

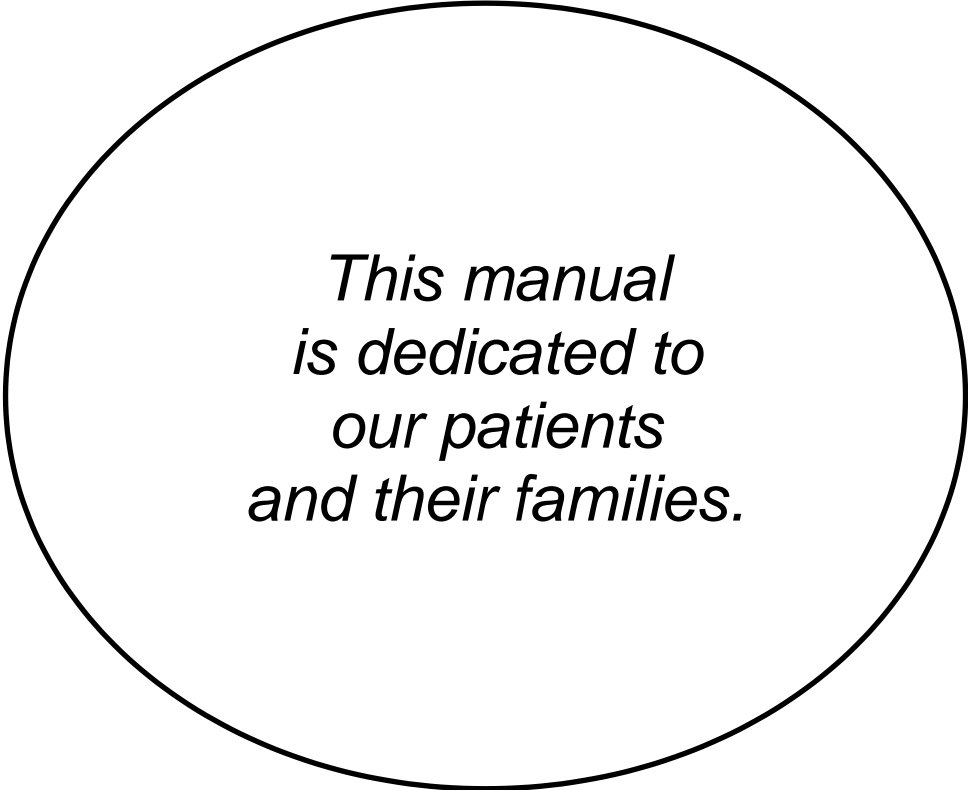
# Home Peritoneal Dialysis Unit

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## Patient Manual

12<sup>th</sup> Edition (Nov. 2024)





*This manual  
is dedicated to  
our patients  
and their families.*



## **Home Peritoneal Dialysis Unit**

**Home Dialysis Centre**  
Division of Nephrology  
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(University Health Network)  
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Canada  
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Fax: 416-340-4169

Dr. Joanne M. Bargman: Director  
Dr. Tushar Malavade

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The Home Peritoneal Dialysis Unit at the Toronto General Hospital is pleased to provide you with this patient manual. We hope you will find it useful and informative during training and while on peritoneal dialysis.

An online version of the patient manual is available in following link:  
[https://www.uhn.ca/Medicine/Clinics/Home\\_Peritoneal\\_Dialysis](https://www.uhn.ca/Medicine/Clinics/Home_Peritoneal_Dialysis)

We hope you will find the staff in the unit a source of support and information. We are always ready to help you.

Sincerely,

Your HPDU Team





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# Introduction

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# INTRODUCTION

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## **WELCOME TO THE** **HOME PERITONEAL DIALYSIS UNIT** **(“HPDU”)**

The Home Peritoneal Dialysis team welcomes **YOU** as the newest member. Your involvement and commitment and that of your partner and family is extremely important.

We will teach you all about peritoneal dialysis and be your ongoing support team. We want you and your partner/family to work with us and participate as fully as possible in the education program and follow-up visits.

We understand that your kidney disease and the need to be on peritoneal dialysis may affect many areas of your life including relationships, lifestyle, employment, finances, self-esteem and body image.

We ask you and your partner/family to read this manual to gain knowledge and understanding. The Home Peritoneal Dialysis team members are happy to discuss your questions and concerns during the education program, at follow-up clinics and by telephone.

Located at the Toronto General Hospital on the 12th Floor of the Eaton South Wing, HPDU is an Ambulatory Care Unit and can provide care for you on an out-patient basis only. (The In-patient Nephrology beds are located on the 6th Floor of the Munk Building (Munk elevators). When hospital admission is likely to be required, arrangements will be made for you to be admitted here.)

### **UNIT ADDRESS**

Home Peritoneal Dialysis Unit  
Toronto General Hospital  
of the University Health Network  
Eaton South Wing, 12<sup>th</sup> Floor, Room 425  
200 Elizabeth St.  
Toronto, Ontario M5G 2C4

## **HPDU UNIT HOURS**

**8 am to 4 pm Monday to Friday**

**( Holidays are changeable )**

**Our telephone number is 416-340-5672.**

During daytime hours, you may be forwarded to voice mail if the lines are busy. Please leave a message. If your call is not returned within thirty minutes, please call again.

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## **AFTER HOURS**

From 4pm until 11pm, Monday to Friday, a nurse from the HPDU is on call at home. Please call the nurse on call for any **urgent** problems that cannot wait until the next day (i.e. medical and dialysis problems).

### **To reach the nurse on call:**

- For touch-tone phone or non-touch tone phone, call the Hospital's Call Centre at 416-340-3155. Stay on the line until an attendant answer. Ask the attendant to page the **"HOME PD NURSE ON CALL"**. State your full phone number including area code and whether you are calling long distance.
- If you have a touch-tone phone, call the HPDU pager number 416-715-1326. After the tone, enter your phone number quickly numerically including the area code. The nurse will call you back as soon as possible.

***Reporting problems or concerns to HPDU***

***AS THEY OCCUR***

***may prevent additional problems.***

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## ON WEEKENDS

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- During weekends, HPDU is closed and nurse on-call is not available. If you are feeling unwell, do not hesitate to seek medical help. For any urgent problems that cannot wait until Monday morning, please go to a walk in clinic or emergency department of a nearest hospital. Please leave a voice message at HPDU phone and let us know that you are going to the emergency department.

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## YOUR TEAM



Your team includes the people in HPDU who will be working together to help you manage your care.

Your **Clinical Manager** is:

\_\_\_\_\_ 416-340-4800, ext. 2399

Your **Primary Nurse** is:

\_\_\_\_\_ 416-340-5672

Your **Primary Physician** is:

\_\_\_\_\_ 416-340-4800

Your **Primary Social Worker** is:

\_\_\_\_\_ 416-340-4800, ext. 3983

Your **Primary Dietitian** is:

\_\_\_\_\_ 416-340-4800, ext. 6272 / 6530

Your **Primary Pharmacist** is:

\_\_\_\_\_ 416-340-4800, ext. 6547

Your **Primary Chiropodist** is:

\_\_\_\_\_ 416-340-4800, ext. 6007

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## **DIALYSIS NURSES**

The nurses are specialists in dialysis care and will teach you the skills you need to do your dialysis.

You will be assigned to a primary nurse who is responsible for assessing you when you come to the HPDU clinic and for managing your care with the rest of the health care team. The nurses work as a team. A Charge Nurse is available by phone from 8 am to 4 pm Monday through Friday to assist you with your concerns. You may leave non-urgent messages with the HPDU office staff or on the voice mail for your primary nurse. A nurse "on call" is available after hours (4-11pm) to handle urgent medical and dialysis problems.

## **DIALYSIS DOCTORS (\*NEPHROLOGISTS)**

\*These doctors are specialists in dialysis and kidney diseases.

The doctors work as a team. You will be assigned to a primary doctor who will oversee your care and may see you at the clinic. However, you will notice that there will be a number of new doctors around during the clinics. These doctors are "residents" or "fellows" in Nephrology. They have completed their medical doctorate (MD) degrees and usually have also completed full training in Internal Medicine. Furthermore, some of these doctors also are fully trained Nephrologists in their home country, and have come to Canada to experience North American medicine.

The Directors of Nephrology Training for the Royal College of Physicians and Surgeons of Canada have increasingly recognized that doctors who are training in Nephrology are not getting enough experience in seeing dialysis patients at routine clinic visits. They are often not sufficiently prepared to start their own peritoneal dialysis outpatient clinics once they set up their own practices in Nephrology.

The HPDU at the Toronto General Hospital, University Health Network is a recognized leader in the running of peritoneal dialysis clinics. Therefore it is one of the clinics chosen to train these residents and fellows at an actual clinic setting. Therefore, when you come to clinic you may be seen by one of these residents or fellows. They will review the issues brought up by you or your primary nurse, and discuss it with one of the staff doctors (Dr. Bargman or Dr. Malavade). If you wish, or if the resident or fellow thinks that it is necessary, you can ask to also be seen by your staff doctor. As always, the blood test results will be discussed at the weekly meeting (held on Thursday) with all the dialysis doctors and nurses after the clinic.

To minimize your waiting time and keep the clinic running smoothly, it is important that you come to clinic on time.

The HPDU has been a world leader in the management of people on peritoneal dialysis, and we are proud to educate a whole new generation of kidney doctors while taking excellent care of our patients. We hope that you will share in this important task.



## **CLINICAL MANAGER**

The Manager oversees the unit's general organization. This involves dealing with patient and staff concerns and issues. The Manager is in close contact with the dialysis doctors and nurses. Please feel free to call the Manager if you have any questions or concerns about your care.

## **DIETITIAN**

When you start dialysis, your nutrition needs may change. This will depend on your appetite, the types of food you eat, your blood work and other medical conditions you may have. Your primary dietitian will meet with you during your training and work with you to develop a personalized nutrition care plan. He/she will monitor your nutrition throughout your stay with HPDU and suggest changes to the diet if needed. If you have any questions about your diet, you may follow up by phone or at clinic

## **SOCIAL WORKER**

When you are referred to our program, the social worker is available to meet with you and your partner and family to talk about social support for you and your adjustment to chronic home dialysis. A primary social worker will monitor your progress throughout your stay with our program. He/she is available to help you with various illness-related issues through personal and family counselling and/or connecting you to appropriate community resources, such as social welfare, housing, etc. You can reach the administrative assistant at 416-340-4800, ext. 3983.

## **CHIROPODIST**

A chiropodist is available during and after the HPDU clinic. Dialysis patients are often at risk for foot problems. You will be asked to see the chiropodist periodically for assessment of your feet. Please feel free to see the chiropodist in Room 1208 on 12 North Wing if you are experiencing any problems (pain, calluses, bunions, sores, etc.) or call 416-340-4800, ext. 6007.

## **PHARMACIST**

The HPDU pharmacist works with the rest of the team to help manage your medications. He/she will review your medications and help resolve any problems that you may have. If you have any questions, the pharmacist is available during your clinic visit and regular HPDU office hours. You will continue to get your pills from your local drug store.

**Please note that some injectable medications can ONLY be obtained at the Toronto General Hospital's Pharmacy (416-340-4075):**

8:00 am - 6:00 pm	Monday to Friday
9:00 am - 2:00 pm	Saturday
Closed	Sunday

## **WARD CLERKS**

The HPDU ward clerks answer the unit phone and will direct your call to the appropriate person. They can assist you with clinic appointments and general information. You can reach them at 416-340-5672.

## **HPDU TRANSPLANT CLERICAL COORDINATOR**

The HPDU Transplant Clerical Coordinator refers you to the transplant team at the doctor's request. He/she organizes the required work-up tests for transplantation and will direct your transplant inquiries to the appropriate person.

## **SENIOR DATA ENTRY CLERK**

The senior data entry clerk is responsible for entering specific patient information into a Nephrology data base program. He/she is also responsible for maintaining the inventory of all equipment loaned to HPDU patients (scale, cycler, poles, etc.).

## **HPDU ADMINISTRATIVE ASSISTANT**

The administrative assistant supports the Clinical Manager with administrative responsibilities. He/she is also responsible for coordinating the Patient Advisory Committee meetings.

## **DIALYSIS SUPPLIERS**

A dialysis supply company delivers peritoneal dialysis supplies to your home. The customer service representative is very knowledgeable and willing to help you with your supply order. You will receive your supplies from either Vantive or Fresenius Medical Care. If you use PD supplies manufactured by Baxter, Vantive is your PD supplier. If you use PD supplies manufactured by Fresenius, Fresenius will be your supplier. Your primary nurse will advise you from which company you order.

Vantive customer service representative  
(Baxter products)  
can be reached at  
1-866-968-7477 then press 1

Fresenius customer service representative  
(Fresenius products)  
can be reached at  
905-770-0855 then press 2, or if long distance at 1-888-709-4111



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## HOME DIALYSIS PROGRAM

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**VISION:** *To be an internationally recognized leader in home peritoneal dialysis and in home hemodialysis.*

**MISSION:** *To provide and foster excellence in health care, education and research -- as embodied in the following values:*

- *Partnership with patients, families and the health care community.*
- *Mutual trust, respect and dignity.*
- *Expert, compassionate and humane care.*
- *Respect for individual differences, cultural values and beliefs.*
- *Professional accountability, integrity and honesty.*

**GOALS:**

- *To form a partnership with patients and families which recognizes and supports them in their goals, rights and responsibilities.*
- *To provide comprehensive care which empowers the patient and his/her family to achieve maximum health, well-being, independence and quality of life .*
- *To promote a climate of collaboration, creativity and innovation and safety.*
- *To encourage continuing education of patients, family members and multidisciplinary staff.*  
*practice, resulting in continuous quality improvement.*
- *To continue involvement in collaborative and/or individual research studies.*
- *To facilitate internal, community and international exchange of knowledge and experience.*

**April 2008**

# How Do Kidneys Work?

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## HOW DO KIDNEYS WORK?

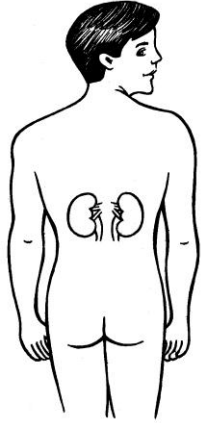
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## HOW DO HEALTHY KIDNEYS WORK?

### 1. WHAT ARE THE KIDNEYS AND WHERE ARE THEY LOCATED?



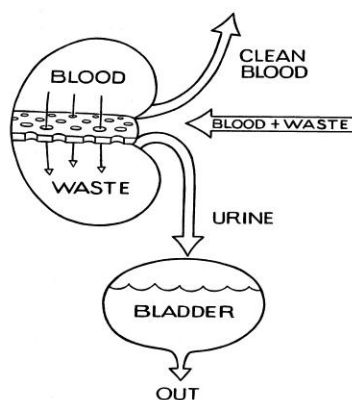
The kidneys are two bean-shaped organs about the size of your fist. They are located on the back of your body, on either side of the spine at waist level.

### 2. WHY ARE THE KIDNEYS SO IMPORTANT?

The kidneys clean the blood. Blood moves through the veins and arteries. The blood carries substances the body needs, as well as waste products (poisons) and extra water which the body does not need.

The kidneys take the waste products that your body does not need out of your blood. They leave the substances your body needs to be healthy in the blood. The kidneys keep the body and blood in balance. You can see why the kidneys are important: ***they keep you healthy!***

### 3. HOW DO THE KIDNEYS WORK?



The kidneys are made up of millions of little filters. Blood travels through the arteries and enters the kidneys. The blood then passes through all the little filters. The filters clean the blood. The cleaned blood returns to the bloodstream.

The filtering process in the kidneys removes waste products and extra water from the blood. This extra waste and water form urine. The urine leaves the kidneys, and travels down little tubes to the bladder. The urine sits in the bladder until you release it from your body by urinating.

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## 4. WHAT ARE THE MAIN JOBS OF THE KIDNEY?

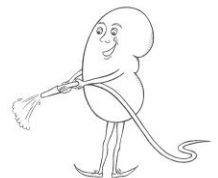
### **REMOVING WASTE PRODUCTS:**

The kidneys have the job of removing waste products from the body. The two most common types of waste that kidneys remove are “urea” and “creatinine”. The amount of urea and creatinine in the blood indicates how well the kidneys are working. Having some urea and creatinine in your blood is normal. Having too much of these waste products in your blood makes you sick.



### **FLUID CONTROL:**

Normal kidneys control how much fluid stays in your body and how much you release as urine. For example, if you are sweating a lot your kidneys will produce less urine because your body needs to keep more fluid.



### **CONTROLLING BLOOD PRESSURE:**

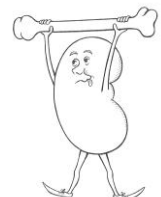
Blood pressure is the force that the blood exerts against the blood vessel walls. You need to keep your blood pressure at a healthy level. If your blood pressure is too high your heart works too hard. Healthy kidneys keep blood pressure at the right level.

### **MAKING RED BLOOD CELLS:**

The kidneys produce a hormone called erythropoietin. It helps the bone marrow to make red blood cells. If you don't have enough red blood cells in your blood you feel tired. Your kidneys help your body to make the right amount of red blood cells to keep you feeling strong and healthy.

### **HEALTHY BONES:**

The kidneys control the amount of phosphate in the blood. Too much phosphate causes calcium to come out of the bones making them weak. The kidneys also release Vitamin D which the body uses to keep bones healthy. Kidneys play a big part in keeping bones healthy.



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## 5. WHAT HAPPENS WHEN THE KIDNEYS FAIL?

When your kidneys fail, these five important jobs are not carried out properly inside the body. The result is that you stop feeling healthy and strong. Now that you know all the important things your kidneys do, you can understand why you are not feeling well because your kidneys are failing.

**FEELING SICK:** Because the kidneys are not removing the extra waste products from your blood, the waste products build up inside you and make you feel sick. The extra urea in your blood is called uremia. Uremia can cause tiredness, confusion, nausea, vomiting, itchiness and poor appetite.

**LOOKING PALE OR FEELING TIRED:**

Because your kidneys are not able to help your body make enough red blood cells, you feel tired, lack energy, and perhaps look pale. Decreased hemoglobin and decreased red blood cells in the blood is called anemia.



**HAVING PUFFY SKIN:**

When your kidneys aren't able to remove extra water, fluid starts to collect in the body tissues. You may notice swelling in your ankles or around your eyes. If fluid builds up in your lungs, you may feel short of breath.

**HAVING DECREASED URINE OUTPUT:** Your body may still produce urine even though your kidneys are not healthy. However, this urine is not like normal urine. It does not contain the normal amount of waste products. The amount of urine you pass does not necessarily show how well your kidneys are working.

**HAVING A BAD TASTE IN YOUR MOUTH:** Because the kidneys aren't getting rid of the wastes such as urea, they are building up in your blood. This may cause bad breath, loss of appetite and a bad taste in your mouth.

Kidneys stop working for a number of reasons. Diabetes, glomerulonephritis (an inflammatory disease affecting the clusters of capillaries glomeruli in the outer covering of a kidney), high blood pressure and polycystic kidney disease are some common reasons. Talk with the nurse or doctor to learn more about the reasons your kidneys are no longer healthy.

Kidney failure does not mean that you will always feel unwell. Dialysis helps remove extra wastes and water from your blood. You need to control the amount of fluid you drink and may need to limit some kinds of foods in your diet.

By taking care of yourself and doing your dialysis as we show you, you may feel well enough to do things you like to do even though you have kidney failure.



## **REVIEW QUESTIONS**

- 1. Where are your kidneys located?**
- 2. What are the five basic jobs of the kidney?**
- 3. Why may you feel tired when you have kidney failure?**
- 4. What causes puffy ankles?**
- 5. What causes you to feel sick?**

# **Principles of Peritoneal Dialysis**

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# PRINCIPLES OF PERITONEAL DIALYSIS

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## **HOW PERITONEAL DIALYSIS WORKS**

### **1. WHY DO YOU NEED DIALYSIS?**

Healthy kidneys work 24 hours a day, 7 days a week to keep your body in balance. Nutrients in your food go into the blood to give you energy and keep you healthy. Kidneys keep the good things in blood, and get rid of what the body doesn't need. Your kidneys are not healthy because they have stopped working properly. Now you need dialysis to clean your blood. Peritoneal Dialysis and Hemodialysis are the two different kinds of dialysis. Both clean the blood when the kidneys stop working.

### **2. WHAT DOES DIALYSIS DO?**

Remember the kidneys have 5 main functions to keep your body healthy.

1. To remove waste products from your blood.
  2. To remove extra water from your blood.
  3. To help control your blood pressure.
  4. To help make red blood cells.
  5. To help keep bones healthy.

Dialysis is responsible for removing waste products and extra fluid from your blood. Dialysis, medications, and healthy eating habits all work together to help replace part of the kidneys' function.

### **3. WHAT IS PERITONEAL DIALYSIS?**

Peritoneal Dialysis uses your body's own peritoneal membrane in the peritoneal cavity to help replace your kidneys' functions. The peritoneal membrane is like a thin stretchy bag inside your belly. This bag holds your stomach, intestines, liver and other organs in place.

The peritoneal membrane contains many blood vessels. Waste products and extra water move from the blood vessels into fluid in the peritoneal cavity with peritoneal dialysis.

#### **4. HOW DOES PERITONEAL DIALYSIS WORK?**



In peritoneal dialysis, special fluid called dialysate flows into your peritoneal cavity through a catheter. This permanent catheter is a small tube about the size of a pencil made out of soft flexible rubber. The tube is inserted through your skin near your belly button. This catheter runs dialysis fluid into and out of your peritoneal cavity. The dialysate inside your peritoneal cavity works 24 hours a day, 7 days a week to remove the waste products and extra fluid from your blood.

#### **5. HOW DOES PERITONEAL DIALYSIS CLEAN THE BLOOD?**

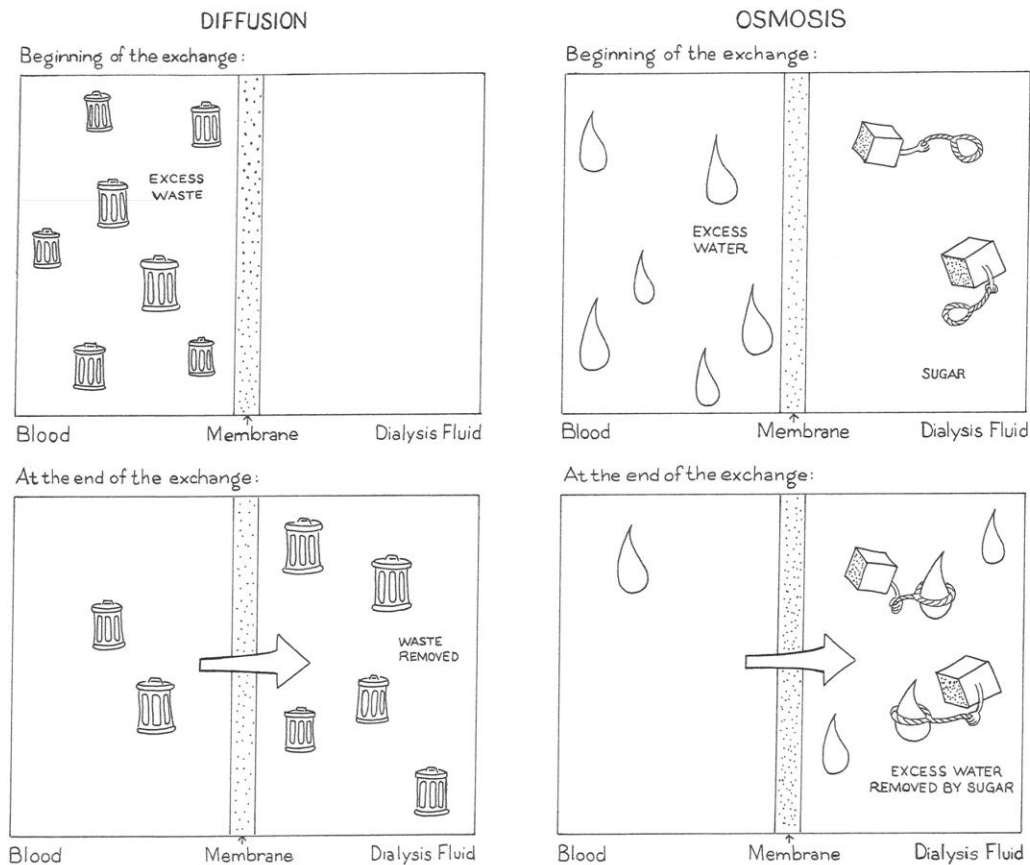
Peritoneal Dialysis uses your peritoneal cavity to filter and clean your blood. Your peritoneal cavity has a good blood supply. All of your body's blood supply passes through the vessels around the peritoneal cavity over and over throughout the day. As time passes, eventually all of your blood gets cleaned. How does this happen?

The peritoneal membrane is “*semi-permeable*”, which means it has millions of tiny holes in it. It is like a filter or a screen. These holes allow the waste products (poisons) to go across the peritoneal membrane. When dialysis fluid is put inside the peritoneal cavity, it causes waste products to move out of the bloodstream and go through the tiny holes to the inside of the peritoneal cavity. The dialysis fluid gently pulls the waste products and water out of the blood and into the dialysis fluid which is then drained out.

The processes of gently pulling waste and water out of the bloodstream are called diffusion and osmosis.

#### **6. WHY DO WASTE PRODUCTS AND EXTRA WATER GO INTO THE DIALYSIS SOLUTION?**

Millions of tiny chemical substances make up the dialysis solution in your peritoneal cavity. These substances are “*electrolytes*” and “*minerals*”. Sodium and potassium are electrolytes and calcium is a mineral. They are normally in your blood. The peritoneal cavity's semi-permeable membrane separates the electrolytes and minerals in the blood and those in the dialysis solution.



These electrolytes and minerals float through the tiny holes in the peritoneal membrane from one side to the other. They always float from the side that is crowded with electrolytes and minerals to the side that is less crowded. For example, the blood has more sodium than the new dialysis solution. The tiny sodium particles will slowly move from the blood through the membrane into the dialysis solution. This natural process is called "*diffusion*". You won't feel it happening inside of you. Eventually equal amounts of sodium will appear in the blood and the solution.

Each substance moves from the more crowded side (the blood) to the less crowded side (the solution) at the same time. Diffusion stops after approximately four to six hours when the two sides of the membrane become equally crowded.

Water in the blood moves through the membrane into the solution in a similar way. There is more water in the blood so it floats through the tiny holes in the membrane into the dialysis solution. Sugar has a special way of "pulling" water from one place to another. If you put sugar on strawberries, the sugar will pull the extra water out. Using sugar to pull water from the blood through the peritoneal membrane is called "*osmosis*". It is a natural process. Extra water that moves from the blood into the solution in the peritoneal cavity is called "*ultrafiltration*".

The more sugar used in the bag of dialysate, the more water it pulls from the blood.

We call each solution change an "*exchange*".

## **7. WHAT KINDS OF PERITONEAL DIALYSIS ARE THERE??**

There are two types of Peritoneal Dialysis available: **CAPD** and **APD**

### **I. CAPD -- stands for**

#### **Continuous Ambulatory Peritoneal Dialysis**

This is the type of Peritoneal Dialysis where you do exchanges three to five times a day, seven days a week.



#### **C – CONTINUOUS:**

Dialysis fluid is always inside your peritoneal cavity cleaning the blood. This happens continuously, except for the short time while you drain the solution out and fill with new solution.

#### **A – AMBULATORY:**

This means that between exchanges you are able to move around and go about your normal activities.

#### **P – PERITONEAL:**

This type of dialysis uses your body's own peritoneal membrane to clean the blood.

#### **D – DIALYSIS:**

Dialysis is the process of removing waste products and fluid from the blood.

You can do exchanges at home, at work, or other places you visit. Every exchange takes about 30 minutes.

Patients doing 4 peritoneal dialysis exchanges a day may follow one of the following schemes:

a. *For someone at home:*

8 a.m.  
12 noon  
6 p.m.  
12 midnight

b. *For someone who works:*

6 a.m.  
12 noon (bag change + lunch)  
6 p.m.  
10 p.m.

c. *For someone going out to dinner:*

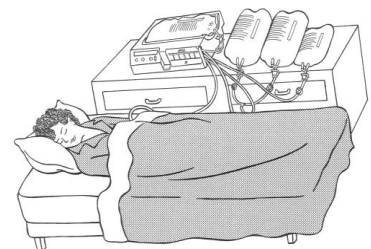
6:30 a.m.  
12:30 p.m.  
4:30 p.m.  
10:30 p.m.

Strictly adhering to timing is not necessary as long as you space your exchanges over the 24 hours as evenly as possible. We recommend a maximum dwell time of 9 hours, unless dwelling with a recommended dwell of 8-14 hours with a specialty solution.

## II. **APD** -- stands for

### **Automated Peritoneal Dialysis**

This type of Peritoneal Dialysis uses a machine called a cycler to do your dialysis at night. With APD, you set up the cycler before bedtime, connect yourself to the tubing and the cycler does the exchanges for you while you are sleeping over a time of 8-10 hours. Your daytime may be free from exchanges, though you will keep solution in your peritoneal cavity all day.



The HPDU Team will help you to decide which type of peritoneal dialysis is best for you.



## 8. **WHAT IS A PERITONEAL DIALYSIS EXCHANGE?**

Peritoneal dialysis involves doing exchanges every day. In each exchange, you drain the old dialysis fluid out of your peritoneal cavity and replace it with new fluid. In other words, you are exchanging the old fluid for new fresh fluid. You will learn how to do exchanges yourself.

An exchange consists of several steps:

### I. **DRAIN**

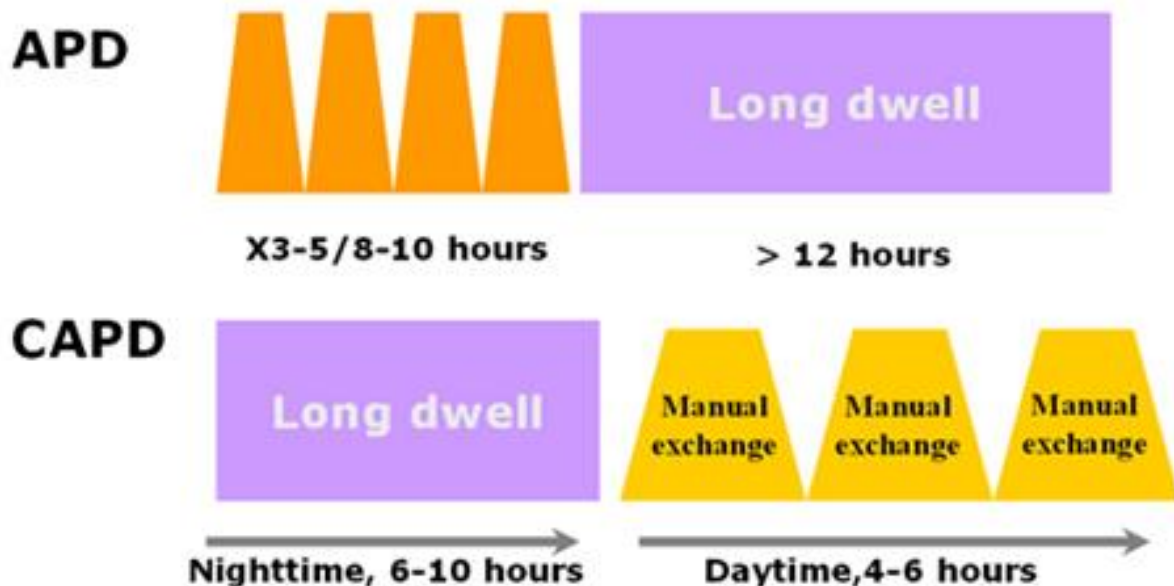
This means letting the dialysis fluid which is inside your peritoneal cavity drain out through your catheter. The fluid has been in your peritoneal cavity, cleaning your blood, for about 4 to 6 hours. Your nurse will show you how to drain. Draining normally takes 10 to 20 minutes.

### II. **FILL**

This means putting new fluid into your peritoneal cavity. This usually takes about 10 minutes. Your nurse will show you how to fill. After you have filled, you may go on with your daily activities.

### III. **DWELL**

This means letting the fluid stay inside your peritoneal cavity to continuously clean your blood. Dialysis works during this dwell time. You will have fluid dwelling in your peritoneal cavity for approximately 4 to 6 hours before you do another exchange. You may feel the fluid inside you at first. Eventually your body will adjust.



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## **REVIEW QUESTIONS**

- 1. What does dialysis do?**
- 2. What is a semi-permeable membrane? What is the membrane used in peritoneal dialysis?**
- 3. What is osmosis and ultrafiltration?**
- 4. What are the two types of peritoneal dialysis available?**
- 5. Why do you need dialysis?**
- 6. How does peritoneal dialysis work?**
- 7. What are the steps involved in doing an exchange?**
- 8. What does CAPD stand for?**
- 9. What does APD stand for?**

# **Aseptic Technique (Cleansing)/ Handwashing/ Germs**

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# **ASEPTIC TECHNIQUE (CLEANSING) / HANDWASHING /GERMS**

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# WHY ARE WE SO CONCERNED ABOUT

# GERMS?

The peritoneal cavity is normally free of germs. A germ-free area is “*sterile*”. To protect yourself and to avoid getting an infection, you must keep everything that comes in contact with the peritoneal cavity sterile.

These things MUST REMAIN sterile:

- the dialysis fluid
- the short tubes that come out of the bag ("medication ports")
- each end of the tubing
- the insides of the tubing
- the end of your catheter (i.e. "transfer set" or "catheter adaptor")
- any needles which you use to add medication to the dialysis solution

Getting germs on sterile equipment “*contaminates*” it and makes it no longer sterile.

The 3 areas where germs are most likely to enter the peritoneal cavity are:



1. Dialysis tubing.
2. Transfer set/catheter adaptor.
3. Catheter exit site.

Sometimes constipation or diarrhea can cause germs from your bowel to move into the peritoneal cavity.

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## WHERE DO GERMS COME FROM?

Germs are invisible and you can only see them under a microscope. Although you cannot see them, you are exposed to millions of germs every day. They are always around you and usually they are harmless. They live on surfaces, on skin, on equipment, in noses and mouths – in fact, they are everywhere.

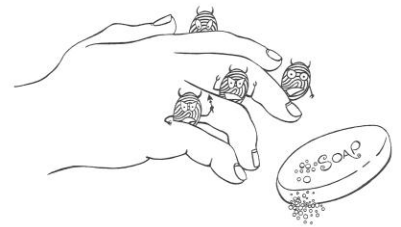


Germs can multiply very quickly and are dangerous because they can cause infections. They like to grow in warm, moist places like the peritoneal cavity. **“Peritonitis”** is an infection inside your peritoneal cavity. It can interfere with your dialysis. We will discuss this in detail in the section “Peritonitis”.

## HOW CAN YOU KEEP GERMS FROM SPREADING TO YOUR PERITONEAL CAVITY?

### 1. WASH YOUR HANDS CAREFULLY.

Washing your hands well for two minutes before every exchange is VERY IMPORTANT in preventing infections. Germs live on the skin. Germs are always on your hands, especially the areas beneath your fingernails and between your fingers. Good hand-washing will decrease the number of germs on your hands, and help keep germs from spreading. Your nurse will show you the best way to wash your hands.



Remember that even when your hands are very clean, they are never sterile or completely free from germs.

Handwashing gets rid of some germs, but not all of them.



During the exchange procedure, if you touch or sneeze on **sterile** equipment, you will have contaminated it with germs! You must stop and throw it away and start again. It is not sterile even if it looks clean.

Put on a new mask before handwashing prior to every exchange. Make sure both your nose and mouth are covered by the mask. Remove your watch, bracelet, and rings and cut long fingernails.

Remember – washing your hands is one of the most important parts of the exchange. You should wash your hands well with plenty of soap and water or alcohol based hand sanitizer before every exchange and before doing your catheter exit site care. Be sure to wash well between your fingers and underneath the nails. Good handwashing will take two minutes each time.

Dry your hands thoroughly with a disposable paper towel. Do not touch anything after you have washed and rinsed your hands. Use a paper towel to touch the faucets when you turn off the water. Sometimes you may forget your hands are clean and touch your hair or scratch your nose. If you do touch something after you wash your hands, just go back and wash them again right away before you start your exchange.

Remember – even when your hands are clean, they are not sterile! Do not touch things that must remain sterile.

## **2. DO YOUR EXCHANGES JUST AS WE SHOW YOU EVERY TIME!**

Doing your peritoneal dialysis exchanges exactly as the nurse teaches you will decrease your chances of getting germs into the peritoneal cavity. Always pay attention so you do not contaminate your sterile supplies. You must wear a mask to prevent germs from your nose and mouth from getting into the tubing or connections when you do an exchange. Avoid haste, shortcuts and distractions.

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### 3. **KEEP YOURSELF CLEAN.**

You must keep yourself and your clothes clean. This will reduce the number of germs on your skin and around your catheter. This will help keep germs from spreading into your peritoneal cavity during exchanges, and will keep germs away from your exit site.

Showering (**not** a tub bath) is the method of keeping clean with a peritoneal dialysis catheter. You can take tub baths only if you have a presternal catheter, ensuring it does not go into the water. Keeping your body and your exit site clean is important. We discuss this in detail in the section on exit site care.

### 4. **MAKE SURE YOUR EXCHANGE AREA IS CLEAN.**

Keep the area where you do your exchanges clean, dry and well lit. Use a clean, flat work surface large enough for your supplies. A counter top or table which you can wipe clean works well. We recommend that you clean dialysis equipment and the work area once weekly. Please discuss this with the nurse.



Do **not** allow pets in the area while you do your dialysis, or in the room where you store your equipment.

Close the door to the room when you are doing an exchange. Avoid distractions which may cause you to accidentally make a mistake or contaminate your tubing. Pay attention to what you are doing each and every time you do an exchange. If you are careless, you may contaminate!

### 5. **AVOID CONSTIPATION OR DIARRHEA.**

Germs are normally found in the bowel or intestines. You need them there to help digest food. However, when you become constipated or have diarrhea, the bacteria or germs in the bowel can move from the bowel into the peritoneal cavity. This may cause an infection.

You must prevent constipation while you are on peritoneal dialysis. The nurse and doctor will give you suggestions on how to prevent constipation by healthy eating or taking medication.

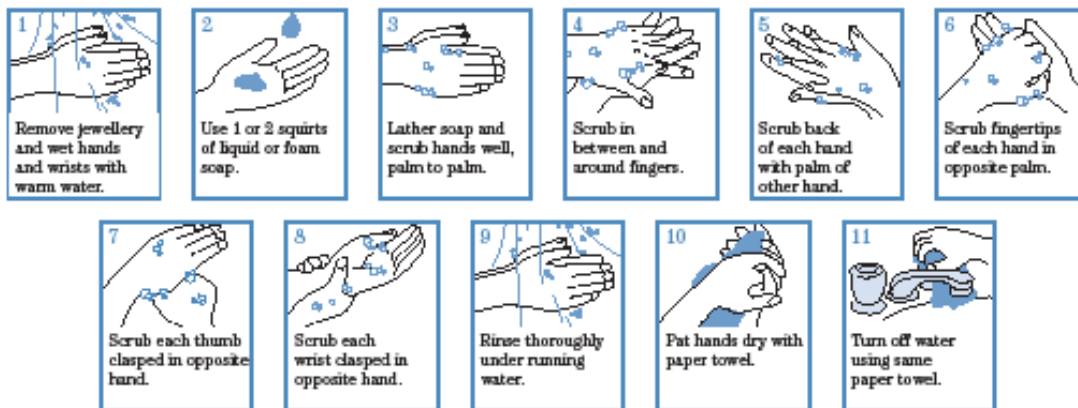


Remember, to prevent infections you must:

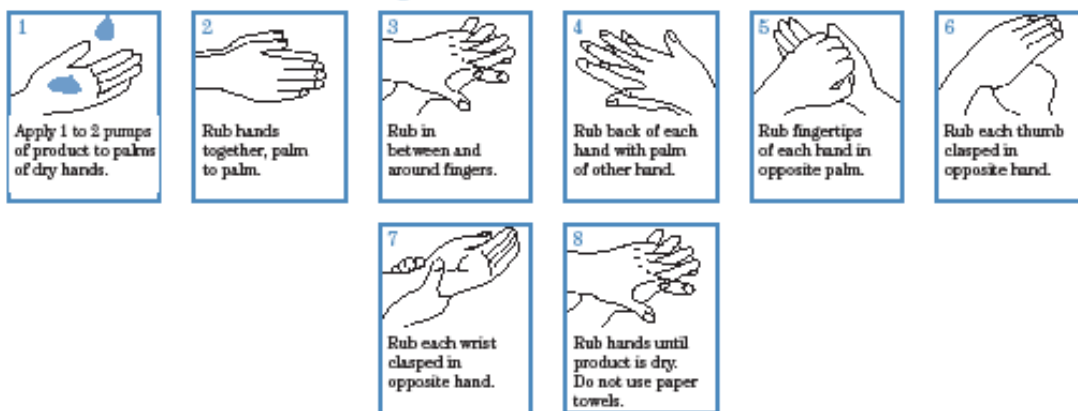
- Do your exchanges just as we show you every time!
- Be careful not to sneeze on sterile supplies or touch sterile parts!
- Keep yourself clean.
- Do your exchanges in a clean and quiet area.
- Avoid constipation and diarrhea.

## ***PREPARING YOUR HANDS***

### Handwashing with soap and water



### Cleaning with alcohol-based hand rub



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Washing makes your hands and forearms clean but not sterile. Never cheat on the time required for washing as this can lead to infections. Use alcohol-based hand sanitizer for 30 seconds, or wash your hands for two minutes.



1. Wear a mask covering both your nose and mouth.



2. Remove all watches, rings, and bracelets.



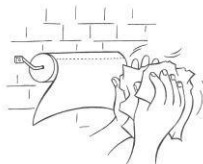
3. Adjust tap water to lukewarm.



4. Wet your hands. Cover your hands generously with suds using your own bar of soap.

Wash your fingertips, up and between your fingers, the back and palm of each hand, and wrist.

Holding your hands upward, let the running water rinse the soap off. Rinse well.



5. Dry off with a clean paper towel.



6. Shut off the taps using the paper towel rather than your clean hands.

Now your hands ARE CLEAN, **NOT STERILE**.  
This applies to both hand-rubbing and handwashing.

## **REVIEW QUESTIONS**

- 1. Why must you keep germs from entering the peritoneal cavity?**
  
- 2. Name the three areas where germs are most likely to enter the peritoneal cavity.**
  
- 3. Name three things you can do to prevent getting an infection.**
  
- 4. What is the difference between sterile and clean?**

# **Peritoneal Dialysis**

## **CAPD + APD**

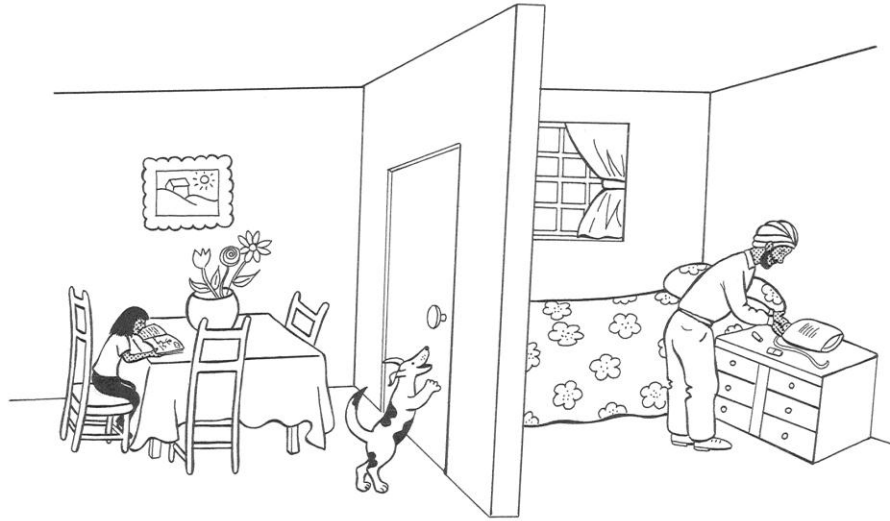
# PERITONEAL DIALYSIS - CAPD + APD

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## **WHERE SHOULD YOU DO YOUR DIALYSIS?**

You can do your dialysis almost anywhere. This is one of the benefits of CAPD – it is very flexible and you do not have to do your exchanges in the same place every time. When choosing a place to do an exchange, use the following rules:



- A. The area where you do an exchange should be clean, dry, and away from drafty air. Make sure there are no fans on, and no windows open. This will reduce the germs in the air. Use a table or counter top which you can wash easily.
- B. The area should be well lit.
- C. Keep pets out of the area when you are doing an exchange. Pets carry germs that can cause infections. They like to lie on warm bags and think moving tubing is fun to play with!
- D. Avoid distractions. Close the door. Ignore the phone. Ignore the doorbell.

You should remember these rules when you choose a place to do an exchange.

---

## **WHAT PD EQUIPMENT WILL YOU USE,** **AND WHAT DOES EACH PIECE DO?**

Many different CAPD systems are available. We selected the system you are on as the one that suits you best. The nurse will have more information to tell you about your system. Some supplies are the same for each of the various CAPD systems.

### **A. DIALYSIS SOLUTION BAGS**

These bags contain the fluid which goes into your peritoneal cavity. This dialysate fluid removes waste products and extra fluid from your blood. These bags come in different sizes, for example 2000 mL, 2500 mL, 3000 mL, 5000 mL, etc. They also come in different strengths (0.5%, 1.5%, 2.5%, 4.25% or 7.5%) depending on the percent of dextrose, or sugar, they contain. A dialysis bag with a larger percent of sugar is a “stronger” bag. We will teach you how to select the solution you need for each exchange according to your weight and how much fluid you need to lose from your body.

The fluid inside the bag is sterile and completely germ-free. An outer wrapping keeps the bag clean. There may be moisture inside the outer wrapping. This is harmless. (A small quantity of condensation from the steam sterilization process can be trapped between the pouch and the solution bag. Such droplets will disappear over the shelf life of the product. The presence of small volumes of liquid in the over pouch has no adverse effect on the safety or efficacy of the solution.) Wipe the bag dry. Check for leaks, as instructed by your nurse. Check the expiration date on the bag. If the date has passed throw it away.

Before using a bag of dialysate, you should check for six things:

- P -- Ports - are they covered with a tab?**
  - L -- Leaks anywhere on the bag?**
  - A -- Amount, or size of the bag (2000 mL, 2500 mL, etc.).**
  - C -- Clarity of solution.**
  - E -- Expiration date.**
  - S -- Strength of the solution (0.5%, 1.5%, 2.5%, 4.25%, 7.5%).**

Check the bag closely before each exchange. Do not use defective bags. Bring them to the next HPDU Clinic to show the nurse. If you find many defective bags, report this to HPDU and your dialysis supply company.

Each dialysis bag has a medication port. Remember this port is sterile. Do not contaminate it by touching the end or sneezing on it! The nurse will teach you how to add medications if required.

---

### CYCLER DIALYSIS BAGS

These bags have two ports. The longer port is the outlet port. The outlet port is covered with a coloured plastic pull ring. This is where the fluid will come out of the bag. You will connect the tubing into the bag through the outlet port.

### Manual Dialysis Bags

The fill bag and drain bag are in one package. The bag has a medication port and a connection line which is covered with a plastic pull ring or a protection cap. You will connect this to the transfer set or catheter adaptor.

## **B. DIALYSIS CLAMPS**

You use these blue plastic clamps on the dialysis tubing (Twin Bag system). The nurse will show you the proper way to hold and place the dialysis clamp. These clamps are not sterile, but should be kept clean by washing in soap and water. Make sure the clamps are dried completely. You should store the clamps in an open position.

## **C. TRANSFER SETS (Baxter Dialysis equipment)**

A transfer set protects your catheter and allows the Twin Bag or Home Choice (Baxter Dialysis equipment) tubing to be connected to your catheter. The transfer set is very important because it avoids pulling and tugging on your catheter. It is always attached to your catheter. A nurse will change it for you every six months. Remember that the end of your transfer set must remain sterile. DO NOT TOUCH THE END OF YOUR TRANSFER SET IF THE CAP IS OFF!!

If you are using Baxter Dialysis equipment, your transfer set looks like:



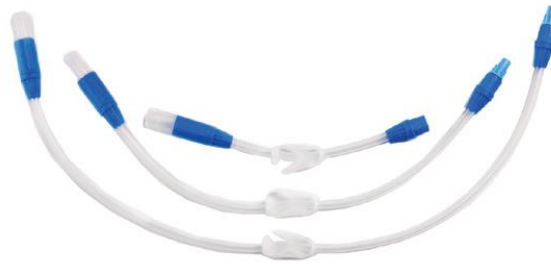
## **D. CATHETER EXTENSIONS (Fresenius Dialysis equipment)**

The catheter adaptor protects your catheter and allows Harmony cyclor (Fresenius Dialysis equipment) tubing to be connected to your catheter. The catheter adaptor is very important because it avoids pulling and tugging on your catheter. It is always attached to your catheter. A nurse will change it for you every six months.

Remember that the end of your catheter adaptor must remain sterile. DO NOT TOUCH THE END OF YOUR CATHETER ADAPTOR IF THE CAP IS OFF!!



If you are on the Stay Safe or the Fresenius cyclor your catheter adaptor looks like:



**E. ROLLER CLAMPS (Baxter Dialysis equipment)**

The transfer set has a clamp on it which acts as an on/off switch. To open the transfer set turn the roller clamp. This lets fluid flow in and out. You twist it again to close it. Never open the roller clamp unless you are connected to dialysis tubing. This roller clamp controls the inflow and outflow rate.

**F. DISCONNECT CAPS OR MINICAPS (Baxter Dialysis equipment)**

At the end of each dialysis treatment, put a new disconnect cap on your transfer set. A sponge soaked with disinfectant lines the inside of the minicap. The inside is *sterile*, and *you must not touch the sponge which comes in contact with your transfer set*. The disconnect cap will keep germs from entering the catheter and the peritoneal cavity. Check the expiration date printed on the minicap package. You should not use a minicap if it has expired -- throw it away.

**G. DISINFECTION CAPS (Fresenius Dialysis equipment)**

At the end of each dialysis treatment, screw the catheter extension onto the new disinfection cap. The end of the catheter adaptor will soak in a disinfectant that is in the end of the tubing. This will keep germs from entering the catheter and the peritoneal cavity.

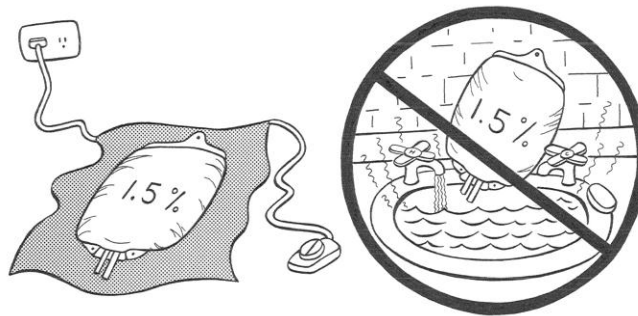
**H. MASKS**

You must wear a mask during the exchange procedure. This prevents germs from your nose and mouth contaminating sterile parts of your equipment. Discard your mask after each use.

## CAPD

### HOW SHOULD YOU WARM THE DIALYSATE FLUID?

Cold dialysis fluid can be uncomfortable for you so you should warm the solution before you use it. Many people put their bag on a heating pad left on LOW to warm their fluid to a comfortable temperature.



Do NOT put the bag in warm water because germs can be found in warm water. Always use dry heat such as a heating pad. You should practice warming the bags with the nurse so you learn how warm they should be. You can hurt yourself if the fluid is too hot. DO NOT use a microwave to heat your dialysis bag – it is very easy to scar and damage your peritoneal membrane by using an overheated dialysis bag.

### HOW OFTEN WILL YOU NEED TO DO YOUR EXCHANGES?

Most people need to do three to five exchanges every day. An exchange means draining old fluid out of your peritoneal cavity and then filling it with new fluid. The doctor will prescribe the number of exchanges you need. Generally, you should try to do your exchanges at regular intervals throughout the day. Do exchanges about four to six hours apart. Do the last exchange just before you go to bed at night. Do another exchange first thing in the morning. You should not have to interrupt your sleep time to do an exchange.

Many people do their exchanges around meal times and at bedtime. Remember that CAPD is flexible and you should fit your exchanges into your schedule. For example, you may normally do your exchanges at 8 am, 1 pm, 6 pm, and 11 pm. But if you go out shopping in the morning and do not return until 2 pm, it is okay to do your second exchange at that time. Remember do not skip exchanges ... Instead, adjust your exchange times.

Over time you may notice a decrease in the amount of urine you pass. This occurs because your kidney disease progresses and your kidneys gradually lose the ability to make urine. When this occurs, you may need to increase the volume or number of exchanges. To determine if you are getting enough dialysis, you need to bring a 24 hour urine collection to clinic every other clinic.

The goal in deciding when to do your exchanges is to fit your exchanges around your lifestyle, not your lifestyle around your exchanges. Remember, you dialyze to live, not live to dialyze!

## **HOW DO YOU PROPERLY DISPOSE OF THE CAPD DRAINED FLUID AND USED TUBING?**

To dispose of your used dialysis fluid, carefully cut the bag and empty the fluid into the toilet. Put the used tubing and empty used bag into a plastic green or black garbage bag with the rest of the garbage. Good handwashing is important after draining the used bag.

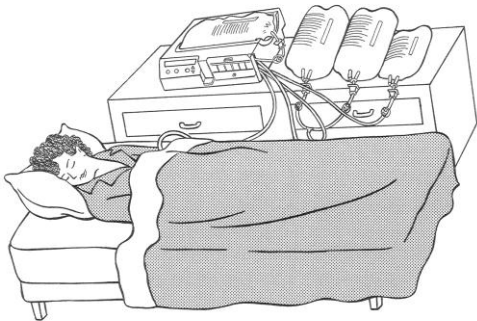


## **REVIEW QUESTIONS**

- 1. Where can you do your exchanges?**
- 2. Name all the CAPD supplies you will need.**
- 3. How should you warm your dialysis bags?**
- 4. How do you properly dispose of the CAPD drained fluid and used tubing?**

# APD

## HOW DOES APD WORK?



APD stands for *Automated Peritoneal Dialysis*. In this form of peritoneal dialysis, you use a machine to perform your exchanges every night while you sleep. (Sometimes we call this therapy CCPD which stands for *Continuous Cycling Peritoneal Dialysis* ; or NIPD—*Nightly Intermittent Peritoneal Dialysis*. ) After you set it up, the machine will automatically warm the solution, fill your peritoneal cavity with the right amount of solution, allow the solution to dwell in your peritoneal cavity for the correct amount of time, and then drain

the solution. You will have the cycle of fill, dwell and drain repeated several times during the night over 8 to 10 hours. This happens while you are sleeping.

On APD, most of the exchanges you need take place during the night. Before you get up in the morning, most patients will have the cyclor fill them with some solution that they will keep inside their peritoneal cavity all day. This is called a “wet day” (CCPD). Some patients may also do an exchange during the day. This is called “enhanced CCPD”. A few patients will have the cyclor drain them and the peritoneal cavity stays empty all day. This is called a “dry day” (NIPD).

## HOW DOES A CYCLER WORK?

The machine you will use is called a cyclor because it automatically “cycles” fluid in and out of your peritoneal cavity. On APD, you have to set up the machine and connect the tubing set to your transfer set or catheter extension before bedtime. The machine does your exchanges during the night. When you wake up you disconnect from the tubing set.

Setting up the cyclor involves loading the machine with solution bags and a disposable cyclor set. This special cyclor set has tubes that carry the solution from the bags, to and from your peritoneal cavity.

If you choose to share your data with clinic, you will connect your PD cyclor to a cellular modem. You will enter your blood pressure, weight, and concentration of PD bags daily into PD cyclor and these data will create your PD daily report online. If you choose not to share your data with clinic, you will not use the cellular modem and will not enter these data.

We will teach you how to set up the machine, how to connect and how to disconnect yourself. You will also learn how to respond to alarms and correct problems that may occur during the night.

After practice, most people can set up their cyclers in 30 minutes. If you have problems with your vision, or have difficulty doing your own dialysis, the nurse can teach someone in your family to set up the cycler for you and how to respond to the alarms or a visiting nurse can set up the cycler for you.

## **HOW DO YOU PROPERLY DISPOSE OF THE APD DRAINED FLUID AND USED TUBING?**

HPDU advises patients to drain the fluid into a 20 litre gasoline tank. The tank can be purchased from Canadian Tire, Walmart, other retail sellers. Alternate strategies for draining the fluid can be discussed with your nurse. At the end of the dialysis treatment, the fluid should be emptied into the toilet or bathtub. The tank should be rinsed after each treatment with warm water and bleach (1:10 dilution) to prevent bacterial growth.

To dispose of your unused dialysis fluid, carefully cut the bag and empty the fluid into the toilet. Put the used tubing and empty used bags into a plastic green or black garbage bag with the rest of the garbage. Good handwashing is important after disposal of used bags and tubing.

For your safety and the safety of others, never throw needles out with household trash. Contact your municipal government for more information.

## **TORONTO HYDRO'S LIFE SUPPORT SYSTEM USERS SERVICES**

We recommend all patients who use the cycler sign up with the Toronto Hydro "Life Support System Users Services" program. This program has a directory that identifies residents in the city of Toronto who are dependent on electricity for life support. Toronto Hydro uses this directory to inform people when it plans to interrupt electricity for maintenance purposes and also will give the residences in the directory priority when Hydro returns service to normal after an unplanned interruption.

During your training the nurse will provide a letter that you may sign to give consent for Toronto Hydro to have knowledge of your kidney failure and therefore dependence on a cycler, and your address and phone number in order to contact you if required. For other cities, consult with HPDU nurses.

## **REVIEW QUESTIONS**

- 1. What does APD stand for?**
  
- 2. How do you do exchanges when you are on APD?**
  
- 3. How do you properly dispose of the APD drained fluid and used tubing?**

# Managing Fluid Balance



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# MANAGING FLUID BALANCE

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## **WHY DO YOU NEED TO CONTROL YOUR FLUIDS?**

Healthy kidneys balance the amount of fluid in your body by removing the extra water from your blood. When your kidneys were healthy, if you drank a lot of fluid, your kidneys would produce more urine to get rid of it. Now, if you drink a lot of fluid, it builds up inside you.

Because your kidneys are no longer able to balance the fluid in your body, you need to take control of your fluid intake. Having too much or too little fluid inside you is not healthy and will make you feel sick.

Dialysis will help remove the extra fluid in your body. But you have to make sure that dialysis is removing the right amount of fluid. You need to pay attention to how you are feeling, and learn how to manage your own fluid balance.

## **PAY ATTENTION TO YOUR WEIGHT**

### **1. WHAT IS DRY WEIGHT?**

*Dry weight* is the weight at which you feel well and do not have any extra fluid in your body. Your blood pressure would be within your normal range. You wouldn't be short of breath. You would not have any swelling in your ankles. The nurse and the physician will help you determine your dry weight.

Dry weight includes the solid things in your body like bones, muscles and fat, plus the part of your body that is liquid, such as blood. Your dry weight should remain about the same every day.

### **2. WHAT IS TARGET WEIGHT?**

We use the term *Target Weight* to refer to your dry weight plus the dialysis fluid you carry inside you. We use this because it is easier to weigh yourself with the fluid inside.

$$\text{Target Weight} = \text{Dry Weight} + \text{Dialysis Fluid}$$

Target weight is the weight you will aim for with your dialysis treatments. The closer you are to this weight, the better you will feel and the easier it is on your heart. In HPDU we read your weight in kilograms (kg.).

Once on dialysis, you may feel better, eat more and gain body weight. This extra body weight means your dry weight will be increased and at this time the nurse or doctor will need to adjust your target weight.

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### 3. **DAILY WEIGHT**

To stay at your target weight, you must weigh yourself every day. Try to weigh yourself at the same time every day, with clothing of a similar weight. You should record your weight so you will notice when it is changing.

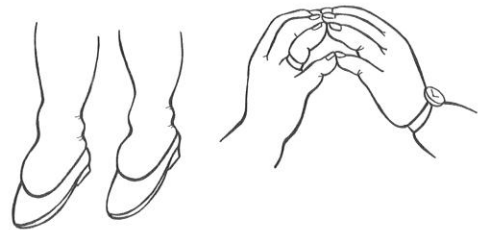
### 4. **HOW TO CHECK YOUR WEIGHT**

1. Place your digital scale on a solid, level surface- **NOT ON CARPET OR RUG**
2. Ensure the setting is in 'Kg', not in 'Lb'
3. Touch the scale and ensure Zero appears on screen
4. Step on the digital scale and wait for reading

## **HOW CAN YOU BALANCE YOUR FLUIDS?**

### **WATCH FOR PUFFY SKIN**

Checking for puffy skin is a way of monitoring your fluid balance. As fluid builds up inside you, it moves from the blood vessels into the tissue under your skin. This condition is called “*edema*”. You will most often notice puffy skin around your ankles, eyes and fingers.



### **PAY ATTENTION TO YOUR DRINKING**

We may give you an amount of fluid you can have every day when you start peritoneal dialysis. This amount can change over time based on your weight, dialysis prescription, and your remaining kidney function. Your dietitian can help guide you on how much fluid you should drink.

Don't forget that some types of foods contain liquids. This includes soups, ice cream, popsicles, Jell-O, ice cubes, and liquid nutrition supplements. If you need to reduce your fluid intake, don't forget to limit these kinds of foods.

You will get used to recognizing when you need to drink more or less liquids. You will learn how much fluid you can drink depending on your weight, the solution you use, and your blood pressure.



## **USE STRONGER PD SOLUTION EXCHANGES**

Peritoneal dialysis will remove the extra fluid in your body now that your kidneys are not able to do the job. A higher sugar solution, like 4.25%, will remove more fluid from your body than a 1.5% solution. The more sugar (or dextrose) in the bag, the more fluid it removes. Therefore, when you have too much fluid weight, using a 4.25% or 2.5% bag may remove the extra fluid in your body. You will learn when to use a stronger solution.

Remember that 4.25% solution has more sugar and therefore has more calories. For some patients using too many 4.25% bags can sometimes cause weight gain. You may also notice an increased thirst sensation. **THINK BEFORE YOU DRINK!**

Frequent use of 4.25% solution may damage the peritoneal membrane. Consult with a nurse prior to using a 2.5% or 4.25% bag.

---

## **CHECK YOUR BLOOD PRESSURE**

Checking your blood pressure is another way to control your fluid balance. As fluid builds up in your body, it eventually gets into your bloodstream. This extra fluid in the bloodstream causes your blood pressure to increase.

To understand how this happens, imagine a water pipe with a little stream of water running through it. The pressure in the pipe will be low. When water suddenly gushes into the pipe, and the pipe fills up, the water will have nowhere to go. This means water pressure will be higher inside the pipe.

The same thing happens in your blood vessels when you have too much fluid in your body. The fluid builds up in your blood vessels and the pressure increases. Therefore, your blood pressure rises. We also call high blood pressure “*hypertension*”. You may learn how to take your own blood pressure. The nurse will teach you how to do this. (See Blood Pressure Section.)

## **WATCH YOUR SALT INTAKE**

As your kidneys gradually stop working, they lose the ability to control the balance of salt in your body. If the salt in your diet is too high, this causes increased thirst. The extra fluid you drink stays in your body and causes your weight and blood pressure to go up. Many foods contain 'Hidden Salt'. Your dietitian can advise you on how to decrease the salt in your diet.

Remember these **6 WAYS TO CONTROL YOUR FLUID BALANCE**:

1. Pay attention to your drinking.
2. Use stronger peritoneal dialysis bags upon consultation with a HPDU nurse.
3. Watch your salt intake.
4. Check your blood pressure.
5. Watch for puffy skin.
6. Pay attention to your weight.

---

## **How Do You Know If You Have Too Much Fluid?**

You may hear the term “*fluid overload*”. This means you have too much fluid in your body. Some of the signs of extra fluid in the body are:



***Increased weight.***

***Puffy skin around  
ankles, eyes,  
fingers.***

***Higher than  
normal  
blood pressure.***

Not getting rid of the extra fluid may lead to:

***Feeling short of breath.***

If the amount of excess fluid in your body increases too much, your lungs can fill with fluid. This will cause you to feel short of breath, or as if you can't get enough air. You'll feel this most at night when you lie down. If this happens, you should phone HPDU right away.

If your body is continually fluid overloaded, it may lead to:

***Heart strain.***

This is because the heart pumps blood around the body. When too much extra fluid is in the blood, the heart has to work harder to pump the blood through the vessels. Fluid overload is not healthy.

If you notice signs of fluid overload, you may need to use a stronger dialysis solution than usual for a few exchanges. Using a stronger solution like 4.25% or 2.5% after consultation with an HPDU nurse will remove more fluid. This may increase the thirst sensation. You should also limit your fluid intake until you start feeling better. If you are not sure what to do, call HPDU for advice.

## **How Do You Know If You Have Too Little Fluid?**

Sometimes you may have too little fluid in your body and be dehydrated. This can happen when you are losing more fluid than usual. For example, if you are sweating a lot, or vomiting, or if you have diarrhea, you may be losing more fluid than normal and become dehydrated.

You will know you have too little fluid if you notice these signs:



***Dizzy feeling  
(especially when standing).***

***Low blood pressure  
(especially when standing).***

***Lower than normal  
body weight.***

If you notice these signs of dehydration, call HPDU. You need to drink more liquids, and/or drink a salty liquid such as an OXO drink. This weaker solution will not remove fluid. Instead, fluid moves from your peritoneal cavity to your body. If you are not sure what to do, call HPDU for advice.

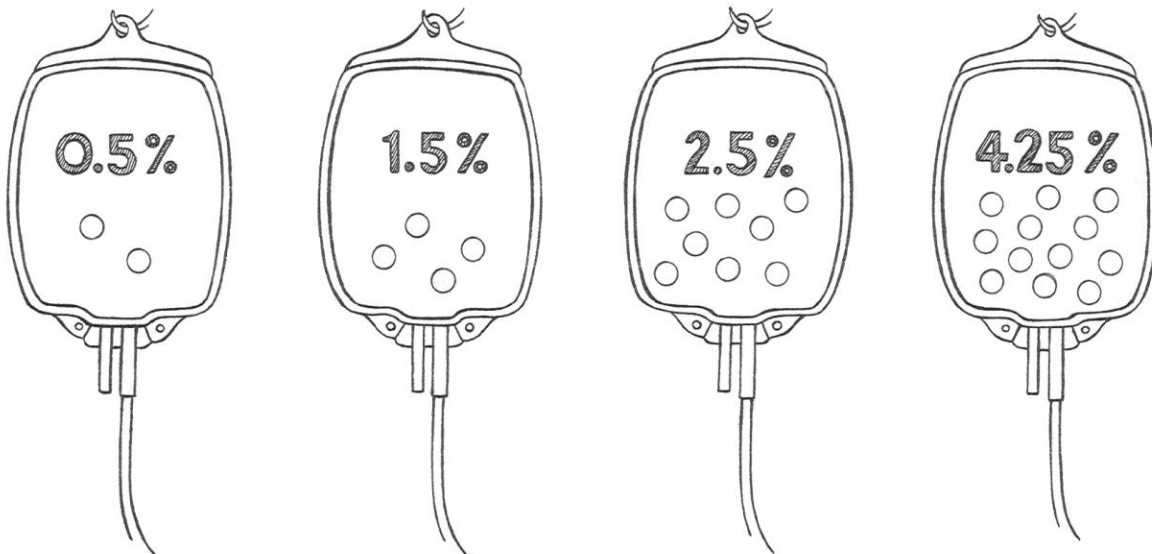
Don't be concerned if controlling your fluids seems a bit difficult at first. Balancing fluids may seem confusing when you first start peritoneal dialysis. But don't worry; you will soon get the balance right!

Remember these hints:

↑ Blood pressure or ↑ weight or ↑ swelling:  
Call HPDU to discuss using ↑ % solution (2.5%, 4.25%)

↓ Blood pressure or ↓ weight or ↓ swelling:  
Call HPDU to discuss using ↓ % solution (1.5%)

## **GUIDELINES FOR SELECTING SOLUTION**



### **0.5% dialysate solution**

This is a weak solution. It will help you gain fluid weight and increase your blood pressure.

**It is "*hypotonic*".**

**\*\*\*\*Use only if advised by HPDU nurse\*\*\*\***

### **1.5% dialysate solution**

This is a medium solution. It will help keep your weight and blood pressure the same.

**It is "*isotonic*".**

### **2.5% dialysate solution**

This is a slightly stronger solution. It will make you lose only a little fluid weight and slightly decrease your blood pressure.

**It is "*mildly hypertonic*".**

### **4.25% dialysate solution**

This is the strongest dextrose solution available. It will greatly decrease your fluid weight and lower your blood pressure.

**It is "*hypertonic*". Use only if advised by an HPDU nurse.**

The four different strengths of solutions all continue to remove excess electrolytes and minerals from your body at the same rate. The strength of the solution just determines how much water will be taken off.



Dialysate solution is also called "*dianeal*" or "*balance*" depending upon which supply company makes the solution.

Solutions may be prescribed by the Nephrologist for special circumstances. "*Extraneal*" (Icodextrin) is a dialysis solution that is able to replace the 2.5% dextrose solution for patients with ultrafiltration problems (that is, for those patients who tend to reabsorb fluid during their long dwell). "*Nutrineal*" is a 1.1% Amino Acid solution that is dextrose free. It is prescribed for patients who tend to be malnourished. Both solutions are available from Baxter Corporation in 2 litre and 2.5 litre size bags and are typically used once daily.

## **HOME PERITONEAL DIALYSIS PATIENT'S DAILY REPORT** **-CAPD**

To help you and the dialysis staff keep track of your fluid balance, please complete the Home Peritoneal Dialysis Patient's Daily Report sheet (see Example One). If you are a patient living with diabetes, please complete the Home Peritoneal Dialysis Diabetic Patient's Daily Report sheet (see Example Two).

### **EXAMPLE ONE (NON-DIABETIC):**

Your target weight is 70 kg. You are on Twin Bag 2L exchanges four times per day. On September 1, your weight is 70.3 kg., your blood pressure when you are lying down is 120/80; your blood pressure when you are standing up is 130/78; and you have selected a 1.5% bag. You notice fibrin in your effluent and add heparin. You complete the report as follows:

TORONTO GENERAL HOSPITAL (UHN)

Home Peritoneal Dialysis  
Patient's Daily Report

System Twin Bag

Exchange Volume 2 litres

Exchange Frequency 4 times/day

Target Weight 70 kg.

Example One

Date (D/M/YR)	Present Weight	Lying BP	Standing BP	Solution (# Used Per Day)			<u>Comments/Problems</u> With drainage or exit site (explain.) Visits to dentist, family doctor (explain).
				1.5%	2.5%	4/25%	
01/09/yr	70.3	120/80	130/78	✓			fibrin / heparin

**EXAMPLE TWO (DIABETIC):**

Your target weight = 65 kg. You are on Twin Bag 2.5L four times per day. On September 1, at 0800 hrs. your weight is 66.0 kg.; your blood pressure when you are lying down is 160/90; your blood pressure when you are standing up is 150/88; Blood Sugar = 12.3. Upon consultation with an HPDU nurse, you have selected a 2.5%. Ensure you consult your doctor about blood sugar level. Effluent is clear. You notice your exit site is slightly red. You complete the report as follows:

TORONTO GENERAL HOSPITAL (UHN)  
Home Peritoneal Dialysis  
Diabetic Patient's Daily  
Report

Example Two

System Twin Bag

Exchange Volume 2.5 L 4 times/day

Target Weight 65 kg.

Date	Present Weight	Lying BP	Standing BP	Bag #	Bag %	Insulin (units)	Blood Sugar	<u>Comments/Problems</u> With drainage or exit site (explain). Visits to dentist, family doctor (explain).
Sept. 01/yr	66.0	160/90	150/88	1	2.5		12.3	exit site red

## **HOME PERITONEAL DIALYSIS PATIENT'S DAILY REPORT** **-APD**

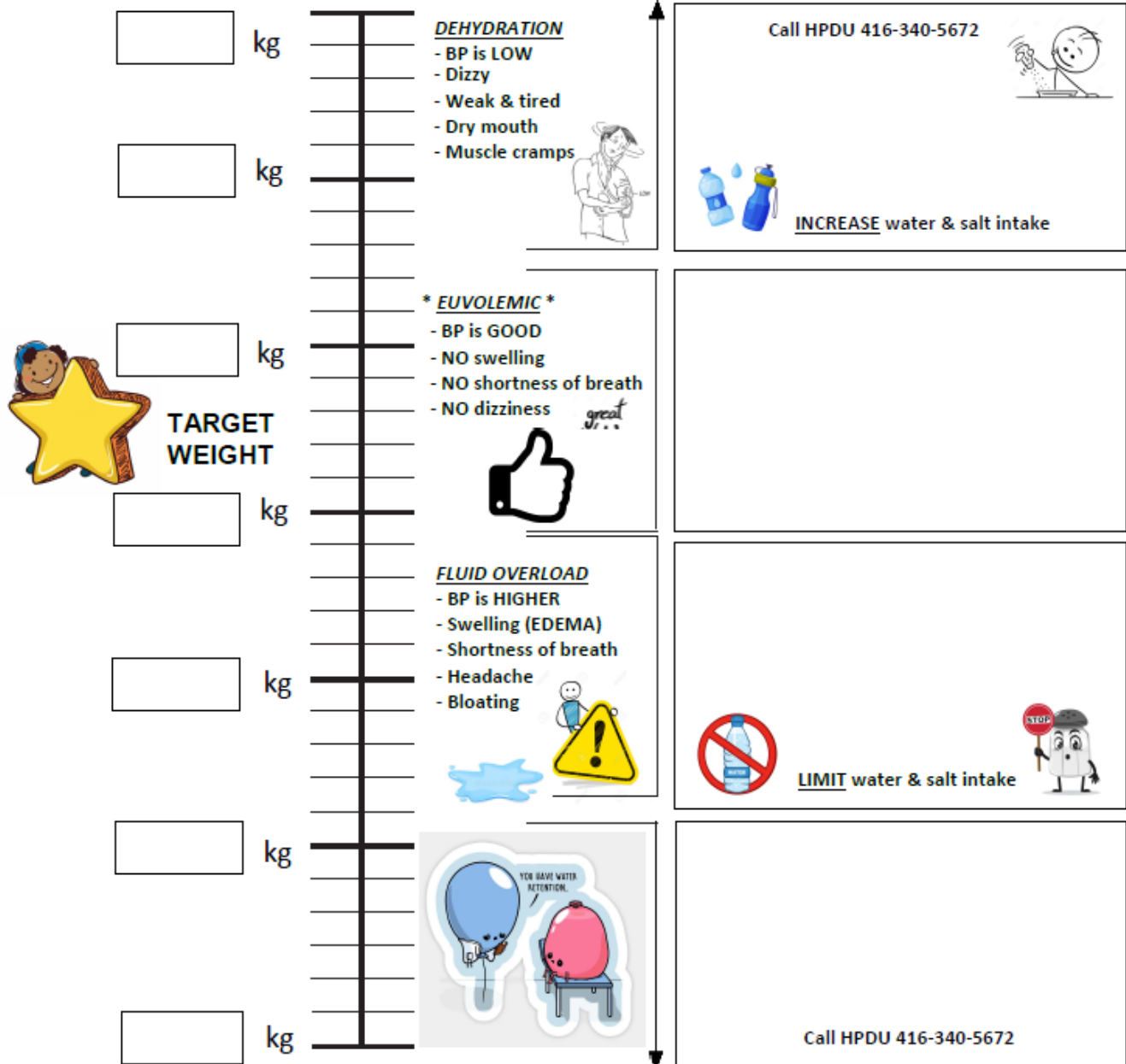
If you choose to share your data with clinic, you will enter your blood pressure, weight, and concentration of PD bags daily to your PD cycler. These data will create your PD daily report online. HPDU can monitor your daily PD treatment remotely.

If you choose not to share your data with clinic, you will complete paper daily report as instructed above. Keep in mind you can change the decision any time to share or not to share data with clinic. Discuss with HPDU nurses.

## TARGET WEIGHT (TW)

$$\text{Target Weight} = \text{Dry Weight} + \text{Dialysis Fluid}$$

### TARGET WEIGHT SCHEDULE



- \* If weight is more than \_\_\_\_ kg, call HPDU
- \* If weight is less than \_\_\_\_ kg, call HPDU
- \* Your medication, diet, and/or PD prescription may need to be adjusted

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## **REVIEW QUESTIONS**

- 1. Why do you need to weigh yourself every day?**
  
- 2. What is the difference between dry weight and target weight?**
  
- 3. Name three signs of fluid overload. What should you do if you are fluid overloaded?**
  
- 4. Name two signs of dehydration. What should you do if you are dehydrated?**

# Blood Pressure

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## **BLOOD PRESSURE**

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## **WHY DO YOU NEED TO CHECK YOUR BLOOD PRESSURE EVERY DAY?**

Checking your blood pressure every day is one way to make sure you are balancing your fluids properly. Too much fluid in your body can cause too much fluid in your blood vessels. This extra fluid makes your blood pressure go up. High blood pressure means your heart has to work extra hard to pump blood around your body.

Other things can cause high blood pressure. Using too much salt, eating salty foods, excessive fluid intake, emotional stress, or not taking your blood pressure medication as prescribed can cause high blood pressure. If your weight is higher than normal, if you are using too many weak solutions and your blood pressure is too high, you may be fluid overloaded. Remember that fluid overload is something you can help control!

Some things can cause low blood pressure. If you do not have enough fluid in your body, if you have been sweating a lot, or have diarrhea or vomiting, your blood pressure may be low. If your blood pressure is too low, if you are using too many strong solutions, **and** your weight is too low you may be dehydrated. Remember that being dehydrated is something you can help control!

If your blood pressure drops too low you may feel dizzy. The nurse or doctor will set normal blood pressure limits for you. If your blood pressure goes below or above these limits on more than one consecutive reading, notify HPDU so we can assess your blood pressure, weight and medications.

## **WHAT DO YOU NEED TO KNOW ABOUT CHECKING YOUR BLOOD PRESSURE?**

Discuss with the nurse the type of blood pressure cuff to buy and where you can buy it.

### **Digital blood pressure device**

This is the device you use to check your blood pressure. It uses a cuff that you put around your arm, digital screen that will show the reading, and buttons to operate. The device pumps air into the cuff and it gets tight around your arm. This stops the blood flow in your arm temporarily. Then the device lets the air out of the cuff and blood flow starts again. Your blood pressure and heart rate show up on the screen. Ensure the cuff size is appropriate for your arm. Refer to your device instruction leaflet for detailed information. Bring your device during the training to calibrate and further training.

**SYSTOLIC BLOOD PRESSURE**

This is the greatest amount of force your heart creates against the blood vessels when it contracts to pump blood around the body.

**DIASTOLIC BLOOD PRESSURE**

This is the lowest amount of force created against the blood vessels when your heart is resting between beats.

Record blood pressure as:

120/80
--------

120 = systolic; 80 = diastolic
--------------------------------



## **REVIEW QUESTIONS**

- 1. Why do you need to check your blood pressure every day?**
- 2. What are the signs and symptoms of high blood pressure, the possible causes, and the solutions?**
- 3. What are the signs and symptoms of low blood pressure, the possible causes, and the solutions?**
- 4. How do you measure and record lying and standing blood pressure?**
- 5. What is your normal blood pressure? Should you notify HPDU when your blood pressure exceeds your normal range?**

# **Exit Site Care / Shower Technique**

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## **EXIT SITE CARE / SHOWER TECHNIQUE**

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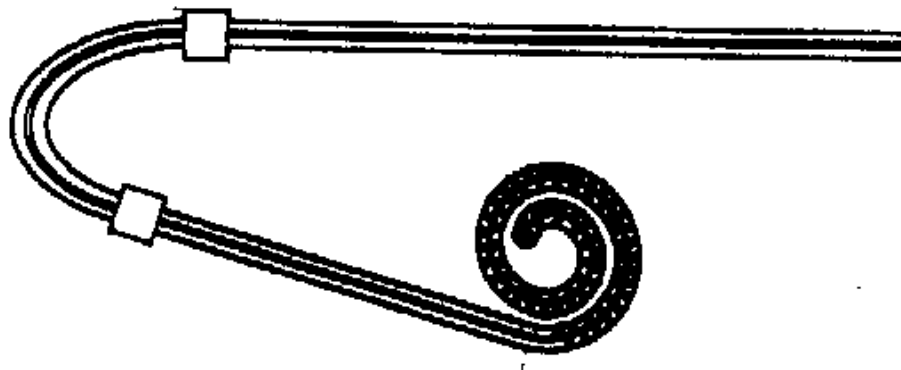
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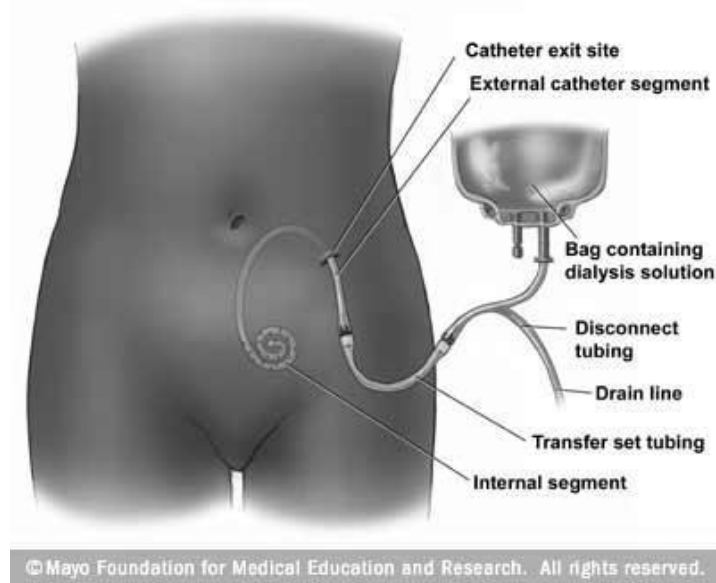
## **WHAT IS THE PERITONEAL DIALYSIS CATHETER** **AND WHAT DOES IT DO?**

Swan Neck Coil 2 Cuff PD Catheter:



PD catheters are soft and flexible; they are made of translucent silicone rubber with Dacron cuffs. One cuff is placed into your abdominal muscle wall. A second cuff will be placed under the skin at your *exit site* (where the catheter comes out of your body). Your own tissue will grow into the cuffs and help anchor the catheter in place. The cuffs also help keep germs from travelling up the catheter. The tip of the catheter that is inside your body is coiled in a spiral.

## Abdominal PD Catheter



Placement in the abdomen is most common. The exit site is usually about an inch under the belly button. The catheter can be below and either to the right or left of your bellybutton. Tell your surgeon where your belt falls so the catheter can be placed where it will not rub. You can take a shower with an abdominal PD catheter, but not a bath.

At first, you will have a small row of stitches or staples near your exit site. This is from the incision to insert the catheter into your peritoneal cavity. This small wound will heal in a week or so, and will leave a small scar.

Most catheters have lots of little holes on the part that is in your peritoneal cavity. These holes allow the fluid to flow into and drain out of the peritoneal cavity. Most catheters have two or three white fuzzy cuffs on the part of the tubing that is inside you.

Tissue grows into these cuffs to prevent fluid from leaking out and germs from getting in. The cuffs help hold the catheter in place. If the cuff starts to show at your skin line, you should tell your nurse.

Your catheter will allow the dialysis fluid to flow into your peritoneal cavity. After you have left the dialysis fluid inside you long enough, you will let it flow out again through the catheter. Your catheter will have a metal piece. This metal piece is called the titanium adaptor. The adaptor is what connects your catheter to your transfer set.

---

## **HOW DO YOU CARE FOR YOUR CATHETER?**

Once your catheter is in place and it continues to work well, it is there permanently, as long as you need dialysis. You must take good care of it to ensure that it works properly and does not get infected.

**To take care of your catheter, remember these five points:**

**1. ALWAYS WASH YOUR HANDS BEFORE HANDLING YOUR CATHETER.**

Remember that germs can get into your peritoneal cavity through your catheter.

**2. ALWAYS TAPE YOUR CATHETER DOWN TO YOUR SKIN.**

This is a way of preventing tugging and pulling on your catheter. The nurse will show you how to do this safely and according to your personal preference.

**3. DO NOT PULL OR TWIST YOUR CATHETER.**

This can irritate or infect your exit site. Germs around the exit site can enter the peritoneal cavity.

**4. NEVER USE SCISSORS ANYWHERE NEAR YOUR CATHETER.**

If you accidentally cut your catheter, you could very easily get germs into your peritoneal cavity. You may need to go for surgery if your catheter gets cut too short!

**5. DO YOUR CATHETER EXIT SITE CARE AS INSTRUCTED.**

Do exit site care at least every 2 days and whenever it gets wet. You should do your exit site care after you get out of the shower. Do not take tub baths unless you have a pre-sternal catheter and keep it out of the bath water.

---

## HOW DO YOU CLEAN THE EXIT SITE?

### ***SHOWER TECHNIQUE***

1. Assemble the equipment:
  - soap
  - face cloth
  - towel
  - Cleaning solution as instructed
  - 3 packages of 2x2 gauze
  - 1 dressing (9x10 Mepore or 4x4 gauze)
  - tape as instructed
  - FlexNet (If you prefer)
  - Mupirocin ointment
2. Wash your hands for two minute.
3. Secure your transfer set or catheter adaptor with tape and/or FlexNet.
4. Remove the dressing from the exit site. Inspect the exit site.
5. Shower.
6. Wash the skin surrounding the catheter gently with a fresh face-cloth and your own personal soap. Wash in a circular motion starting at the exit site and working out in larger circles.
7. Rinse well.
8. Using a clean towel, dry the exit site first, then dry the rest of the body. Remove the FlexNet.
9. Open the gauze packages. Saturate the center of gauze with cleaning solution.
10. Clean exit site with saturated gauze in circular motion. Allow to air dry completely.
11. Repeat 9 & 10 with 2<sup>nd</sup> gauze.
12. Place a small dab of mupirocin ointment on one 2x2 gauze to apply Mupirocin ointment to **skin** around catheter.
13. Place new gauze under the catheter at the exit site so that the catheter is resting on the gauze.
14. Apply final dressing (9x10 Mepore or 4x4 gauze & tape).
15. Loop the catheter and tape it to the dressing so that the dressing cushions the metal portion. Secure it well with tape to minimize excessive tension on the exit site.

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### ***Modified Exit Site Care***

If you are not showering, follow the directions above  
but omit steps 3 and 5.

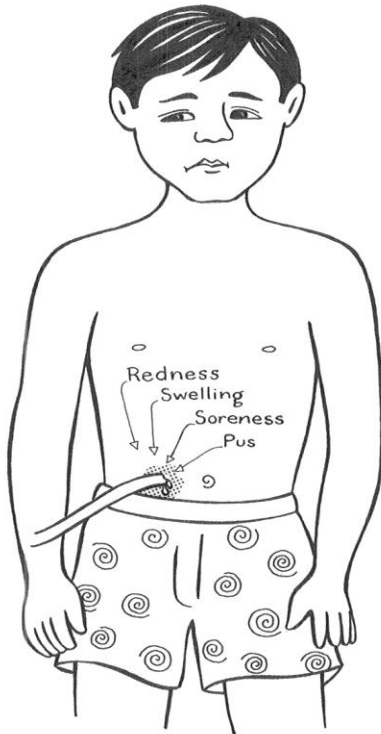
**Never take a tub bath, or use a Jacuzzi**, unless you have a pre-sternal catheter and keep it out of the bath water in a tub or a Jacuzzi.

**Refer to page 134 regarding swimming in a public pool, river, or lake.**



## **HOW WILL YOU KNOW IF YOU HAVE AN INFECTION, AND WHAT SHOULD YOU DO ABOUT IT?**

You may have an exit site infection if you notice any of the following:



1. Redness around the exit site.
2. Swelling.
3. Soreness when you touch the area.
4. Pus around the exit site or on the dressing.

If you notice any of these signs of exit site infection, you should contact HPDU. We may ask you to come to HPDU so we can assess the exit site. A nurse or doctor may need to take a swab to test for infection.

You need to treat infections **QUICKLY**, to stop germs from spreading to your peritoneal cavity. If you have an infection, you should increase the frequency of exit site care and clean as directed below.

## **HOW DO YOU CLEAN AN *INFECTED* EXIT SITE?**

1. Follow steps 1-8 on Page 75.
2. Saturate the second gauze with hydrogen peroxide. Place this around the tubing on the exit site. Soak for 5 minutes.
3. Continue with steps 9-14 on Page 75.

---

Sometimes the doctor may prescribe antibiotics depending on the type of infection. The doctor or nurse may also recommend “*Mesalt*” (salt gauze) or antibiotic drops or ointment. If you do not treat an exit site infection or it does not respond to treatment, you may need to have your catheter removed and have it replaced. The doctor will decide if this is necessary.

Handle your catheter carefully, and do your exit site care the way we taught you, to prevent infections.

***Consider your catheter your lifeline!***

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## **REVIEW QUESTIONS**

- 1. What do you use your catheter for?**
  
- 2. Name three things to remember about handling your catheter.**
  
- 3. What are the four signs of an exit site infection?**
  
- 4. What should you do if you notice any sign of an exit site infection?**

# Medications

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## **MEDICATIONS**

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## **WHAT MEDICATIONS WILL YOU TAKE AND WHAT WILL THEY DO FOR YOU?**

Medications are important when you are on dialysis. Medications work with dialysis, your diet, and your fluid control to keep you healthy. Medications replace some of the jobs the kidneys can no longer perform.

We've listed below some common medications which dialysis patients may take. (Not all patients take all of these medications.) The doctor, pharmacist, or nurse will tell you about the medications you need to take. Always take your medications as prescribed because the medications play an important role in keeping you healthy. **Never take any prescription medication, over the counter medication or herbal product without first talking to the doctor or pharmacist!** This includes medication you can buy over the counter without a prescription, for example: Tums, Roloids, Aspirin. If another doctor prescribes you some medication, please inform the HPDU doctor, pharmacist, or nurse.

- You must know if you have a medication allergy and inform the doctor of this when the doctor orders a new medication.
- You should know you are taking the right medication, the right dose, at the right time and for the right reason as well as the possible side effects of that medication.
- You should bring all your current medications in the original containers to **each clinic** so the doctor, pharmacist, or nurse can review them.

## **COMMON MEDICATIONS**

***PHOSPHATE BINDERS:*** (Calcium Carbonate, Tums, sevelamer, lanthanum)

Most peritoneal dialysis patients take medication called “phosphate binders”. Phosphate is a substance found in the body that comes from the food we eat. Healthy kidneys normally remove extra phosphate and pass it out in the urine. Dialysis does not remove phosphate very well and it builds up in the blood.

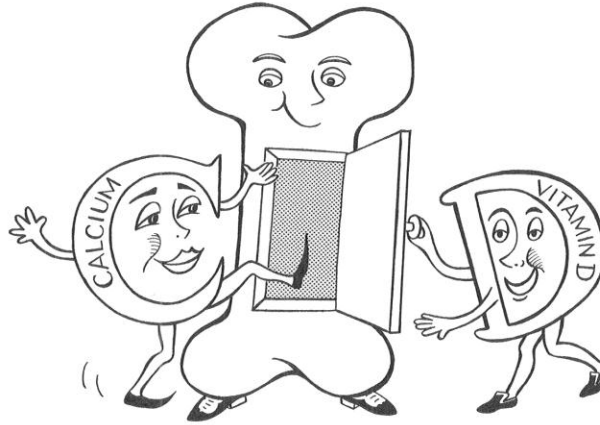
Over a period of time, excess amounts of phosphate in the blood can harm your bones and blood vessels. More importantly, high phosphate may lead to premature death. That's why it is important to maintain a normal phosphate level.

You take phosphate binders to help keep extra phosphate (from food) from building up in your body. You must take binders with meals. If you do not take your binders with meals, they will have no effect. Take your phosphate binders every day as the doctor instructed! We check the level of calcium and phosphorous in your blood at each clinic.

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**VITAMIN D: (Calcitriol, Rocaltrol, One Alpha)**

Vitamin D in its active form is in short supply when your kidneys are not working well. This is because the kidneys normally produce it. Vitamin D helps to regulate calcium and parathyroid hormone. Your doctor may prescribe the vitamin D if they become abnormal.



Some people on dialysis need to take extra Vitamin D pills to replace the Vitamin D that is lost. This is very important so your bones stay strong and healthy.

**IRON: (Ferrous Gluconate, Ferrous Fumerate)**

Iron helps your body make red blood cells. You may need to take iron pills to increase the amount of iron in your body. You will usually take iron pills 1 to 3 times a day. You should take iron pills exactly as instructed by your doctor. Do not take iron pills at the same time as calcium pills as they stick together and won't work. Take iron pills on an empty stomach if possible. However if the iron pills bother your stomach, then you can take it with food.

The doctor may decide that you need iron infused into the blood directly. This is usually given over two-three hours and is scheduled to be given in the Medical Day Unit.

**VITAMINS B AND C: (Replavite)**

Replavite is a multivitamin for patients on dialysis to replace certain vitamins lost in dialysis. Ask the nephrology pharmacist if you qualify for EAP approval to cover the cost.

**STOOL SOFTENERS: (Colace, Docusate, Soflax)**

Your doctor may prescribe stool softeners for you to take every day. These will help keep your stool soft for easier elimination. Having normal bowel movements is sometimes difficult on dialysis because of the diet and medications you are taking. Therefore, you should take stool softeners if your doctor advises you to do so.

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**LAXATIVES:** (Lactulose, Senokot)

A laxative is the common name for medication to relieve constipation. Constipation can sometimes lead to infections in the peritoneal cavity. Constipation can make draining fully during exchanges difficult. Many dialysis patients can avoid constipation by increasing fiber in the diet. Discuss this with the dietitian. However, if constipation is a problem for you, your doctor or pharmacist can recommend a laxative that will help you when you need it. While many types of laxatives are available at the drug store, you should take only what your doctor prescribes for you.

**ERYTHROPOIETIN (EPO):** (Eprex, Aranesp)

Erythropoietin is a hormone which the kidneys normally produce to help the body make red blood cells. It is in short supply when your kidneys are not working well. As a result, your level of red blood cells will be low, also known as anemia. Anemia can make you feel tired and lower your energy level. Many dialysis patients take EPO to help raise the level of red blood cells in the blood. EPO is available by injection only. A nurse may give you this injection, or we can teach you or someone else you designate to give the injection. This medication should be picked up at the Toronto General Hospital outpatient pharmacy or the Toronto Western Hospital Shoppers Drug Mart.

**ANALGESICS (PAINKILLERS):** (Tylenol)

You take these tablets to relieve pain, such as headaches. Acetaminophen (Tylenol) is usually the best pain reliever to take. Avoid taking regular aspirin unless the doctor prescribes it. You should avoid taking other painkillers such as Advil, Motrin, ibuprofen, Aleve, or this class of medication known as non-steroidal anti-inflammatory drugs (NSAIDs). Feel free to discuss this with the doctor, pharmacist, or nurse if you have concerns.



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## **WHAT SPECIAL MEDICATIONS MIGHT YOU NEED IN THE FUTURE?**

Many dialysis patients who have special needs use other medications. You may need to take one of these in the future. Some of the common medications are:

### **HEPALEAN: (Heparin)**

Hepalean is an “anticoagulant”. This means it is an anti-clotting drug that prevents tissues and fibers from sticking together. The white mucus-like tissue or stringy substance that you might see in your drained solution is called fibrin. This fibrin can cause problems during exchanges because it can block your catheter. You take Hepalean to reduce fibrin in your solution. This Hepalean in the dialysis fluid stays in the dialysis fluid and does not go into your body.

Hepalean is a drug which you can inject into the fresh bags of dialysis solution before you fill the peritoneal cavity. The nurse will advise you when you need to use Hepalean, the amount to use, and how to safely inject it into the dialysis solution. (Please refer to the section on Medical Complications or Peritonitis.)

### **ANTIBIOTICS :**

Antibiotics fight infection. If you get an infection in the peritoneal cavity, also known as peritonitis, or an exit site infection, the doctor will usually prescribe an antibiotic to get rid of the infection. You can take antibiotics in pill form, or as a liquid that you inject into the dialysis bag. Refer to section “Peritonitis” for more details.

The doctor or nurse will tell you exactly the type of antibiotic to use if you need one, and how often to take the medication. You must find out if you have a medication allergy and inform the doctors and nurses of this whenever they order a medication.

Antibiotics which you inject into the bag will be delivered to your home in pre-mixed minibags along with secondary IV sets. We may request a home care nurse assist with your antibiotics administration after you receive the initial dose at the hospital.

Keep in mind every time you are on antibiotics, you should take antifungal medication as well. Antibiotics you are taking can get rid of “good bacteria” in the body and may lead to fungal infection.

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**BLOOD PRESSURE PILLS:**

Because your kidneys can no longer monitor your fluid levels and your blood pressure, you may need to take pills to control your blood pressure. These are also called “*anti-hypertensives*”. These medications help reduce the high pressure of blood circulating through your veins so there is less strain on your heart. Your doctor may prescribe one or more anti-hypertensives to control your blood pressure.

**Prophylaxis for procedures or tests :**

When you are going through certain procedures and tests, you need to take antibiotics and/or prophylactic medications to reduce the risk of infection and protect your residual kidney function. Common procedures you need to take prophylactic medications include dental procedures, colonoscopy, gastroscopy, and angiography. Inform and consult with HPDU when you are scheduled for any kind of procedure.

Take all medication with careful guidance. This is especially important because your kidneys can no longer remove all medications from the body. The doctor will choose special medications and dosages for your needs.

If the medication label recommends taking the medication with lots of fluid, please discuss this with the doctor, pharmacist, or nurse prior to taking it.

If your family doctor or any other doctor prescribes a new medication, please notify the HPDU doctor, pharmacist, or nurse.

If you are thinking of taking any supplements, vitamins, or herbs, please discuss this with the HPDU doctor, pharmacist, or nurse.

**Allergies:** \_\_\_\_\_

<b>MEDICATION (Name + Dosage)</b>	<b>WHEN TAKEN</b>	<b>PURPOSE</b>

## **REVIEW QUESTIONS**

- 1. Why do you take phosphate binders?**
- 2. Why is heparin used?**
- 3. When might you need to take antibiotics?**
- 4. Why is it important to keep your bowel movements regular?**

## Needle Safety at Home



UHN

**For your safety and the safety of others, never throw needles out with household trash.**

- Place used needles and syringes in a puncture-resistant container labeled **“used needles”**. Use an empty, thick plastic bleach bottle, or see if your local drugstore sells containers for disposing of used needles.
- Do not dispose of used needles in glass, aluminum cans or clear plastic containers. These puncture too easily.
- Do not re-cap, bend or break used needles.
- Do not force more needles into an already full container. It is dangerous to put your hand inside the used needle container or remove needles or syringes.
- Keep all used needle and syringe disposal containers out of the reach of children. Dispose of all full containers in an appropriate location. Make sure container lids are closed tightly.
- Most towns and cities have hazardous waste depots where you can safely drop off used needles. Contact your municipal government for more information.

**Remember...needle safety is your responsibility!**

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Page 1 of 1

# **Medical + Mechanical Complications (Troubleshooting)**

# **MEDICAL + MECHANICAL COMPLICATIONS (TROUBLESHOOTING)**

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# **Part A:**

## **Medical Complications (Troubleshooting)**



## **WHAT SHOULD YOU DO IF THE FLUID IN THE DRAIN BAG IS NOT CLEAR?**

### **Fibrin:**

You may see little white strands in your drained fluid that look like cotton fibers or pieces of mucus. This is called “*fibrin*”. These strands are little clots of protein sticking together. Seeing fibrin once in a while is quite normal. If these clots become too large they may block your tubing or catheter. To prevent this, you need to inject a medicine called *heparin* into your fresh dialysis fluid before filling. You should add the suggested dose of heparin to all the bags in the next 24 hour period. Call HPDU to discuss your concerns about fibrin, adding heparin and the right dose of heparin to add.

### **YOU NEED TO KNOW THE DIFFERENCE BETWEEN CLOUDY FLUID AND FIBRIN IN YOUR DRAINED FLUID.**

- If the drained solution in your bag is clear, but has bits of white stringy substance floating in it, you have fibrin.
- If all the solution is unclear, and you can't see printed words through the bag, your drained fluid is cloudy.

If your fluid is cloudy, you must call HPDU immediately because cloudy fluid may mean peritonitis (which is an infection of the peritoneal cavity). ***Peritonitis requires immediate treatment.*** Any delay may result in a severe prolonged infection. (Please refer to the Peritonitis section.)

An allergy to the catheter can also cause cloudy drained fluid. Women may experience hazy drained fluid after sexual intercourse. Call HPDU for assessment.

### **BLOOD-STAINED DRAIN FLUID BAGS:**

If your drain fluid is pinkish to bright red in colour, you may have some blood in your peritoneal cavity that is draining into the dialysis solution. An occasional little bit of blood is not a concern. Women may see pink drain fluid one or two days before the start of their period. If you do some very active exercise, or heavy lifting, you may see pink drain fluid.

Call HPDU to inform the nurse when you have blood-stained fluid. The nurse will instruct you to “flush” (run fresh room temperature fluid in and then run it out) and repeat until the drain fluid is clear. The nurse may direct you to add heparin to the fresh dialysis bag to prevent blood clots from blocking the catheter. If bloody drain fluid occurs on a regular basis, the doctor may recommend some tests.

## **MEASUREMENT INFORMATION**

Before you are able to begin injecting medications at home you need to know a few basic things:

### **VOLUME**

A millilitre (ml) is a measurement of volume.

A cubic centimetre (cc) is a measurement of volume.

1 millilitre is equal to 1 cubic centimetre.

Therefore  $1 \text{ ml} = 1 \text{ cc}$

A litre (L) is a larger measurement of volume.

A litre (L) is equal to 1000 millilitres (mls).

A litre (L) is equal to 1000 cubic centimetres.

Therefore  $1 \text{ L} = 1000 \text{ mls}$

$1 \text{ L} = 1000 \text{ ccs}$

### **WEIGHT**

A milligram (mg) is a measurement of weight.

A gram (gm) is a larger measurement of weight.

A kilogram (kg) is an even larger measurement of weight.

1 gram is equal to 1000 mg.

1 kg is equal to 1000 grams.

Milligrams and grams are the measurements used to weigh medications.  
(The medication weight is also known as the dose and/or concentration.)

Kilograms are used to weigh people.

Did you know that → 1 kg is approximately 2.2 lbs.?

→ 1 litre of water weighs 1 kg?

## HEPARIN

1. Gather equipment
  - \* 1 x 3 mL syringe
  - \* 2 x alcohol wipes
  - \* 1 x 10 mL bottle of Heparin 1000 units per mL (check expiry date)

*Dose :*

### For Fibrin

500 units (0.5 mL) per litre.

You should add \_\_\_\_\_ mL to your \_\_\_\_\_ litre bag.

Note: Add this medication to every bag for the next 24 hours. Observe for fibrin.

Confirm your dose with the HPDU Nurse.

2. Mask and wash your hands.
3. Open the Heparin bottle by removing the black plastic cap to expose the rubber top. Wipe the rubber top with an alcohol wipe.
4. Wipe the medication port on the dialysis bag with a new alcohol wipe.
5. Open the syringe package, tighten the needle on the syringe and remove the cap from the needle. Draw air into the syringe (to replace the dose of Heparin you are removing from the bottle).
6. Insert the needle directly through the rubber top of the Heparin bottle. Make sure the needle is below the level of the liquid. Inject air into the bottle and carefully invert the bottle.
7. Pull the plunger back to withdraw the required amount of Heparin. Remove the air bubbles by tapping your finger on the side of the syringe.
8. Remove the needle from the bottle.
9. Inject Heparin into the medication port of the dialysis bag.
10. Remove the needle from the bag. Discard the syringe into the sharps container. Examine the bag for punctures.
11. Gently mix the medication into the bag.

Note: 1. Mark the date you opened the Heparin bottle on the bottle label.  
2. Discard the opened Heparin bottle after one week even if you have only used it once.

---

## **WHAT SHOULD YOU DO IF YOU HAVE ABDOMINAL PAIN?**

You should not have abdominal pain while on dialysis. This pain may be a sign of a peritonitis infection. Call HPDU so the nurse and/or doctor can identify or rule out an infection, or go to the Emergency Department.

You may experience deep pelvic pain or cramping while draining or filling which feels like rectal, bladder or vaginal pain. This may be the tip of the catheter irritating surrounding structures inside your peritoneal cavity. Changing your position, or slowing the inflow and/or outflow rate by adjusting the roller clamp may relieve this pain.

Diarrhea or constipation may also cause abdominal discomfort. Persistent abdominal pain is a cause for concern. You should be assessed by the nurse and/or doctor if you have abdominal pain.

## **WHAT SHOULD YOU DO IF YOU HAVE CHEST PAIN OR SHOULDER PAIN?**

If you have chest pain call HPDU immediately. You may need to go to the nearest hospital emergency department. Chest pain is NOT normal with dialysis.

Shoulder pain may sometimes occur when draining or filling. This often goes away when you fill. This may be “*dry pain*”. If air gets into your peritoneal cavity it can irritate the nerves that go to your shoulder. This can cause shoulder pain. Make sure you flush the air out with each exchange. The nurse will show you how to do this during training. If the pain is severe, place a hot water bottle or heating pad on the shoulder. If the pain doesn't go away, call HPDU. We may advise you to take a mild pain medication such as acetaminophen (Tylenol).

## **WHAT SHOULD YOU DO IF YOU ARE SHORT OF BREATH?**

If you are severely short of breath, call HPDU immediately. You may have to go to the nearest hospital emergency department. Shortness of breath may occur if you have too much extra fluid in your body. The extra fluid makes it hard for your heart and lungs to do their jobs. You may need to bring your weight down to your target weight. If you are at your target weight, the doctor may need to change your target weight. Call HPDU for assessment.

Shortness of breath may also occur if you are holding a 4.25% bag inside your peritoneal cavity. Increased fluid collecting in your abdomen may make you feel too full. Do an extra exchange if this occurs.

## WHAT SHOULD YOU DO IF YOUR BLOOD PRESSURE IS TOO HIGH?

High blood pressure when you are on dialysis has many causes. Two of the main causes are: too much salt in the blood which will increase thirst; and, too much fluid in the blood. Failure to take blood pressure medication as the doctor prescribes may also be a factor. A persistently high blood pressure can cause damage to your blood vessels and increase the risk of heart disease and stroke.

Signs and symptoms of high blood pressure include:



Headache



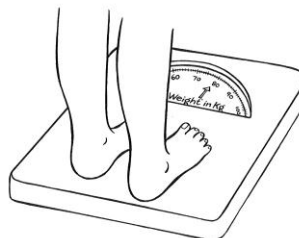
Nausea and Vomiting



Blurred Vision



Shortness of Breath



Increased Weight



Edema

If your blood pressure is high and you are above your target weight, HPDU nurses may instruct you to use 2.5% and/or 4.25% bags to remove fluid from your body which will help you reach your target weight. Also restrict the amount of fluids and salt you consume. **If high blood pressure persists, call HPDU.** We may need to assess your blood pressure medication and target weight.

High blood pressure may have no symptoms,  
which is why it is important to  
**take your blood pressure every day.**

## **WHAT SHOULD YOU DO IF YOUR BLOOD PRESSURE IS TOO LOW?**

Low blood pressure can make you feel:

1. Weak
2. Dizzy
3. Light-headed
4. Leg cramps.
5. Sweating

And can also cause:

If it becomes very low, you may faint and fall, possibly injuring yourself.

If you are on blood pressure medication, do not take it until you contact HPDU.

If your blood pressure is low and you are below your target weight, you may need to bring your weight up by using a 0.5% bag and/or drinking extra fluids.

If you feel dizzy drink some salty fluid like OXO soup. Do not sit or stand up **quickly**. Change your position **slowly** to avoid feeling faint.

If you are at your target weight, your blood pressure is low and the symptoms persist, you may need to increase your target weight and have your blood pressure medication(s) adjusted.

If low blood pressure persists, call HPDU.

## **WHAT ARE OTHER COMMON PROBLEMS YOU MAY EXPERIENCE?**

### **ITCHY SKIN:**

Some patients on dialysis may have itchy or dry skin. This could be because extra phosphate in your blood gets beneath your skin and may cause itching. Peritoneal dialysis cannot get rid of the extra phosphate in your blood as well as healthy kidneys. You may need to take a medication called a “*phosphate binder*” (i.e. calcium carbonate) to reduce the amount of phosphate in your blood. Taking your binders as you are instructed with meals will help decrease itchy skin. Make sure you are following your low-phosphate diet.

---

You can help prevent dry and itchy skin. Do not use strong scented soap or harsh detergents for cleaning and avoid powders and perfume. These can irritate your skin. Putting lotion on your skin after doing dishes or showering may help. **NEVER put lotion on your exit site area!**

Not having enough dialysis may also cause itching. Make sure you are doing the number and volume of peritoneal dialysis exchanges that we instructed you to do. If you skip dialysis exchanges, you may suffer the consequences of under-dialysis (uremia).

### **CONSTIPATION :**

This can sometimes be a problem with peritoneal dialysis. Constipation causes your bowel to fill with stool and become larger. The bowel then can press up against the peritoneal cavity. This may block your catheter, causing problems with filling and draining. Constipation can sometimes cause germs to move from the bowel into the peritoneal cavity resulting in peritonitis.

Avoid constipation by eating foods which the dietitian suggests. Please discuss this with the dietitian. Getting some exercise every day can also help to prevent constipation. If you do have a problem with constipation, your doctor may prescribe a stool softener and a laxative.

### **ANEMIA:**

Anemia is a decreased amount of hemoglobin and red blood cells in your blood. It is very common in renal failure patients. You may feel tired and have less energy.

Anemia in renal failure patients has several causes:

1. Low iron levels in the body.
2. Uremia (too much creatinine and urea in the blood) shortens the life span of the red blood cells.
3. Uremia causes the bone marrow to make fewer new red blood cells.
4. The healthy kidney produces a substance called “*erythropoietin*”, which stimulates bone marrow to produce red blood cells. Diseased kidneys usually don’t produce enough of this substance.

Medication is available which helps build red blood cells. These include iron replacement pills and/or erythropoietin injections. We check your red blood cell level each clinic. If you have less energy than normal, be sure to tell the nurse or doctor so they can check for anemia.

### **BONE PROBLEMS :**

Too much phosphate in your blood can cause itchy skin and problems with your bones. Phosphate competes with calcium in your body, and takes the calcium out of your bones. This can slowly make your bones weak, painful and easy to break. You must control phosphate and calcium levels while on peritoneal dialysis by taking phosphate binders (calcium carbonate) with your meals.

We check calcium and phosphorous levels at each clinic. Bone problems are not easy to recognize and they happen slowly over time. You should take the binders that the doctor prescribes, and watch your diet as the dietitian instructs. This may help reduce bone problems in the future.

### **HERNIAS:**

A hernia may appear as a small lump or bump (swelling) on the lower part of your abdomen. It may appear slowly or suddenly near an incision line, near your belly button or in your groin area. It is a bulging part of the bowel pushing through the muscular wall of the abdomen. Many people get hernias from doing heavy exercise or lifting. You may get a hernia due to the pressure from the dialysis fluid inside you. An operation is usually needed to "repair" the muscular wall of the abdomen. You should contact HPDU if you think you may have a hernia and do so immediately if this becomes suddenly painful.

### **ABDOMINAL/SCROTAL LEAKS:**

A "leak" is when peritoneal dialysis fluid leaks from the peritoneal cavity into tissue. CONTACT HPDU IMMEDIATELY if you notice swelling in the tissues of the abdomen, penis, scrotum or vagina. Fluid from the peritoneal cavity may be leaking into these tissues.

### **LEG CRAMPS OR LEG RESTLESSNESS:**

Leg cramps and leg restlessness may be caused by both kidney failure or by not having enough dialysis. Uremia (too much creatinine and urea in the blood) can cause peripheral neuropathy. Peripheral neuropathy is the inflammation and degeneration of peripheral nerves. This occurs most often in the lower limbs. Your legs may feel a prickly, tingling or painful sensation. Your legs may be restless and you may have "burning" feet. Inform HPDU and we can prescribe medication to help relieve your symptoms.

### **REMEMBER THIS:**

Whatever the medical complication, notify the HPDU nurse promptly. During day time hours, call 416-340-5672 and after hours, call the HPDU nurse by pager # 416-715-1326 as explained in the Introduction section. Avoid going directly to any hospital until you have called the HPDU nurse. Efficient/effective care is optimized by following the advice of the HPDU nurse. If physician assessment is required, you will be either directed to go to the Toronto General Hospital Emergency Department or the nearest hospital to where you live. The HPDU nurse can be a liaison with the Emergency Dept. medical staff which may reduce waiting time.

Please call the HPDU nurse as your first action!



# **Part B:**

## **Mechanical Complications (Troubleshooting)**

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## **WHAT ARE SOME DIFFICULTIES YOU *MAY* HAVE WHEN DOING AN EXCHANGE?**

### **LEAKING DIALYSATE BAG :**

You may notice a large amount of loose fluid when you remove the outer plastic bag. Look for a hole in the fill bag. Discard the faulty bag and get a new bag. Report this to HPDU. A small amount of moisture from condensation is normal.

### **SLOW DRAINING OR FILLING:**

Draining and filling may be slow for several reasons.

Check the following:

- Are there any kinks in the tubing?
- Are the correct clamps fully open?
- Is an air bubble in the tubing?  
If so, squeeze the bag gently or wrap three loops of the tubing around your finger and squeeze hard.
- Is fibrin in the tubing?  
If so, squeeze the bag gently or wrap three loops of the tubing around your finger and squeeze hard. Add heparin to all fill bags for the next 24 hours. Check your directions or call HPDU for assistance with dosage.
- Is the fill bag higher than the abdomen? Is drain bag lower than the abdomen?
- Change your position – sit, stand, lie down on right and left side to see if you drain better in another position.
- Are you constipated?  
If so, take a stool softener or laxative as advised by HPDU.

### **FLUID LEAKING OUT AROUND THE EXIT SITE:**

If you notice fluid leaking out around the exit site, try to keep the exit site dry by covering it with gauze. CALL HPDU IMMEDIATELY. You will probably be advised to drain the fluid out immediately and to come to HPDU for assessment.

### **TRANSFER SET BREAKS OR TUBING BECOMES DISCONNECTED FROM THE METAL CONNECTOR (“TITANIUM”) OR THE CATHETER ADAPTER :**

If you notice the tubing has disconnected from the catheter adapter, put a clamp on the catheter close to the skin, cap it if possible and cover with gauze. Call HPDU immediately. You will need to come to HPDU to have new tubing attached and to be treated with an antibiotic.

### **DRY CONTAMINATION OF EQUIPMENT :**

Parts of your peritoneal dialysis equipment are sterile and you must not touch them. Sterile parts become contaminated if you touch them.

Remember these sterile parts:

- The outlet port on the new solution bag (for those bags that are spiked).
- The end of the peritoneal dialysis tubing that connects to your transfer set or catheter adaptor.
- The inside of the disconnect cap.

If you accidentally touch any of these parts, or cough or sneeze while these parts are exposed, throw them away. Start your exchange again with new supplies.

If you touch the end of your Baxter transfer set while the twist (roller) clamp is closed, put on a new disconnect cap and leave it for 5 minutes.

### **WET CONTAMINATION :**

If any part of your peritoneal dialysis equipment starts leaking after you have connected to your dialysis tubing, you must clamp your fill line and CALL HPDU IMMEDIATELY. This means that a hole, crack, or leak somewhere in the equipment can let germs into the tubing system. Germs inside the bag or tubing can get into your peritoneal cavity and cause an infection.

If you forget to close your roller clamp on the Baxter system or forget to clamp your catheter on the Fresenius system, fluid will leak out of your catheter. You must close your twist clamp or clamp the Fresenius catheter and CALL HPDU IMMEDIATELY. You will need an antibiotic. The HPDU nurse will ask you questions to determine the extent of the problem and then tell you what you should do. The nurse will consult with the doctor as needed.

While you may think that you have many problems to think about on peritoneal dialysis -- WE CAN SOLVE THESE PROBLEMS IF WE WORK TOGETHER.

### **REMEMBER THIS:**

Whatever the mechanical complication, notify the HPDU nurse promptly. During day time hours call 416-340-5672; after hours call the HPDU nurse by pager # 416-715- 1326 as explained in the Introduction section. You will save yourself frustration by taking time to call the HPDU nurse first.

## **REVIEW QUESTIONS**

- 1. What are the three signs of peritonitis?**
  
- 2. What is fibrin? What should you do if you see it in your bag?**
  
- 3. Name the sterile parts of your CAPD equipment?**
  
- 4. What are some signs of high blood pressure? What are signs of low blood pressure?**
  
- 5. What should your first line of action be for seeking help with any medical or mechanical complication?**

# Peritonitis

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# **PERITONITIS**

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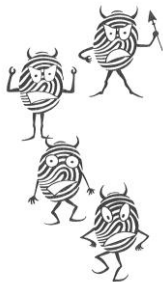
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## WHAT IS PERITONITIS?

Peritonitis is an infection inside your peritoneal cavity. It can cause decreased filtration of fluids and wastes by the membrane thus making your dialysis less effective. It may also cause you mild to severe abdominal pain. This infection inside the peritoneal cavity may cause scarring of the membrane and, possibly, loss of dialysis function. **WE NEED TO TREAT PERITONITIS IMMEDIATELY WITH ANTIBIOTICS OR IT CAN BECOME A VERY SERIOUS ILLNESS.** Severe infections may lead to catheter removal. Please follow our instructions carefully when you have peritonitis.

## HOW WILL YOU KNOW IF YOU HAVE PERITONITIS AND WHAT SHOULD YOU DO?

### WHAT ARE THE POSSIBLE CAUSES OF PERITONITIS?



Germs getting into the peritoneal cavity cause peritonitis. Once the germs get inside the warm, moist peritoneal cavity, they grow and spread rapidly. These germs cause infection, and will make you sick.

Germs can get into the peritoneal cavity in several ways. You need to know all the possible ways they enter the peritoneal cavity in order to prevent infection.

#### 1. TOUCHING ANY OF THE STERILE CONNECTIONS

Germs can spread into your peritoneal cavity if you touch a sterile part of the tubing system. This can happen even if your hands are clean!

#### 2. EXIT SITE INFECTION

An infection at your exit site can travel along the catheter into the peritoneal cavity. Caring for your exit site correctly and regularly is very important in preventing infections. Report any changes in your exit site to HPDU.

#### 3. NOT WEARING A MASK

Breathing, sneezing or coughing during exchanges can cause germs from your nose and mouth to get into your tubing. **REMEMBER, ALWAYS WEAR A FRESH MASK EVERY TIME!** This includes every person present in the room during an exchange. Please remove pets from the exchange area as they carry germs and may also puncture the tubing.

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#### 4. POOR HANDWASHING

Germs on your hands can spread into your tubing during exchanges or grow around your catheter when you touch it. **ALWAYS WASH YOUR HANDS THOROUGHLY WITH SOAP AND WATER FOR AT LEAST TWO MINUTES OR USE ALCOHOL BASED HAND SANITIZER FOR 30 SECONDS.**

#### 5. A HOLE IN YOUR DIALYSIS FLUID BAG OR TUBING

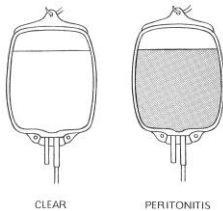
Before doing an exchange, always check for holes. If dialysis fluid can leak out, germs can go in. If you are unsure if it is safe to use a dialysis bag, please call HPDU for direction.

6. No matter how careful you are, you always have the chance of germs sneaking into your peritoneal cavity. If you are constipated, or have diarrhea, germs can enter your peritoneal cavity from your bowels and cause peritonitis. Poor dental care or respiratory infections may also be a source of infection. In these cases, call HPDU to discuss ways of preventing peritonitis. You must always watch for signs of peritonitis.



## **HOW CAN YOU TELL IF YOU HAVE PERITONITIS?**

There are five signs of peritonitis. You must know all these signs so you can recognize peritonitis early. You may have one or all of the signs. You should contact HPDU as soon as you recognize any of the signs of peritonitis.



### **1. CLOUDY BAGS:**

Always check the fluid that you drain EVERY time you do an exchange. If it is cloudy, you may have peritonitis. You should be able to see printing through the bag. If the printing is hard to read, the bag is cloudy.



### **2. ABDOMINAL PAIN:**

Abdominal pain may indicate peritonitis. This pain may range from mild discomfort to severe abdominal cramps.



### **3. HIGH TEMPERATURE:**

A fever usually means an infection somewhere in your body. If you have a fever, you may have peritonitis.



### **4. NAUSEA AND/OR VOMITING:**

Nausea and vomiting occur for a variety of reasons. If you have nausea and vomiting, you may have peritonitis.



### **5. DIARRHEA:**

Diarrhea occurs for a variety of reasons. If you have diarrhea, you may have peritonitis. Diarrhea may also cause peritonitis.

If you notice even one of these symptoms,

call HPDU immediately.

416-340-5672 office hours

Page 416-715-1326 after hours



**If you have a *cloudy bag* –**

**DO NOT WAIT** to see if it will go away the next time you do an exchange.

**DO NOT WAIT** to see if you develop a fever or abdominal pain.

***Call HPDU immediately!***

Peritonitis will not go away by itself! It requires **immediate** treatment with antibiotics. Furthermore, the earlier the treatment starts, the more successful the treatment is.

However:

**NEVER START ANTIBIOTICS BEFORE CONTACTING HPDU.**

Call HPDU--416-340-5672 daily between 8 am and 4 pm, Monday to Friday. From 4pm to 11pm Monday to Friday, from a touch-tone phone, call Pager 416-715-1326 and after the beep, quickly enter your phone number including your area code.

If you do not have a touch-tone phone, call the Hospital's Call Centre at 416-340-3155. Stay on the line until an attendant answers. Ask them to page the HPDU nurse on call. State your full phone number including area code and if you are calling long distance.

The nurse will ask you to save the first cloudy bag of solution to bring to HPDU for testing. Put two clamps on the drain bag.

**Do Not Throw Out The Cloudy Bag.**

Peritonitis can be serious if you do not treat it. Taking antibiotics usually resolves the infection. The doctor and nurse will decide how and where to treat this infection. We may teach you how to inject the antibiotic directly into your new dialysis bags. You may treat mild peritonitis at home. More serious cases may require hospitalization. You should feel better after starting the antibiotics.

**REMEMBER**

1. The infection will not go away without treatment. Do not wait.
2. Tell the doctor or nurse if you have any drug allergies.

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## **PERITONITIS PROTOCOL**

### **AT HOME**

1. Call the HPDU Nurse.
2. Save your first cloudy bag. Clamp drain bag with two clamps.
3. We will ask you to come to HPDU to receive antibiotic medication and to be seen by the nurse and doctor. You must save the first cloudy bag and bring it with you. We may request a home care nurse assist with your antibiotics administration after you receive the initial dose at the hospital.
  - ALWAYS check with the HPDU nurse BEFORE adding medications.
  - ALWAYS inform the nurse if you have any drug allergies.

We may instruct you to use one or more of the following injectable medications. In some cases, other medications are required (see Appendix section).

- Heparin
- Cefazolin
- Tobramycin
- Ceftazidime
- Vancomycin

Keep the bag medicated with antibiotics inside of you for:      a minimum of 6 hours, and  
a maximum of 8 hours.

The HPDU nurse will inform you about the daily medication doses and the time you should add these to your bag. You may need to check blood drug levels before antibiotics doses and times are determined.

The HPDU nurse following peritonitis cases will contact you daily to assess your symptoms and medications.

We ask you to bring the morning drain bag (held overnight) every two days to HPDU for testing. Once the symptoms subside, the bags are brought to HPDU every fourth day.

The HPDU nurse will check your bag exchange technique at the first opportunity after the onset of your peritonitis.

## **APD**

### ***(Automated Peritoneal Dialysis)***

If you experience peritonitis symptoms during APD, call HPDU at once. The nurse will assess the severity of symptoms and direct you accordingly.

### **MILD SYMPTOMS**

End your therapy early after a fill cycle. Hold that solution inside you for a minimum of two hours. Drain, using the manual dialysis (CAPD) system. **Clamp the tubings using 2 blue clamps and keep this bag for testing.** Contact the HPDU nurse again at this point for direction.

If the fluid is clear – a doctor should see you as soon as possible to assess the source of your symptoms.

If the fluid is cloudy – the HPDU nurse may, after consulting the doctor, direct you to begin treatment with antibiotics using the manual dialysis (CAPD) system.

***REMEMBER:***  
**DO NOT ADD ANY MEDICATION**  
**BEFORE CONTACTING HPDU.**

### **SEVERE SYMPTOMS**

End your therapy early, if possible after a fill cycle, or fill with the manual dialysis (CAPD) system. The HPDU nurse or doctor will direct you to go to the most appropriate hospital Emergency Unit.

### **WHAT IF YOU EXPERIENCE SYMPTOMS** **WHILE OFF THE CYCLER?**

**If you are "wet" (carry fluid during the day)** call the HPDU nurse. The nurse will direct you to connect to a manual dialysis (CAPD) bag. Drain the fluid (after a two-four hour hold) to assess the clarity of the drained fluid. Call the HPDU nurse who will direct you depending on the severity of the symptoms and your ability to do antibiotic injection.

**If you are "dry" (do not carry fluid during the day)** call the HPDU nurse. The nurse will direct you to connect to a manual dialysis (CAPD) bag and fill. Hold for two-four hours (if mild symptoms) then drain to assess the clarity of the drained fluid. Call the HPDU nurse who will direct you depending on the severity of the symptoms and your ability to do antibiotic injection.

## **REVIEW QUESTIONS**

- 1. Name six possible causes of peritonitis.**
- 2. What are the signs and symptoms of peritonitis?**
- 3. What do you do if you think you may have peritonitis?**
- 4. How do you contact the HPDU Nurse On Call?**
- 5. Why must you contact HPDU as soon as you notice the signs and symptoms of peritonitis?**

# **Peritoneal Dialysis Clinic**

**+**

## **Lifestyle Issues /**

## **Miscellaneous Information**

# PERITONEAL DIALYSIS CLINIC + LIFESTYLE ISSUES / MISCELLANEOUS INFORMATION

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## **I. PERITONEAL DIALYSIS CLINIC**

Once you have completed peritoneal dialysis training, you will have follow-up at the HPDU clinic on a regular basis. The doctor will determine the frequency of your clinic visits.

Clinic is held at: Room 425, 12<sup>th</sup> Floor, Eaton South Wing (East elevators)  
Toronto General Hospital  
University Health Network  
200 Elizabeth St.  
Toronto, Ontario  
M5G 2C4

***YOU are responsible  
for keeping your clinic appointment.***

**IF YOU ARE UNABLE TO ATTEND  
due to an emergency or bad weather  
NOTIFY HPDU.**

If you need to pick up medication at either the Toronto General Hospital's or Toronto Western Hospital's Retail Pharmacy, call a few days ahead.

***YOU are responsible  
for making sure you have medication  
to last until the next clinic.***



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## **CLINIC ROUTINE**

You should expect the following at your clinic visit:

1. An assessment by your primary nurse and/or physician each clinic.
2. Blood work prior to each clinic.
3. Special tests as required. Please notify HPDU of any tests you have booked. We will give you further instructions as needed, for example, whether you need to drain out the dialysis fluid prior to the test.
4. An assessment by the pharmacist, social worker, dietitian, and/or Chiropodist as required or requested.

## **WHAT TO BRING WITH YOU**

1. Medications in the ORIGINAL pharmacy containers.
2. Daily dialysis reports.
3. A list of questions/concerns.
4. If you pass urine, 24 hour urine collection every 2<sup>nd</sup> clinic as you are instructed by the nurse or doctor). The 24 hour urine collection is very important to assess how well your kidneys are working and to ensure your dialysis prescription is adequate.

### **Remember**

1. If you are unwell or have problems before your clinic day, call HPDU for an earlier assessment.

If you are unwell on your clinic day, do not cancel your appointment. You need to be assessed if you are unwell.

2. Always allow enough time to complete the clinic assessment.  
Do not book transportation pickup early. Plan to be at your clinic appointment for approximately 4 hours.

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## **COMMUNICATION WITH THE HPDU STAFF**

Communication is a two-way process. Listening as well as speaking to one another is something both staff and patient must work on together. Being honest and open with each other is also important. The more honest you are, the better the staff can help you.

**You can make the most of your staff-patient communication with these suggestions:**

- Plan what you will say to your doctor or nurse about your problem ahead of time. Your observations about a health problem can be invaluable in making a diagnosis.
- Repeat in your own words what the doctor or nurse has told you. Use simple phrases like, "Do I hear you say that ...?" or "My understanding of the problem is ..."
- Take notes on what is wrong and what you need to do.
- If you are confused by medical terms, ask for simple definitions. There is no need to be embarrassed by this. When a medication is prescribed, ask about its possible side effects, its effectiveness and how long it must be taken. If your doctor discussed surgery ask about alternatives, risks, and a second opinion.
- Be frank with the doctor or nurse if any part of the office visit is annoying such as lengthy waiting time (i.e. longer than 4 hours) or discourteous staff. Be tactful but honest.
- Don't be afraid to voice your fears about what you've heard. The doctor or nurse may be able to clarify any misconceptions.
- Discuss anything you've done that has relieved symptoms or has made them worse.
- Find out the best time to call your doctor if you have any questions after you leave the clinic.

*(Taken from © 1999 Don R. Powell, PhD, and Amer Inst for Prevent Medicine.)*

## **PERITONEAL DIALYSIS FOLLOW UP**

After you complete your training and the initial home visit, you will start peritoneal dialysis at home. Continuous follow up through clinic visits and phone call communications are very important to determine whether you are getting enough dialysis. This may include adjusting dialysis dose to meet your dialysis needs.

### **WHY DO I NEED TO ADJUST DIALYSIS DOSE?**

Typically you start with a minimum amount of peritoneal dialysis. This is because your kidneys may still be making urine and helping clear toxins from the blood. Over time, kidney disease can progress leading to less function. This means that you may need more dialysis to make up for this decrease in kidney function. Gradual increase in dialysis dose may maintain your residual kidney function longer.

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## **HOW DO I ADJUST DIALYSIS?**

Continuous follow up including clinic visits and phone call communications, blood work and 24 hour urine collection will allow HPDU staff to assess your individual dialysis needs. When you need to increase your dialysis dose, you can discuss the various options with HPDU team and together decide which option suits your life style. In some cases it means increasing the hours of the dialysis, increasing the volume of peritoneal dialysis solution, carrying PD solution during the day time, or even changing to a different kind of dialysis. Please ask your HPDU nurse for more information.

## **KIDNEY TRANSPLANTATION**

Transplantation is another form of treatment for chronic renal disease. You may or may not be suitable for a kidney transplant. If you are interested, please inform your primary nurse or doctor. If you are medically suitable, the doctor will refer you to the transplant service for an assessment and information-sharing session. A HPDU transplant coordinator will arrange the assessment process. Usually it takes a minimum of one year to complete the transplant assessment process.

Once the assessment is complete and you are suitable for a kidney transplant, you will be put on the waiting list. However, you will be backdated to the date you started dialysis.

Waiting time varies depending on your blood type and antibody status. If you have a living donor, waiting time will be decreased. Please discuss further with HPDU team.

If you have Diabetes Mellitus, you may also wish to obtain information about kidney/pancreas transplantation.

## **TRANSPLANT AMBASSADOR PROGRAM (TAP)**

TAP is an independent, patient-centred, patient-led program driven by passionate volunteers who are also kidney donors or transplant recipients. Transplant ambassadors are registered volunteers selected carefully at renal hospitals. The goal of this program is to help guide you through your kidney journey by sharing their personal experiences with you and by providing support in clinic and through Zoom, phone, or email. For more detailed information, visit website at <https://transplantambassadors.ca/>

If you feel you want to use this service or be a participant, please discuss this with your primary nurse or social worker.

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## **II. LIFESTYLE / MISCELLANEOUS INFORMATION**

When a person reaches end stage renal disease and requires dialysis, many questions arise such as:

- *Can I work?*
- *Am I going to be a burden to my family?*
- *How will my life change?*
- *Will I be able to learn to do peritoneal dialysis?*
- *Will I be able to cope with peritoneal dialysis?*
- *Will I die prematurely?*
- *What changes can I expect on PD?*

Common experiences include the following:

- You may gain weight.
  - Sense a change in body image from the tube in your abdomen.
  - Your energy level may improve.
  - You may feel full and your waist size will likely go up.
- *Will PD affect how I am feeling emotionally?*

After the busy-ness of starting on dialysis and training, people may experience a period of "let down" or depression. Others feel a period of grief. Many feel much better because their health is improved with PD.

### **DEALING WITH EMOTIONAL STRESS**

You may experience feelings like:

**Anger:** "Why me? I've always taken care of myself."

**Grief and Loss:** "I can't do the same things I did before I had kidney disease and how I've got to have all this fluid in my stomach."

**Depression:** "I used to be very active. I belonged to a walking group. I loved to go dancing and I enjoyed travelling. Now, I don't have a lot of energy and I can only manage to do my dialysis. Some days I don't even feel like getting out of bed."

These feelings and concerns may not apply to you; everyone experiences a situation in their own way.

People have various resources and supports to help them adapt to change and stress. At times people on PD have tried the following to improve how they feel.

- Listening to relaxing music.
- Praying or meditating.
- Being close to nature.
- Enjoying pets.
- Talking with friends or family.
- Journaling.
- Attending spiritual centres.
- Walking.

What kinds of things have you done in the past to reduce your stress?

During times of depression, more support can be provided by referral to a psychiatrist who has special expertise with kidney patients.

More frequent contact with your HPDU Social Worker may also help.

The nurse reviewing this manual with you and your family/partner will discuss these issues. If you wish further information or follow-up, you can get it from members of the dialysis team -- the doctor, nurse manager, nurse, social worker, dietitian, chiropodist, transplant secretary or chaplain. They can also direct you to other specialists or agencies to help answer your questions and concerns.



## 1. BODY IMAGE, SEX AND INTIMACY

- **Will PD affect my social life?**

*Possibly. People may feel isolated from friends and their social circle. If you do not have much energy, keeping up with friends and family may be hard. Pace yourself, but make sure you keep in touch with the close people in your life. Consider helping them to understand your new life on PD. Making new friends also adds to social support.*

- **Will PD affect my sex life?**

*The tube (catheter) may feel awkward at first. Sometimes men who are on PD have trouble getting or keeping an erection. It may take some adjusting for your partner to get used to seeing or feeling the tube during sex. Sharing is important to helping you both through this.*

- **Should I have sex when my belly is empty or full?**

*It depends on what feels most comfortable to you. You can either drain the PD fluid before sex, or if you don't notice a difference, being full is fine, too.*

- **What should I do with my tube (catheter) while I'm having sex?**

*Make sure it is taped well to your skin. One choice is to tape it to the side, towards your back so that it is out of the way.*

- **Can I have sex while I'm hooked up to my cyclor?**

*Yes. Just make sure the tube (catheter) and tubing is securely taped.*

*Your PD team is here to help answer questions and provide support.*

Over half of all people with kidney failure experience some problem with sexual function. This can vary from a lack of interest to a complete inability to have an erection or reach orgasm. For some, this can have a devastating effect on their self-respect and be another source of stress. Many people choose to ignore this problem because, unlike dialysis, sexual fulfillment is not necessary for survival, so they feel uncomfortable complaining about it.

Your sexual activity doesn't have to change because you are on dialysis. You don't need to worry about your catheter. It will be okay. Feel free to discuss concerns with the health team member with whom you feel most comfortable – the doctor, nurse practitioner, nurse, social worker or your new peer support friend.

If you wish to discuss concerns outside the health team, you may wish to contact The Kidney Foundation. The Foundation has an excellent manual on sexuality. Available community resources include sex counsellor.

Sexual problems can have many causes. Fatigue may be a factor. Chronic illness and the demands of dialysis contribute to this.

Depression is another factor. Almost everyone experiences episodes of depression – and one of the first symptoms of depression is loss of interest in sex. Sometimes depression works the other way, too. Sexual inactivity can lead to depression. Either way, it's a problem that you should talk about. *Don't suffer in silence.*

Sometimes the medications used to treat kidney disease can throw your hormones out of balance, possibly affecting your ability or desire to have sex. Concern about how other people look at you can also be involved. Insertion of a peritoneal catheter may cause you to avoid physical contact for fear of rejection.

## **HOW DO YOU GET HELP?**

You have resources to help you overcome sexual issues. The answer might be as easy as simply changing your medication. Talk to the member of your health care team you feel most comfortable with – whether that's your doctor, social worker or nurse. Ask for a referral to someone who specializes in sexual problems.

The first step is a medical examination to determine if the problem is physical. A referral to a specialist nurse, psychologist, or psychiatrist to assess non-medical factors may follow the examination. Frequently, many people feel better knowing they are not alone.

Hearing that other people have similar problems and that we can often solve these problems is reassuring.

Counselling and education often follow assessment. Learning how to speak more openly with a partner and express your personal needs and concerns more clearly can often reduce anxiety and improve your sex life.

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## **WHAT CAN YOU DO FOR YOURSELF?**

Thinking of sexual intercourse as the only real sex act may cause you unnecessary distress if you have limited desire or energy. Intimacy doesn't have to include intercourse. Many forms of sexual expression don't require as much energy. Holding hands, hugging and kissing can make you feel better. Communicating your concerns and problems with your partner is very important.

Books, articles and pamphlets are good sources of self-help information. Book stores and libraries have sections covering many aspects of sexuality. Pamphlets are available in the clinic area and also from The Kidney Foundation.

## **INFERTILITY**

- ***Do I need birth control, or should my partner use birth control when I'm on PD?***  
*Yes! You could get pregnant or get your partner pregnant, even if you are on PD.*

Women with kidney failure often stop having their monthly periods. Once they've established a regular pattern of dialysis, a normal menstrual cycle may return.

Both men and women with kidney failure are often infertile, even with regular dialysis. There are of course exceptions and pregnancy is sometimes possible. Speak with the nurse or doctor about birth control methods.

Please feel free to pick up the pamphlets on this and other topics available in the patient clinic area.



## **2. DIET : HEALTHY EATING**



### **KIDNEY FUNCTION and DIET**

Healthy kidneys remove wastes, vitamins, minerals and water. Those wastes and water come from the foods you eat and the fluids you drink. Now that your kidneys are not working well, wastes and excess minerals and water will build up in your body and need to be removed by dialysis. Diet and medications work together with dialysis to help control this buildup in your body. These treatments are necessary to keep you healthy and to keep you feeling well. Dialysis does not work exactly the same way a healthy kidney does. In addition to removing waste, dialysis also removes some nutrients your body needs.

### **WHY DO YOU NEED TO EAT A LOT OF PROTEIN?**

Peritoneal dialysis will filter out the wastes and extra fluid from your blood that your body does not need. However, some things that your body does need are lost in the dialysate (dialysis fluid). Protein is one of these. On peritoneal dialysis you may need more protein than usual – some for your body's specific protein needs and some to make up what you lose in the dialysate.

You need protein for the general running of your body – for growth and repair of cells, for muscles, enzymes, blood cells, and many other things. If the protein in your blood is too low, you are at higher risk for getting infections like peritonitis. An infection such as peritonitis increases protein loss in the dialysate.

To get enough protein every day, you need to eat high quality protein foods such as fish, poultry, eggs, pork and beef. Other foods such as milk products, tofu and legumes are also good sources of protein but may need to be eaten in limited amounts, as they can be high in potassium and/or phosphorus. If you follow a vegetarian lifestyle, this diet can be safe with careful planning. Your dietitian will advise you on the amount and type of protein that is best for you.

## **WHY MAY YOU NEED TO RESTRICT CERTAIN TYPES OF FOOD FROM YOUR DIET?**

Everyone is different therefore you will have your blood monitored and your diet will be adapted based on your blood work. Some of the waste products can cause problems for you if they are too high or too low. Some of these waste products are:

Phosphate (phosphorus)	PO <sub>4</sub> or P
Potassium	K <sup>+</sup>
Sodium	Na <sup>+</sup>

### **PHOSPHATE**

When the level of phosphorus in your blood is high over time, the excess phosphate draws calcium out of bones. This can cause hard deposits to form in your heart and blood vessels, making them stiff. High levels of phosphorus can also make your bones weak and more likely to break. You may also feel itchy.

Over a period of time, extra phosphate in the blood can affect your bones and blood vessels. More importantly high phosphate may lead to premature death. That's why it's important to maintain a normal phosphate level.

**If lab tests show that your phosphate is too high, you should limit the amount of foods you eat that are rich in phosphate such as:**

- Foods with phosphate additives (i.e. packaged products)
- Milk and milk-based foods (yogurt, milk shakes, puddings)
- Hard cheeses (cheddar, Swiss, brick, mozzarella, etc.)
- Organ meats such as liver, kidneys, brain
- Nuts and seeds

Your doctor may prescribe medication to help keep your phosphate level down. These are called phosphate "*binders*". You must take your binders every day as your doctor, nurse or dietitian tells you. Take your phosphate binders every day with meals and/or snacks to avoid blood vessel and bone problems.

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## ***POTASSIUM***

Potassium is a mineral that you need to keep the nerves and muscles working well. It is cleared from the body at different rates in different people. Some people may need a potassium restriction, while others may need extra potassium.

High and low levels of potassium in the blood can cause muscle weakness. Levels that are too high or too low can affect the heart muscle. The heart is a large muscle, and too much or too little potassium in the blood will make your heartbeat weak or irregular and may even cause your heart to stop beating!

If lab tests show that your blood potassium is high, you should avoid or reduce the amount of foods in your diet that are rich in potassium. This include:

- High potassium fruit (i.e. bananas, avocados, kiwi)
- High potassium vegetables (i.e. potatoes, spinach, tomato sauce)
- legumes (i.e. beans, lentils)

**If potassium is too low, you should eat more fruits and vegetables**, especially those high in potassium. Your dietitian can advise you on the type and amount to help increase your blood potassium levels.

## ***SODIUM (SALT)***

Your body uses sodium to hold water. The kidneys normally help the body keep just the right amount of sodium. The right amount of sodium keeps the right amount of water in your body. Your kidneys may no longer be able to remove extra sodium from your body, so you may have too much sodium in your blood.

Too much sodium in the blood can cause the body to hold too much water and can make you thirsty. Extra water causes fluid weight gain, high blood pressure, swelling in your legs/ankles, and difficulty in breathing.

You have two ways to control the extra amount of water in your body while on peritoneal dialysis:

1. Use a stronger dialysis solution, which has a higher dextrose (sugar) concentration, such as 2.5%, to remove more fluid - if advised to do so by your HPDU nurse or doctor. Remember this will give you extra calories and may make you feel thirsty.
2. Decrease the amount of sodium you eat and the amount of fluid you drink. This is the “BETTER WAY” to control fluid!

Remember, eating foods with a lot of sodium (salt) will make you thirsty. When you are thirsty, controlling the amount of fluid you drink is difficult!

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If you are having problems with fluid overload, you may need to avoid foods that are high in sodium such as:

- fast food (i.e. Chinese food)
- convenience foods (i.e. frozen meals, instant foods)
- commercial soups (i.e. canned or from a store or restaurant)
- canned foods
- bacon, ham, and sausages
- pickles and olives
- sauces used in cooking (i.e. soy sauce, fish sauce, teriyaki sauce)
- luncheon meat

Never use salt substitutes – they often contain large amount of potassium! (And, eating extra potassium can be dangerous.) When you are cooking, try adding herbs and spices for added flavour instead of salt. Avoid using salt at the table.

Dehydration means you have too little fluid in your body. Dehydration can cause low blood pressure. Not drinking enough fluid, vomiting, diarrhea, sweating too much, or using too many hypertonic bags can cause dehydration. If you have low blood pressure, or dehydration, you may need more sodium in your diet or reassessment of your target weight.

The dietitian, doctor or nurse may tell you to change your fluid or sodium intake if you have problems with blood pressure, fluid overload, or dehydration.

## **OTHER NUTRIENTS TO CONSIDER**

### **CARBOHYDRATES**

While on peritoneal dialysis, your body gets calories from the food you eat normally and also from the dialysis solution that you put in your peritoneal cavity. The dialysis solution contains glucose, which is sugar. Your body absorbs some of the calories from the sugar while you are on peritoneal dialysis. The extra calories you absorb from each 2-litre bag of solution will be different for every patient, but close to:

A 1.5% bag has 80 calories.
A 2.5% bag has 140 calories.
A 4.25% bag has 240 calories.

The calories from dialysis solution are extra calories which can cause an increase in your body weight. The solution add extra carbohydrates to your body due to dextrose (sugar) in the solution. You may need to adjust the amount of carbohydrates in your diet while on peritoneal dialysis. Speak with your dietitian to learn how much carbohydrate is right for you.

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## **FIBER**

Fiber is important to help prevent constipation and maintain your weight. Some high fiber foods that aren't too high in phosphorus or potassium include:

- corn
- corn bran cereal
- green beans
- peas
- apples
- blackberries
- raspberries
- pears

Some easy tips to help increase fiber in your diet include:

- Choose fresh fruits and vegetables over fruit juices, as fruit juices contain little fiber.
- Eat skins and peels where possible to increase fiber intake.
- Add natural wheat bran to cereal or meals.

Your dietitian can advise you on the amount of fiber that is right for you.

## **WHAT ARE THE KEYS TO HEALTHY EATING ON PERITONEAL DIALYSIS?**

Your dietitian will work with you to keep you healthy and keep your blood levels balanced. With a few changes to your normal diet, you can have a wide variety of healthy and tasty meals! Your dietitian can help you make the best choices for your diet and answer any of your nutrition questions.

### **Remember**

1. Your diet may change now that you are on peritoneal dialysis. Your dietitian will work with you to help you meet your dialysis nutrition needs.
2. Eat plenty of protein! This is important for growth and repair of a healthy body.
3. Keep an eye on your potassium and phosphorus levels in your blood. Your dietitian will help you to adjust your diet as needed to keep your levels safe.
4. Watch your sodium and fluid intake to avoid becoming fluid overloaded or having to use a lot of hypertonic solutions (such as 2.5% and 4.25%).
5. Don't forget to include kidney-friendly fiber choices in your diet! This can help relieve constipation, thus decreasing your risk of peritonitis while on dialysis.
6. Carbohydrates are an important energy source for the body. Your dietitian can work with you to determine the amount and type you need while on peritoneal dialysis.

### **3. ADVANCE DIRECTIVES**



#### **SOCIAL WORKER ROLE**

A Social Worker is a part of the PD team and can help with many non-medical needs, such as:

- Support, counselling, and education
- Transportation
- Financial help and disability pension
- Disability tax credit
- Home Support
- Housing and care options
- Planning for future healthcare choices

As a dialysis patient, you may live a relatively healthy life for many years. Certainly, as health care professionals, we are devoted to doing our best to give you the highest level of health and quality of life for as long as possible. Part of this care is understanding your wishes in the event that your health should seriously deteriorate and you are in a situation where you are unable to think clearly or you are unconscious.

To prepare for this possibility, you may want to determine your wishes with regard to a variety of treatments, including dialysis, in various health situations. By considering the following options you can decide what you are most comfortable with.

You may wish to complete a *power of attorney* for personal care or a *living will*, giving someone you trust the legal authority to make decisions for you and by putting your wishes or instructions in writing in case you cannot make a decision. You do not need a lawyer to complete these documents but, of course, you may do so. You may prefer to state your wishes to your next of kin whom you will trust to carry out your wishes should you become unable to make your own decisions.

If your wishes are unknown to anyone, either stated or in writing, your health care givers will approach your next of kin and family to make decisions on your behalf.

In the process of determining your wishes, you and your family will likely have questions you would want to ask your physician. You are encouraged to discuss this matter further with your physician, nurse or social worker. Further information about power of attorney and living wills is available from your social worker.

## **4. ONTARIO DRUG BENEFITS**

*Ontario Drug Benefits* are automatically eligible to individuals who are 65 years or older who have a valid Ontario Health Card (OHIP). Each senior pays a \$100 deductible annually and a dispensing fee for each prescription. You may apply for the \$2 co-payment (instead of paying the \$100 deductible and higher dispensing fees) if you have an annual income below \$19,300 (single) or \$32,000 (couple) as of Aug 2019.

## **5. TRILLIUM DRUG PROGRAM**

The *Trillium Drug Program* is an Ontario Government drug plan available to people who have high drug expenses in relation to their income and who have no other drug plan. You must pay a certain amount of net family income for prescription drugs before benefits from this program can begin.

Detailed information packages are available at your pharmacy or from your social worker.

The Trillium Drug Program can be contacted at:  
www.health.gov.on.ca/English/public/pub/drugs/trillium.html  
phone: 416-642-3038 or 1-800-575-5386  
e-mail: trillium@resolve.com

## **6. GENERAL FOLLOW-UP**

You are responsible for arranging ongoing follow-up with your family doctor and/or specialist(s) regarding other aspects of your health care. For example, mammograms, pap smear, prostate exams, eye exams, etc.

Please advise the HPDU staff when you are booked for tests and procedures as you may need to drain your dialysis fluid prior to the test or procedure to ensure accurate results.

You may also need antibiotics prior to some tests and procedures to prevent peritonitis.

## **7. DENTAL FOLLOW-UP**

You should visit your own dentist or the Mount Sinai Hospital dental clinic regularly for dental care. If you are concerned about paying, discuss this with the dental clinic and/or the social worker. The Mount Sinai Hospital dental clinic phone number is 416-586-5147.

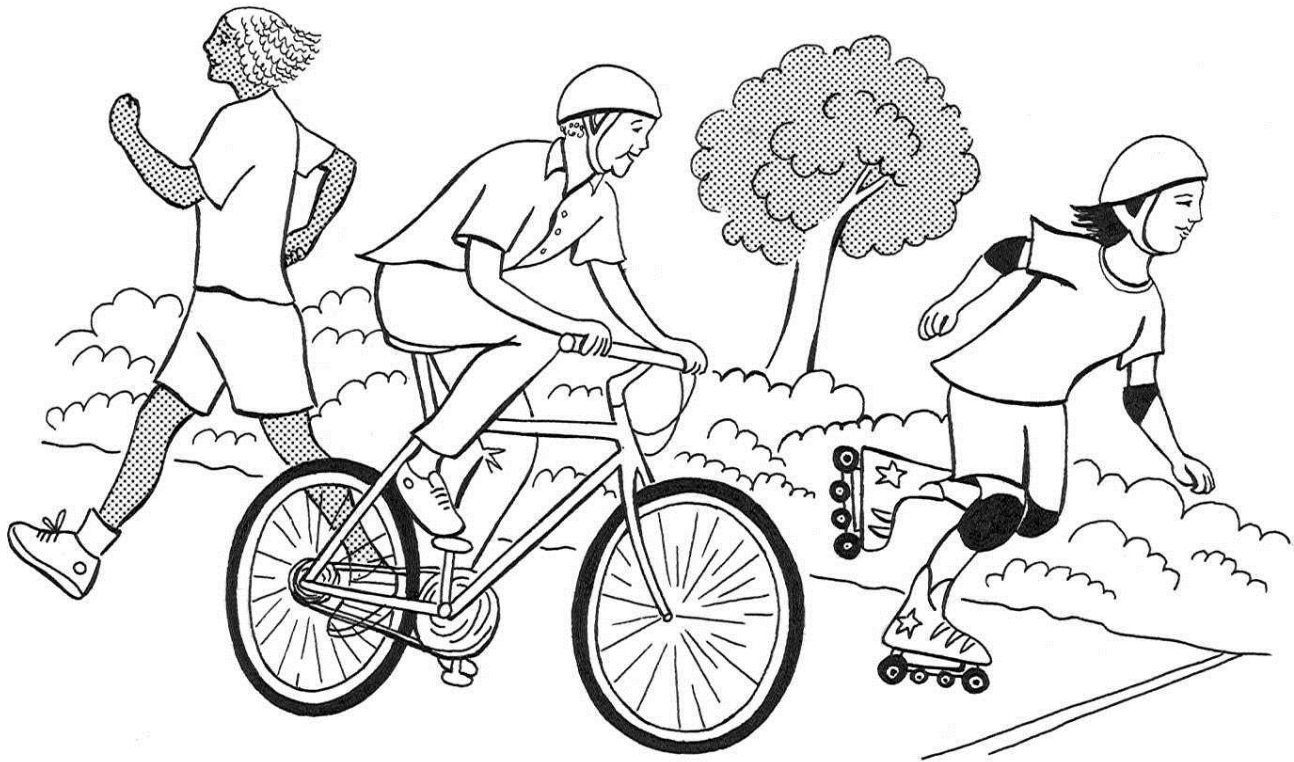
When you need to see a dentist, you will need to take an antibiotic prior to having dental work to prevent infection. A prescription will be provided to you during training. If you have used up your refills, call HPDU.

When the dentist examines, cleans, fills or pulls your teeth, you often have a break in your gum tissue (due to the uremia of kidney failure, you have a higher risk of this happening). When this occurs, sometimes germs in your mouth enter your blood. If this happens, these germs can go to your peritoneal cavity and cause a peritonitis infection. Antibiotics ordered by the doctor will destroy the germs before they can cause an infection. Tell your dentist you are on peritoneal dialysis. Inform the dentist if you have any known allergies.

If your dentist states that antibiotic prophylaxis is not necessary, please have him/her call HPDU. We will explain that the antibiotics are for the prevention of peritonitis, not endocarditis.



## **8. EXERCISE**



### **CAN I EXERCISE WHILE ON PERITONEAL DIALYSIS?**

Exercise is a necessary and safe part of daily life on dialysis. Exercise and activity has many benefits including;

- improved energy level
- increased strength
- increased endurance
- improved blood pressure control
- weight control
- improved blood lipid levels

Exercise maintains your sense of independence and well-being.

Speak to your nurse or doctor if you would like to begin an exercise program or have questions about your current exercise habits. This is to avoid any complications due to your medical condition. A Physiotherapist can be helpful to maintain appropriate exercise and activity for you.

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The physiotherapist can recommend safe and effective exercise programs for you. The physiotherapist can educate you about:

- safe exercise (i.e. walking)
- back care (i.e. safe lifting)
- strengthening exercises
- and much more!

The doctor, nurse and physiotherapist can also advise you what activities are encouraged for an individual on peritoneal dialysis. Everyone has his/her own exercise tolerance. The physiotherapist can help you develop your own exercise routine. We strongly encourage you to walk, cycle and dance regularly. Avoid lifting heavy objects due to the risk of hernias.

## **CAN I SWIM WHILE ON PERITONEAL DIALYSIS?**

We strongly advise you not to swim as you put yourself at risk for exit site infection.

If you decide to risk swimming, you should only swim in a private swimming pool or an ocean. Do not swim in a public pool, river or lake due to the high risk of infection. Never take a tub bath or use a Jacuzzi. Consult HPDU nurse for details.

**Do not take a tub bath, use a Jacuzzi  
or swim in a public pool, river or lake.**

If you choose to swim, follow this protocol:

1. Place the catheter into a recommended water proof pouch to protect the connection sites.
2. Secure the catheter.
3. Swim.
4. Immediately after swimming, care for your exit site as we previously instructed you.

Everyone can benefit from exercise. Informative books, articles and pamphlets on this subject are available in the HPDU clinic area and from The Kidney Foundation.

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## **9. HPDU PATIENT ADVISORY COUNCIL**

### **HOW DID THIS GROUP COME ABOUT?**

In 1999, the Toronto Western Hospital, Toronto General Hospital and Princess Margaret Hospital conducted a hospital-wide satisfaction survey. Each department received their individual survey results. For HPDU, 5 out of 24 questions scored only in the "fair" range. Coincidentally, all 5 questions were related to communication. The HPDU Continuous Quality Improvement Team decided that we should strike up an ad hoc "patient satisfaction sub-committee" to work with the unit's staff and determine how communication of information can be improved. Seven HPDU patients agreed to be part of this process and after several meetings were held, it was decided by all committee members that this sub-committee should become a permanent part of our PD Program and it was renamed the Patient Advisory Council. Since 1999, the patient representation has grown, and even combined with Home Hemodialysis patients when PD and Home Hemo merged to form the Home Dialysis Program. Starting in 2011, the Council split into two distinct groups, one each for Peritoneal Dialysis and Home Hemodialysis. This will better serve the distinct needs of each patient group.

### **HOW CAN THE PATIENT ADVISORY COUNCIL HELP YOU?**

- The patient representatives have already generated several great ideas, including the possibility of developing educational videos.
- With a strong feeling that WE CAN LEARN AND BENEFIT FROM EACH OTHER'S EXPERIENCES, they requested a bulletin board be placed in the unit's waiting area.
- Could you share a true life story that may help a fellow patient that we could post on the bulletin board? For instance, where/how you travelled while in dialysis?
- Could you share a favourite recipe or helpful hint?
- Do you have a suggestion for program improvement?
- Would you like to be a member of this Council?
- Would you like more information? If so, please contact one of your Patient Advisory Council members by leaving a note on the bulletin board.

## **10. THE KIDNEY FOUNDATION**



Central Ontario Branch: 416-445-0373 (telephone)  
416-445-7440 (fax)

The Kidney Foundation of Canada is a national volunteer organization dedicated to improving the health and quality of life of people living with kidney disease.

The Foundation's volunteers raise all the funds available for patient services, research and organ donor awareness programs. The Chapter is strongly committed to serving the needs of you – the individual living with kidney disease. The Patient Services Program funds a wide range of activities and services, such as patient manuals, patient symposiums, newsletters, a Reference Library, information, referrals, Camp Dorset (a camp for kidney patients), Medic Alert bracelets, peer support program, limited financial assistance, and an Own To Loan Program.

### **PEER SUPPORT PROGRAM** **(of The Kidney Foundation)**

The major goal of this program is to help patients and their families adjust to living with renal disease, thus enabling them to live fuller, more productive lives. The Peer Support volunteers provide emotional and psychological support to patients and families as they adjust to life with dialysis.

The Peer Support volunteers work with individuals facing life circumstances similar to their own. If you feel you want to use this service or be a participant, please discuss this with your primary nurse or social worker, or call The Kidney Foundation at 416-445-0373.

## **11. TRAVEL**



If you are planning to travel, please make sure you tell the nurse and doctor **three months in advance** so they can prepare an information package for you to take along with you while travelling. This package includes your relevant medical history, your list of medications, the address and phone number of the nearest peritoneal dialysis centre where you are travelling, and a letter indicating you are travelling with medical supplies. You may need this for customs and/or if you require medical or nursing care while outside the Toronto area.

Please let your nurse and doctor know your trip itinerary to determine whether or not you need immunization prior to travelling.

### **MEDICATIONS:**

Please make sure you take a full supply of your medications for the period you will be travelling. This supply could include antibiotics and Heparin in case you need treatment for wet contamination while away. Check the expiry date on all medications to make sure they will not expire while you are away.

### **TRAVEL VACCINATIONS:**

Depending on where in the world you travel, you may need to receive vaccinations or medications to prevent illnesses prevalent in those areas. For example, Malaria is prevalent in Africa and Hepatitis A in underdeveloped countries. Consider making an appointment with Travel clinic to consult which vaccinations are recommended for a specific country.

Please discuss your travel plans with the HPDU nurse or doctor at least three months in advance so vaccinations and medications can be arranged.

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## **INSURANCE:**

You must purchase extra health insurance if you are travelling outside of Canada, even for a weekend. You are responsible for making sure that this insurance package covers all your dialysis and medical needs.

If travelling for more than six months outside Canada, you may lose your Ontario Health Insurance Plan (OHIP) coverage. Please call the Ministry of Health or check their website <https://www.ontario.ca/page/ohip-coverage-while-outside-canada> to clarify your insurance status in this situation.

## **SUPPLIES:**

Please call your Vantive (Baxter equipment) or Fresenius representative at least three months in advance of your trip to discuss delivery options that are nearest to your travel destination. Supplies are not delivered to all locations world-wide.

### **REMEMBER**

If you are travelling outside Canada or the United States,  
please ask the HPDU nurse or doctor if you require  
extra medication and/or vaccinations.

Note that some cruises and hotels might charge for special medical product disposal. These costs will be at your expense.

Vantive or Fresenius may charge delivery costs depending on your destination. Discuss with HPDU nurses when planning your travel. Please refer to “Ordering Supplies for Travel” on page 150.

## **12. VACCINATIONS**



**If you have an egg or protein allergy,  
discuss this with the nurse or doctor  
BEFORE RECEIVING ANY VACCINE.**

### **a. HEPATITIS B VACCINE**

Hepatitis B is a serious health problem in Canada. Dialysis patients are at risk due to frequent visits to the hospital and lowered immunity from kidney disease. We will test your blood to see if you have natural immunity. If you require the vaccine, the nurse or doctor will provide you with more information. It is a series of four to five injections given over a six- to eight-month period.

### **b. PNEUMOVAX**

You have end stage renal disease, a chronic condition which lowers your natural immunity. Because of this, aging and the increased exposure to germs during frequent hospital visits, we highly recommend you receive a pneumovax injection to prevent pneumonia. It is given once by injection and should be repeated every five years.

### **c. FLU VACCINE and COVID VACCINE**

For the reasons mentioned before, we strongly encourage you to have the flu vaccine and Covid vaccine each autumn (September to November) to prevent respiratory illness. Your family doctor or a pharmacist at your local pharmacy can give you this vaccine. It is given once by injection and should be repeated every year.

**d. TETANUS VACCINE**

We strongly encourage you to keep your tetanus vaccination up to date. Check with your family doctor when your last tetanus vaccine was given. It should be repeated every ten years.

**e. TRAVEL VACCINES**

Depending on where in the world you travel, you may need to receive vaccinations or medications to prevent illnesses prevalent in those areas. For example, malaria is prevalent in Africa and Hepatitis A in underdeveloped countries. Consider making an appointment with Travel clinic to consult which vaccinations are recommended for a specific country.

**CENTRE FOR TRAVEL AND TROPICAL MEDICINE (UHN)**

**Post Travel:** 416-340-4800 ext. 3675

**Pre travel:** 416-730-5700

**Acute illness:** 24-hour on-call service

**Tropical Diseases Unit**

Toronto General Hospital,  
Norman Urquhart, 13 North

**Tel:** 416-3675

**Travel Clinic**

123 Edward Street

**Tel:** 416-730-5700

Please discuss your travel plans with the HPDU nurse or doctor at least three months in advance so vaccinations and medications can be arranged.



## **13. "PATIENT BILL OF RIGHTS AND RESPONSIBILITIES"**

<b>Your Rights</b>	<b>Your Responsibilities</b>
<ul style="list-style-type: none"> <li>• You have the right to be treated in a considerate and respectful manner which considers your privacy and your right to confidentiality.</li> <li>• You have the right to receive relevant information and education concerning your condition, diagnosis, treatment and prognosis in a manner which is understandable to you.</li> <li>• You have the right to make decisions about the plan of care prior to and at any time during the course of treatment.</li> <li>• You have the right to refuse care to the extent permitted by law.</li> <li>• You have the right to expect that members of your care team will communicate with one another in order to ensure continuity of care.</li> <li>• You have the right to know who is treating you at all times and who is the doctor in charge of your treatment.</li> <li>• You have the right to express your concerns and receive a response to your questions.</li> </ul>	<ul style="list-style-type: none"> <li>• Provide relevant information to the members of your health team to help them in the process of caring for you.</li> <li>• Facilitate the provision of your care by identifying a spokesperson with whom we can communicate or provide a valid power of attorney, in the event that you become incapacitated.</li> <li>• Follow the treatment plan created for you to the best of your ability.</li> <li>• Accept responsibility for the decision you make about your treatment.</li> <li>• Be courteous and respectful of other patients, visitors and members of the health care team.</li> <li>• Recognize that needs of other patients and families may sometimes be more urgent than your own.</li> <li>• Recognize that providers need not provide any treatment to patients that the providers consider to be medically or ethically inappropriate.</li> <li>• Understand the hospital's role as a teaching and research hospital and cooperate with health care professionals in that regard.</li> <li>• Respect hospital property and comply with hospital regulations and policies.</li> <li>• Understand and be responsible for all expenses not covered by OHIP or private insurance during your hospitalization.</li> </ul>

We care what you think ...

We are interested in hearing your suggestions, compliments and concerns.

You may contact the:

HPDU Clinical Manager  
Eaton South, 12 - 420  
Toronto General Hospital  
University Health Network  
200 Elizabeth St.  
Toronto, Ontario M5G 2C4  
By phone: 416-340-4800, ext. 2399  
By fax: 416-340-4169  
By e-mail: **Janice.Richie@uhn.ca**

or

Patient Relations  
Suite 1S-401  
Toronto General Hospital  
University Health Network  
190 Elizabeth Street  
Toronto, Ontario M5G 2C4  
By phone: 416-340-4907  
By fax: 416-340-3537  
By e-mail: **patientrelations@uhn.ca**

Please feel free to use the suggestion box located outside the HPDU patient waiting room.

## **14. CONSENT FOR PERITONEAL DIALYSIS (PD) FOLLOW-UP**

1. I have completed the peritoneal dialysis education and training sessions at the Toronto General Hospital, of the University Health Network, Home Peritoneal Dialysis Unit (HPDU), and I have attained the status of a home self-care patient requiring timely follow-up supervision and care.
2. I understand that such follow up may include any or all of the following:
  - monthly clinic visit, or as necessary
  - performing PD procedures as necessary
  - changing of PD tubing and/or other parts of the PD system
  - collection of blood, dialysate and 24 hr. urine samples as necessary
  - undergoing as necessary ECG, chest, hand or abdominal X-rays, 2D echocardiogram and physical examination
  - counselling as needed for dietary or psychosocial concerns
  - a review/retraining session as needed
  - assessment by the Pharmacist
  - assessment by the Chiroprapist
  - assessment and individualized exercise plan by the Physiotherapist
3. I understand also, that if other or additional care or treatment measures seem advisable or necessary in the opinion of the staff physicians, staff would explain and discuss these in detail with me before initiating such change(s).
4. I further understand that I must call my physician or PD nurse, if signs or symptoms of a complication occur or should I need help.
5. I understand that dialyzing at home is a privilege which is granted to me upon the following terms and conditions. I agree:
  - to dialyse according to the method and schedule as prescribed by my doctor.
  - to come at the scheduled time and dates for my follow up visits.
  - not to allow untrained persons to perform my dialysis procedures.
  - to maintain adequate inventory of dialysis supplies.
  - to have a telephone available.
  - to participate in a review or retraining session as recommended by the clinic staff.
  - to provide updated information to HPDU staff regarding changes in my condition, financial/insurance information and/or any other situation that may affect my care.
  - I understand that HPDU equipment must be returned promptly and in clean condition when no longer needed.
6. I understand that these conditions are for mysafety and well being, and that I agree to comply with these conditions.
7. I hereby authorize HPDU of the Toronto General Hospital, to conduct follow up supervision and care and/or treatment that is mutually agreeable to both me and the facility.
8. I allow the review of my chart for research purposes as long as my identity will not be revealed.

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**Date**

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**Signature of patient or responsible party**

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**Witness**

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# Ordering Supplies

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## **ORDERING SUPPLIES**

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## **EQUIPMENT AND SUPPLIES**

HPDU lends home dialysis patients some of the equipment necessary for dialysis. This may include a weigh scale, a CAPD dialysis pole, a cyclor machine. The nurse will ask you to sign an agreement form which indicates that we have loaned these items to you for the period you are on peritoneal dialysis. You are responsible for returning the borrowed items when you no longer need them. If you do not return the equipment, you will be billed for the cost of the equipment.

Please take good care of the equipment and clean it as directed weekly. Please return all equipment promptly in good, CLEAN, working condition to the HPDU Office when it is no longer required.

## **DIALYSIS SUPPLIES** **ORDERING AND DELIVERY**

### **HOW WILL YOU KNOW WHAT TO ORDER?**

As a home dialysis patient, you will be responsible for keeping all the supplies you will need at home. You will order the necessary new supplies every month. The boxes of dialysis bags, tubing and other supplies take up quite a bit of space in your home. Think about where you will store these supplies. You must store them at room temperature and out of direct sunlight. A closet or the corner of a bedroom might be a good place.



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You will have help placing your order, so you should have no problem getting what you need. First of all, the nurse will send a list of all the basic supplies you need to the company's customer service representative. The customer service rep takes your order for supplies and will arrange for delivery to your home. Your customer service representative knows your basic order and will assist you when you call to place an order.

**Vantive customer service representative (Baxter equipment):**

The National toll free number is 1-866-968-7477, then press 1 and follow prompt

**Fresenius customer service representative:**

In the GTA call 905-770-0855, then press 2. If you are calling long distance, call 1-888-709-4411.

Your first order of supplies will be delivered to your home during or shortly after your training period. The nurse will make sure that you or a family member know how to place an order.

After the first delivery, you have to call in an order every month. The nurse will help you figure out how many boxes of each kind of dialysis solution and other items you will need each month. Before you call to place an order, you must count all the different boxes in your house.

Call your customer service representative with the number of boxes you have in your home and she/he can help you to figure out how many more boxes of each item you need to order for the next month.

After you have placed your order, your customer service representative will tell you the date that you should call to place your order the next month. You should write this date on your calendar so you will remember to call in your order. If you forget to place an order one month, your customer service representative will call you! You are responsible to place orders on time so that you do not run out of supplies before your delivery date.

If you are interested in placing your order online, discuss with your customer service representative to receive information and gain access.

## **OTHER DIALYSIS SUPPLIES**

Any items not on your original order (i.e. Mesalt, BurnNet, etc.), you must obtain from HPDU. Please call ahead so we can have the supplies ready for you.

## **MEDICATIONS**

If you receive supplies from Vantive you are able to order Heparin with your monthly delivery. If you receive supplies from Fresenius you should ask your HPDU nurse.

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## ***WHAT IS SAFETY STOCK?***

Your first order of supplies will contain the boxes you need to last for one month, plus some extra boxes of all your supplies. These extra boxes are called “*safety stock*”. This safety stock is left in your home to use in case your doctor changes your treatment, a delivery is late because of bad weather, or for some other reason. If any of the above happens, you will have some extra supplies to last until a new order can be delivered to your home. That way you will not miss any of your treatments.

The nurse will tell you how much safety stock you should keep in your home. If you use up some of this safety stock one month, your customer service representative will add extra boxes of supplies to your next order to replace the safety stock.

## ***HOW DO YOU GET YOUR SUPPLIES?***

When you call in your order, your customer service representative will tell you the date when your supplies will be delivered to your home. Usually it takes about one week from the day you call in your order to delivery. You will know when the delivery is coming and someone should be there to let the delivery person in.

You are responsible for making arrangements for delivery. Specific delivery times are not possible. **Off schedule deliveries -- if you have ordered incorrectly or you are not at home to receive the delivery -- can be COSTLY and are at YOUR expense.**

The delivery person will bring the boxes into your home and place them where you wish to store them. You should ask your delivery person to “*rotate*” your supplies. That means that he/she will put the new boxes at the back of the stack so you are always using up the older supplies.

The delivery person will have a freight receipt when bringing in your order. You should count all the boxes being delivered and make sure they match the number of boxes listed on the freight receipt. If they are the same, you should sign the receipt. If they do not match, write down what is missing and call your customer service representative.

You do not need to pay anything when the supplies are delivered. If you have any problems when the supplies are delivered or if boxes are damaged or missing, call your customer service representative right away.

## ***WHAT IF THERE IS A PROBLEM WITH YOUR SUPPLIES?***

If you realize that you do not have the correct supplies, or if you run out of an item, call your customer service representative right away. An emergency delivery **may** be arranged but this is **very expensive**. Your safety stock should last until your next delivery can be made.



**PLEASE ORDER CAREFULLY.**

If the supply company must deliver more than once monthly to your house because you have not ordered enough supplies or are not home for delivery,

**YOU WILL BE CHARGED A SHIPPING FEE.**

HPDU DOES NOT PAY THIS CHARGE.

If you make a mistake and have completely run out of the supplies you need, call HPDU. You may be able to pick up some supplies to last until you can receive a delivery.

**Remember  
ordering the correct items and amounts  
is your responsibility.**

If your prescription changes, the nurse will call the customer service representative to make a change to your list of basic supplies. You will not be able to make changes to your order unless the nurse tells your customer service representative. If the doctor changes your prescription and you need an extra delivery because of this change, HPDU will cover this fee.

If your prescription changes, you may have extra boxes of supplies that you do not need. Your customer service representative can arrange for a driver to pick up the extra supplies. This will be confirmed with HPDU.

If you are ever unsure about supplies or your order, always call your customer service representative. He/she knows what you need to have, and can tell you what to do whenever you have a problem. He/she will contact an HPDU nurse if he/she has questions or concerns.

If you have questions if online ordering is available for you, discuss with customer service representatives.

If any dialysis supplies are defective, contact your company service representative as well as HPDU -- especially if you have already used the product. If possible, tell the customer service representative the lot number of the defective product, which can be seen on its box or package. Do not discard the defective product. You may be asked to bring it to HPDU.

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## ORDERING SUPPLIES FOR TRAVEL

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### *WHAT IF YOU WANT TO GO ON A TRIP?*

Vantive and Fresenius programs can make it easy for you to take vacations or to go out of the Toronto area to visit family and friends. You may not need to pack up all your supplies as it may be possible to have them delivered to your destination.



You need to call your customer service representative at least three months before your trip to discuss possible arrangements for the special delivery. (If you travelling outside Canada or the U.S., be sure to call six to twelve weeks in advance.) You will need to tell your customer service representative the complete delivery address, someone's name and phone number at the place where you are going, the number of days you will be gone, and the date you will be arriving at your vacation place. The customer service representative will help you to make arrangements for your supplies. **There will be shipping fees depending on your travel destination.** You need to discuss your travel plans with your primary nurse and PD team.

You will probably want to travel with one or two extra bags and other supplies just in case there is a problem. If you will be travelling by car for a day or more to get to your destination, you will need to pack supplies to last until you get there. You should talk to the nurse about good places to do your exchanges while you are travelling.

Remember that one of the best reasons for being on peritoneal dialysis is that you have the freedom to do your dialysis when and where you want to do it as long as you have a clean area to work.

If you are planning to travel, please make sure you tell the doctor and the nurse at least one month in advance (longer if going overseas) so they can arrange an information package for you to take with you. This package includes your relevant medical history, the address/phone number of the nearest peritoneal dialysis centre and the peritonitis protocol. You may need this for customs or if you require medical or nursing care while outside of Canada. It is **EXTREMELY** important that you purchase extra health insurance if you are travelling outside of Canada -- even for a weekend. **IT IS YOUR RESPONSIBILITY TO MAKE SURE THAT THIS INSURANCE PACKAGE COVERS YOUR DIALYSIS NEEDS.**

If travelling for more than six months outside Canada, you may lose your Ontario Health Insurance Plan (OHIP) coverage. Please call the Ministry of Health to clarify your insurance status in this situation.

## **REVIEW QUESTIONS**

- 1. What equipment and supplies do you need?**
- 2. Who pays for your supplies and equipment?**
- 3. How will you know what to order?**
- 4. How do you get your supplies?**
- 5. What if there is a problem with your supplies?**
- 6. What if you want to travel?**

# Appendix

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## **APPENDIX**

### **Peritonitis Antibiotics:**

• Heparin.....	Page 154
• Antibiotics.....	155

## HEPARIN

1. Gather equipment
  - \* 1 x 3 mL syringe
  - \* 2 x alcohol wipes
  - \* 1 x 10 mL bottle of Heparin 1000 units per mL (check expiry date)

*Dose:*

**For Peritonitis** 500 units (0.5 mL) per litre

You should add \_\_\_\_\_ mL to your \_\_\_\_\_ litre bag.

Note: Add this medication to every bag until the drained fluid is clear.  
The HPDU nurse will assess your bag when you bring it to HPDU.

Confirm your dose with the HPDU Nurse.

2. Mask and wash your hands.
3. Open the Heparin bottle by removing the black plastic cap to expose the rubber top. Wipe the rubber top with an alcohol wipe.
4. Wipe the medication port on the dialysis bag with a new alcohol wipe.
5. Open the syringe package, tighten the needle on the syringe and remove the cap from the needle. Draw air into the syringe (to replace the dose of Heparin you are removing from bottle).
6. Insert the needle directly through the rubber top of the Heparin bottle. Make sure the needle is below the level of the liquid. Inject air into the bottle and carefully invert the bottle.
7. Pull the plunger back to withdraw the required amount of Heparin. Remove the air bubbles by tapping your finger on the side of the syringe.
8. Remove the needle from the bottle.
9. Inject the needle with Heparin into the medication port of the dialysis bag.
10. Remove the needle from the bag. Discard the needle and syringe into a sharp container.
11. Gently mix the medication into the bag.

**Note:**

- Mark the date you opened the Heparin bottle on the bottle's label.
- Discard the opened Heparin bottle after one week even if you have only used it once.

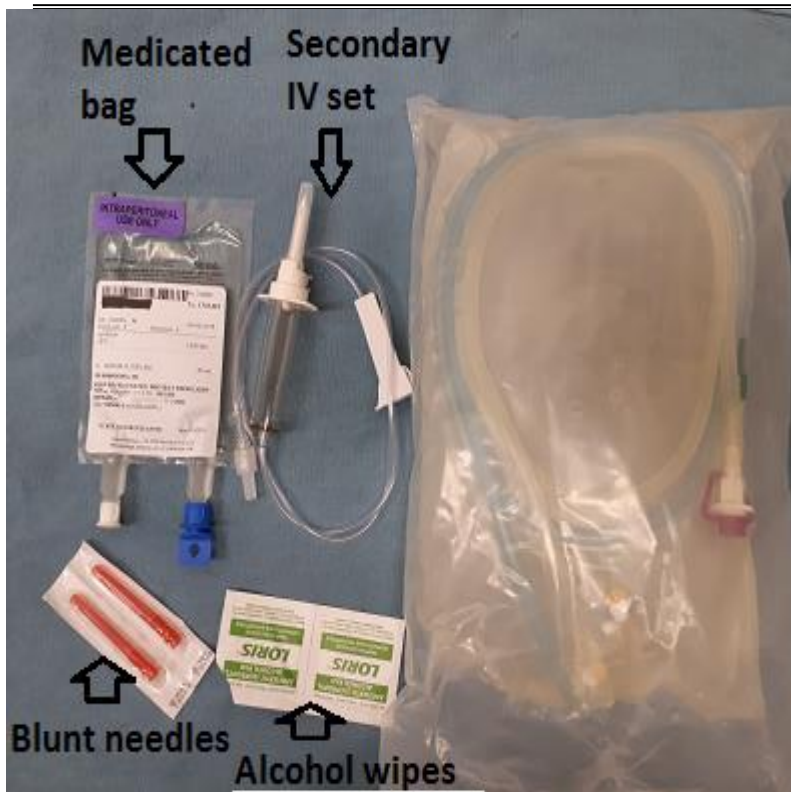
## Antibiotics

This antibiotic are delivered pre-mixed in mini bags along with secondary set.

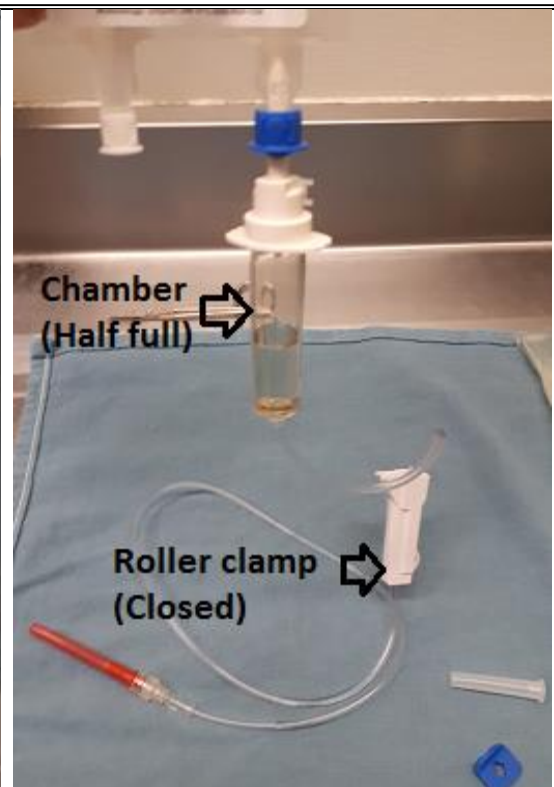
- You must refrigerate pre-medicated bags.
- You may warm a PD bag on a heating pad six hours prior to use.
- 

**Confirm your dose and administration time with the HPDU nurse.**

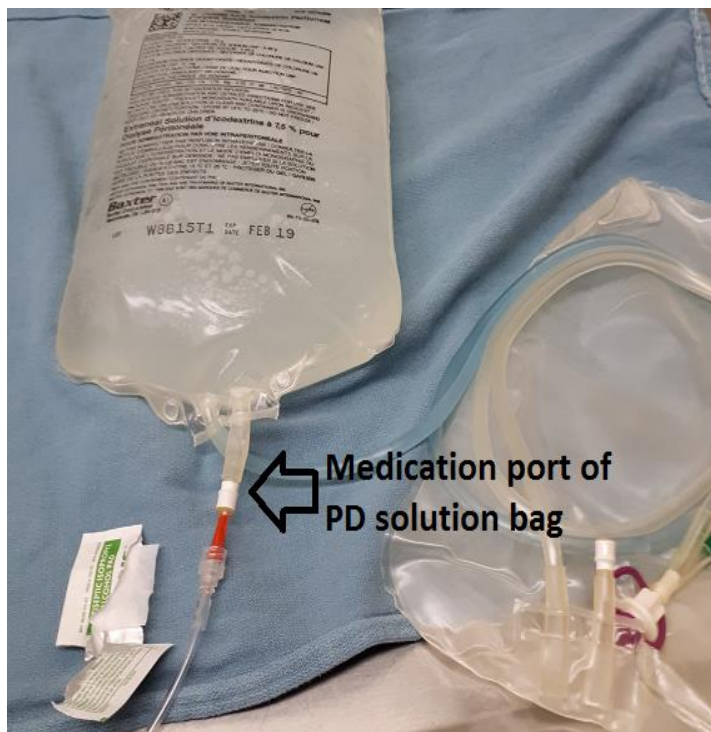
1. Gather equipment
  - \* 1 pre-medicated mini bag
  - \* 1 Secondary medication set
  - \* 1 Blunt needle
  - \* 1 Alcohol wipe
  - \* Mask, Manual dialysis bags and supplies
2. Mask and wash your hands.
3. Open the secondary medication set (tubing) and attach a blunt needle to the tubing using sterile technique.
4. Close the roller clamp on the tubing.
5. Remove the blue tab of the pre-medicated minibag.
6. Insert the spike of the tubing into the pre medicated bag.
7. Push the spike upwards into the bag with a twisting motion.
8. Squeeze the drip chamber until half full of fluid.
9. Wipe the medication port of the dialysis bag with an alcohol wipe.
10. Remove protection cover from the needle.
11. Insert the neelde into the medication port of the dialysis bag.
12. Open the roller clamp.
13. Hold the medication bag above the dialysis bag and squeeze until the medication bag is empty.
14. Close the roller clamp.
15. If more than one medication- repeat 3-14.
16. Separate the needle and discard into a sharp container.
17. Discard rest of the bags and continue dialysis as instructed.



Pic 1.



Pic 2. Step 3-8



Pic 3. Step 9-11



Pic 4. Step 12-13



# Glossary

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## **GLOSSARY**

***2D echocardiogram***

An echocardiogram is an ultrasound of the heart that produces a moving picture. It is useful for examining the valves of your heart, the function of your heart, and the size of your heart.

***adaptor***

A device for connecting two non-matching parts.

***amino acid***

An organic acid that joins together to make protein.

***antibiotics***

Medication that is able to kill or inactivate bacteria in the body.

***apd***

Automated Peritoneal Dialysis. See "APD" section.

***arteries***

Blood vessels that carry blood under pressure from the heart to the rest of the body.

***aseptic***

Free of disease-causing microorganisms.

***bacteria***

Microorganisms that cause disease.

***BP (blood pressure)***

The pressure exerted by the blood against the walls of the blood vessels. See "What are the main jobs of the kidney?" section.

***bone marrow***

A substance inside some bones that is involved in the production of blood cells.

***bowel***

Intestine.

***capd***

Continuous Ambulatory Peritoneal Dialysis. See "CAPD" section.

**chronic**

An illness or medical condition that lasts a long period of time.

**colonoscopy**

A procedure in which a tube-like camera (colonoscope) is used to look inside the large intestine.

**continuous quality improvement (CQI)**

An initiative that takes a critical look at practices and determines what is done well and what needs to be developed. This translates into better outcomes for patients.

**constipation**

A condition in which a person has difficulty in eliminating solid waste from the body. The feces are hard and dry.

**Covid**

An infectious disease caused by the SARS-CoV-2 virus.

**cycler**

A machine that does your peritoneal dialysis at night. See "APD" section.

**dehydrated**

Lacking water in the body, as the result of loss of bodily fluids or from being deprived of liquid.

**diabetes mellitus**

A medical disorder that results in the body not being able to metabolize carbohydrates, fat and protein due to a relative or complete lack of insulin secretion by the pancreas or by defects of insulin receptors.

**dialysate**

"Dianeal" or "Delflex 2", peritoneal dialysis fluid.

**dialyse**

To remove the accumulated waste products of metabolism from the blood of a person whose kidneys are not functioning, or to undergo such a procedure.

**diarrhea**

Frequent and excessive discharging of the bowels producing abnormally thin watery feces. Usually is a symptom of gastrointestinal upset or infection.

**diffusion**

The flow of particles from an area of higher concentration to an area of lower concentration. See "Why do waste products and extra water go into the dialysis solution?" section.

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**dilution**

A substance, especially a liquid, that has been made thinner or weaker by the addition of water or another liquid.

**ECG**

The electrocardiogram (ECG or EKG) is a very common test used to evaluate the rhythm and electrical functioning of the heart. It is especially useful for diagnosing heart attacks and rhythm abnormalities, but it can also give many clues to your doctor about other heart conditions and some medical conditions.

**echocardiogram, 2D**

An echocardiogram is an ultrasound of the heart that produces a moving picture. It is useful for examining the valves of your heart, the function of your heart, and the size of your heart.

**effluent**

Dialysate fluid drained from a patient.

**equilibration**

To evenly balance something.

**exit site**

The place on the abdomen where the PD catheter exits the body.

**expiration (date)**

A date printed on the packaging of food and drug products that indicates the time after which they should not be used.

**glomerulonephritis**

An inflammatory disease affecting the clusters of capillaries (glomeruli) in the cortex of a kidney.

**haemodialysis (hemodialysis)**

“Cleaning the blood”-Blood is slowly withdrawn from the body and passed through an artificial kidney machine and dialyzer. It cleans blood in almost the same way that healthy kidneys do.

**hemoglobin**

An iron-containing protein in red blood cells that carries oxygen from the lungs to body tissues.

**heparin**

An anticoagulant medication. A blood thinner.

**hormone**

A chemical substance produced in the body that exerts a regulatory or stimulatory effect.

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**HPDU**

Home Peritoneal Dialysis Unit.

**immunity**

A body's ability to resist disease.

**incision**

A cut.

**infection**

An increase of microorganisms within the body.

**inflammation**

Swelling, redness, heat, and pain produced in an area of the body as a reaction to injury or infection.

**influenza**

Flu.

**intestines**

A part of the digestive system between the stomach and the anus that digests and absorbs food.

**intra-peritoneal**

Within the peritoneal cavity.

**intravenous**

Administered into a vein.

**itinerary**

A list of places to be visited.

**malnourished**

Inadequate or poor nutrition resulting in poor health.

**mammogram**

An x-ray of the breast.

**mupirocin**

An antibiotic ointment.

**nausea**

The unsettling feeling in the stomach that accompanies the urge to vomit.

**nephrology**

The study and treatment of diseases of the kidneys.

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**organ**

A complete and independent part of a plant or animal that has a specific function.

**osmosis**

The flow of water from an area where there is excess water to an area of lower water concentration. See "Why do waste products and extra water go into the dialysis solution?"

**pap smear**

A test to detect cancerous or precancerous cells of the cervix, allowing for early diagnosis of cancer.

**pelvic**

Relating to the strong basin-shaped ring of bone near the bottom of the spine formed by the hip bones on the front and sides, and the triangular sacrum on the back.

**peripheral**

Near the surface of an organ or the body.

**peritoneal dialysis**

A form of dialysis used to remove waste products and excess water from the blood. It works on the same principle as hemodialysis, but your blood is cleaned while still inside your body rather than in a dialyzer. It cleans blood in almost the same way that healthy kidneys do. See "Principles of Peritoneal Dialysis" section.

**peritonitis**

An infection inside the peritoneal cavity. See "Peritonitis" section.

**pneumonia**

An inflammation of one or both lungs, usually caused by infection from a bacterium or virus or, less commonly, by a chemical or physical irritant.

**prognosis**

A medical opinion as to the likely course and outcome of a disease.

**prophylaxis**

Treatment that prevents disease or stops it spreading.

**renal**

Relating to the kidneys.

**respiratory**

Relating to breathing.

**saturate**

To soak something with liquid.

**short of breath**

Difficulty breathing, as if you can't get enough air.

**Stay Safe**

A double bag peritoneal dialysis exchange system manufactured by Fresenius.

**stethoscope**

A medical instrument used for listening to breathing, heartbeats, and other sounds made by the body.

**stool**

Excrement. Bowel movement.

**stroke**

A sudden blockage or rupture of a blood vessel in the brain resulting in, for example, loss of consciousness, partial loss of movement, or loss of speech.

**subcutaneous**

Under the skin.

**syringe**

A tube like device for withdrawing, injecting or instilling fluids.

**tetanus**

An acute infectious disease that causes severe muscular spasms and contractions, especially around the neck and jaw.

**transplantation**

The transfer of an organ or tissue from one body to another.

**troubleshooting**

The finding and eliminating of problems.

**Twin Bag**

A double bag peritoneal dialysis exchange system manufactured by Baxter.

**ultrafiltration**

Extra water that moves from the blood into the dialysate solution in the peritoneal cavity. See "Principles of Peritoneal Dialysis" section.

**urinating**

Expelling urine from the body.

***vaccines (vaccinations)***

Preparations containing weakened or dead microbes of the kind that cause a particular disease, administered to stimulate the immune system to produce antibodies against that disease.

***veins***

Vessels that carry blood to the heart.

***vessels***

Ducts or tubes that carry fluid, especially blood or lymph, around the body.

***vitamin***

An organic substance essential in small quantities to good nutrition and normal metabolism.

***vomiting***

Throwing up stomach contents.



