>Large vein positioned behind the collar bone.</td>
</tr>
<tr>
<td>Transplantation</td>
<td>The replacement of an organ that is not working in the body with another donor organ.</td>
</tr>
<tr>
<td>Tunnel Infection</td>
<td>An infection that occurs when an exit site infection spreads into the tunnel of the catheter.</td>
</tr>
<tr>
<td>Ultrafiltration (UF)</td>
<td>Removal of excess water from the blood during dialysis treatment.</td>
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</table>
Contact Numbers

<table>
<thead>
<tr>
<th>Department</th>
<th>Contact Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beaumont Hospital</td>
<td>01-809 3000</td>
</tr>
<tr>
<td>St Peter’s Ward</td>
<td>01-809 2290/2285</td>
</tr>
<tr>
<td>St Damien’s Ward</td>
<td>01-809 2292/2293</td>
</tr>
<tr>
<td>Hamilton Ward</td>
<td>01-809 2323/2324</td>
</tr>
<tr>
<td>Renal Day Care</td>
<td>01-809 3144</td>
</tr>
<tr>
<td>Patient Care Co-Ordinators</td>
<td>01-809 2727</td>
</tr>
<tr>
<td>Renal Nurse Counsellor</td>
<td>01-809 2751</td>
</tr>
<tr>
<td>Ambulatory Nurse Specialist</td>
<td>01-852 8395</td>
</tr>
<tr>
<td>Prof Conlon’s Secretary</td>
<td>01-809 2747</td>
</tr>
<tr>
<td>Prof Walshe’s Secretary</td>
<td>01-809 2567</td>
</tr>
<tr>
<td>Dr Magee’s Secretary</td>
<td>01-809 4701</td>
</tr>
<tr>
<td>Dr Denton’s Secretary</td>
<td>01-809 3080</td>
</tr>
<tr>
<td>Transplant Co-Ordinators</td>
<td>01-852 8397</td>
</tr>
</tbody>
</table>

Other sources of useful information

- BEAUMONT RENAL UNIT - [www.beaumont.ie/kidneyinfo](http://www.beaumont.ie/kidneyinfo)
- IRISH KIDNEY ASSOCIATION - [www.ika.ie](http://www.ika.ie)
- IRISH HEALTH WEBSITE - [www.irishhealth.com](http://www.irishhealth.com)
- AMERICAN KIDNEY PATIENTS ASSOCIATION - [www.aakp.org](http://www.aakp.org)
- NATIONAL KIDNEY FOUNDATION USA - [www.kidney.org](http://www.kidney.org)
- PATIENT GUIDE TO KIDNEY TRANSPLANT SURGERY - [www.usckidneytransplant.org/patientguide](http://www.usckidneytransplant.org/patientguide)
Kidney Dialysis Centres

Beaumont Hospital, Dublin
Tel: 01-809 3000

Beacon Renal,
Sandyford, Dublin
Tel: 01-299 8100

Cavan General Hospital
Tel: 049-437 6620

Cork University Hospital
Tel: 021-492 0883

Daisyhill Hospital, Newry
Tel: 048-3083 5000

Fresenius Kilkenny
Tel: 056-778 3030

Fresenius Dock Road
Limerick
Tel: 061-498 040

Fresenius Northern Cross
Dublin
Tel: 01-866 1314

Letterkenny General Hospital
Tel: 074-912 3544

Limerick Regional Hospital
Tel: 061-482 377

Mater Misericordiae Hospital,
Dublin
Tel: 01-803 2400

Mayo General Hospital
Tel: 094-904 2414

Merlin Park Hospital, Galway
Tel: 091-775 575

Our Lady’s Children’s
Hospital, Crumlin, Dublin
Tel: 01-455 8111

Sligo General Hospital
Tel: 071-917 1111

St. Vincents University
Hospital, Dublin
Tel: 01-277 4427

Tallaght Hospital, Dublin
Tel: 01-414 2358

Temple Street Children’s
Hospital, Dublin
Tel: 01-878 4337

Tralee General Hospital
Tel: 066-718 4330

Tullamore Regional Hospital
Tel: 057-935 8733

Waterford Regional Hospital
Tel: 051-842 753

Wellstone Ballybrit, Galway
Tel: 091-769 796
The Irish Kidney Association Renal Support Centre has been in operation since 2000. The Centre, located in the grounds of Beaumont Hospital, just 100 metres walk from the main hospital entrance, is open all year round and provides free accommodation for all its residents, who include:

- Families of kidney patients from outside Dublin. It is available to all families no matter what Dublin hospital their family member is attending.
- Kidney patients who have to travel long distances to see their consultant as an outpatient may stay overnight.
- The Centre arranges a counselling service, as required, by outpatients and their families.
- Preference for accommodation is given to families of patients receiving transplants from deceased and living donors and families of the seriously ill.

**FACILITIES**

Ten en-suite bedrooms which can sleep up to four persons. All rooms are on ground floor level. All rooms have TV. All rooms are in direct contact to and from the hospital ward by telephone. Comfortable sittingroom/day room with satellite TV and video. Small library. Fully fitted kitchen where meals can be prepared by residents. Tea and coffee is provided for residents and guests. Laundry room with washing powder supplied. Ironing facilities are also available. Parking for overnight residents only.

The Renal Support Centre is owned and funded by the Irish Kidney Association. Donations from residents and fundraising initiatives are most welcome.

The Centre is open to residents all year round. Day facilities are available Monday to Friday from 8.30am to 4.30pm, Saturday and Sunday 12pm-4pm.
Notes

USE THIS PAGE TO RECORD ANY QUESTIONS YOU MAY HAVE FOR YOUR DOCTOR OR ANY MEMBER OF THE TEAM.
We would like to extend special thanks to the following members of the Renal Team at Beaumont for their contribution to this book.

Prof. Peter Conlon
Petrina Donnelly
Helen Dunne
Annmarie Casey
Noreen Casey
Sheila Donlon
Margie Kennedy
Nora McEntee
Johanna McWilliams
Dr. Darren Pachaippan

Cartoons and Illustrations
Des Hickey (deceased), KegKartoonz (Noel Kelly), Jazz Communications Ltd., and www.netterimages.com

Also, to the patients and staff who took time to contribute to editing this book.
Beaumont Hospital
Beaumont Road, Dublin 9
www.beaumont.ie