
Patient's Guide to



Home Parenteral Nutrition



Welcome

Your decision to receive Home Parenteral Nutrition (Home PN) is not an easy one.

We are offering this therapy to you because we believe that it is essential to meet your nutritional needs. We believe it will provide the best hope for your future health.

Your positive attitude and your desire to actively participate in your recovery will help your learning of Home PN skills.

The Home PN Team is working together with you and your family to help make Home PN a success.

Your team members are:

Most Responsible Doctor (MRP): _____

Doctor: _____

Nurse: _____

Dietitian: _____

Homecare Agency: _____

Supply Company: _____



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Purpose of Home PN

The purpose of Home PN is to provide you with essential nutrition. Even though you may be able to eat, your gut is unable to absorb all the nutrients you need. Home PN ensures that you receive all of these nutrients.

Introduction

This is a teaching book to introduce you to Home PN. It has been written by the Home PN Team. Our hope is that by reading and using this book you will learn about Home PN. You will also gain the skills needed to give yourself Home PN.

While you are responsible for your own Home PN care, it is very important that there be another person available for support, reinforcement and help. While you are learning all of these new skills, we would like to teach another person to help you with Home PN. This person could be a family member or close friend. We call this the “back-up” person so that they can be your backup if you have a small problem at home.

This learning program involves working closely with all the staff involved with your care, including your community nursing support. Together, we will help you gain the necessary knowledge and skills to be able to maintain your Home PN. Your Home PN team is available to answer your questions and assist you. Please let us know how we can help you.



How Home PN may affect your daily life

Introduction

Home PN offers people greater freedom from the hospital and an opportunity to live fulfilling lives. People who are on Home PN have said:

- how much it means to be at home,
- how they enjoy being with their family and friends, and
- how they are able to do most things they enjoy.

With this freedom there are responsibilities. Our job is to work together with you so that you and your back-up person feel confident with the skills you need for Home PN. It is natural to feel a little nervous about things that are new.

Throughout your hospital stay and/or training period you will have an opportunity to talk to different members of the Home PN Team. We want to hear your questions and discuss your feelings about going home on Home PN. It is often helpful to talk to others who have gone through this. If you'd like, we will arrange for you to meet and talk with someone who is already on Home PN.

Issues that may be of concern at this time in your life might include relationships and family concerns, money matters, body image, or coping with the change.

It is important to talk about these changes and your feelings. You have the freedom and the power to make your own decisions and become independent. You need not let Home PN rule your life. One step at a time – your Home PN will become a part of your normal routine and allow you to enjoy time at home.



Daily living with Home PN

Can I still eat?

Yes, but dependent on your treatment plan, there may be some restrictions or modifications to the types of food you eat. These guidelines will be explained to you before you go home.

Can I exercise?

Exercise in moderation is encouraged! The calories and nutrients you receive from your Home PN are better used if you are active rather than inactive. If you are just starting to exercise, start slowly and gradually increase. Exercise is important to help develop muscle and increase your strength. Walking is an excellent way to be active.

How will this affect my sleep?

If your Home PN is infused at night, your sleep may be interrupted. At first, you may be concerned about the functioning of the pump or dislodging the central venous catheter. As you get used to the equipment and more familiar with the working of it, these concerns will lessen.

Because of a nightly infusion, you may find you get up more often during the night to empty your bladder. This too will decrease somewhat as your body adjusts to the routines of Home PN.

Initially, if you feel tired during the day, it is helpful to take a short nap. This will ensure that you get the rest you need!

We will try to set up the Home PN regime to fit your lifestyle. Most people like to have their days free from the pump, but this schedule does not work for everyone.



Can I shower, swim or bath?

Bathing regularly is essential; however, depending on the Central Vascular Access Device (CVAD) you have, bathing will be slightly different. As a rule, sponge bathing or sitting in a bath with a low water level is okay. Regardless of the method of bathing, it is important to make sure the CVAD remains clean and dry.

How will it affect my social life?

Many people state that Home PN improves their social life because they can visit friends and family or have visitors in their home. It will be up to you to decide how much you want to talk about your Home PN. Being open and honest with family and close friends, however, is helpful and can strengthen your support network. For special occasions your Home PN routine can be adjusted so you can attend that special event!

Will it affect my sex life?

Your sexual relationships and activities should not be affected by being on Home PN. In fact, you may find that it may be improved due to better health. It may be difficult to be spontaneous because of the night time preparation and infusion. Expressing your feelings with your partner may help to lessen some of your concerns.

Can I travel?

Yes. Good planning is essential when organizing any trip and is an important part of travelling with Home PN. When you are feeling well enough to travel, discuss this with the team.



The Home PN Team

Members of this team include you and your family, your back-up person, the hospital staff and the community staff.

Members of the Home PN Team ...

You

You are a member of the Home PN Team. As a member, you are actively involved in the planning and preparation for Home PN therapy. Your goal is to be able to manage your Home PN.

To do this you need to:

- be mentally ready and feel confident to start the program,
- be willing to adapt to a lifestyle required to manage Home PN,
- understand the principles of Home PN,
- safely perform the necessary skills,
- know what to do if something goes wrong.

Family/Friends

Your family/friends need to be involved in your care so that they might:

- provide you with emotional support,
- talk with the Home PN Team to better help us understand your needs,
- become the "back-up" person.



Doctors

There may be several doctors following your care which could include:

- gastroenterologist
- family doctor
- surgeon
- nutrition support doctor

Nutrition Support Doctor

The nutrition support doctor will:

- assess your overall health in regards to nutritional needs,
- evaluate and prescribe your nutritional solutions,
- watch your progress through lab reports, physical checks and reports from the team,
- help determine when you may go home,
- consult with your other doctors and keep them informed of your progress.

Registered Nurses

The registered nurses on the Home PN Team will:

- teach you the skills necessary for you to manage Home PN,
- check your ability to understand and do the skills,
- listen to your feelings about being on Home PN,
- answer questions,
- help you manage and figure out ways to problem-solve,
- ensure that your needs are met through communication with the other team members,
- plan and coordinate your care with other team members,
- discuss storage of supplies at home,
- co-ordinate education with the community nurses,
- offer support and encouragement,
- work with community support staff to order supplies.



Registered Dietitian

The registered dietitian will:

- calculate your nutritional needs and make recommendations to your doctor,
- organize and review blood tests and specific tests that monitor body changes and determine your energy needs,
- watch your nutritional progress by helping you to adjust your diet,
- answer any questions you may have related to nutritional health,
- revise your Home PN solutions in consultation with the nurse and physician.

Social Worker

The social worker will:

- assist you and your family in solving problems which arise or are anticipated,
- let you know of community resources available,
- help you to deal with the changes that you are experiencing.

Community Care Access Center (CCAC) Case Manager

Your Community Care Access Center case manager will:

- work with you and your hospital team to co-ordinate necessary medical, professional, and support services required at home,
- let you know about available community resources.



Support services may include:

- dressing supplies,
- equipment rental,
- drug card.

When you go home, your community nurse will:

- teach you and your family the skills necessary for you to manage your Home PN,
- assess your ongoing needs at home and develop a care plan with you to meet your specific needs.



Now that you have made the decision to start Home PN ...

How is Home PN given?

Home PN is given to you through a Central Vascular Access Device. There are several types of Central Vascular Access Devices (CVAD):

- Tunneled (Hickman Catheter)
- Implanted Port
- Peripherally Inserted Central Catheter (PICC)

Any of these devices can be single or dual lumen. This means that they may have one or two passages through which you can get your Home PN or IV fluid. The doctor will decide if you need a single or dual lumen device.

How is it decided which device to use?

The type of device chosen is based on:

- how long you need to stay on Home PN,
- your general condition and whether other treatments may need to be done at a later date,
- your normal activities of daily living,
- what you are most comfortable with, and
- your best vein to access.

You will receive specific information regarding the device that best meets your needs.

The Home PN Support Team will make this decision with you.



Why do I need a CVAD?

Home PN is a mixture of sugars (dextrose), protein (aminoacids), and fat (lipids). It needs to be mixed quickly in the blood to dilute it. This mixing happens quickly when the end of the device is in a very large vein. Our largest veins are in our chest just before the heart.

Am I at risk for any possible problems to occur with a central vascular access device (CVAD)?

There is a chance for problems to occur any time we place a medical device in the body.

You can help decrease the chances of any problems by:

- washing your hands before working with your CVAD,
- following the instructions you will receive about using your CVAD,
- checking your CVAD every day, and
- notifying us of any concerns, problems or changes in the way your CVAD is working – no matter how small they may seem to you.

What are the risks of a central vascular access device?

The main risks for any CVAD are:

- infection
- bleeding
- thrombosis or blood clot

These potential risks will be discussed with you in more detail, and also the ways to prevent or handle these complications if they should happen.



What is an implanted port?

This device is made up of two parts. The two parts are the post-reservoir and the catheter. The reservoir is a round disk placed under your skin. A soft silicone catheter is attached to the reservoir and the catheter is put into the vein.

In order to use the implanted port, it needs to be accessed with a special needle.

The advantage of an implanted port is that when the needle is not in place, you cannot see your device.

You are also free to go swimming when the needle is not in place.

Limitation

No contact sports.

How is it inserted?

The implanted port is inserted in the X-ray Department. The insertion is done under sterile conditions. A local anesthetic will be used as the skin will be “frozen” where the device is put in. You will also get some medication to help you relax. The procedure usually takes around 60 minutes. You will need to sign a consent form before the procedure.

Can the device be replaced?

This device is able to last for a long time without any problems. If problems occur, a new device will need to be inserted.



How is the device removed?

The device will be removed if you no longer need it. It will also be removed if complications occur that cannot be managed. A small incision is made over the implanted port and then the port and reservoir catheter are removed. Local anesthetic is used when removing an implanted port.

What is a Peripherally Inserted Central Line (PICC)?

A PICC is a soft silicone catheter which is inserted in a vein near your elbow. A PICC may be used if you need Home PN for a short time only, or if you are waiting to have one of the other devices inserted.

How is the PICC inserted?

The PICC is inserted by a specially trained nurse at your bedside or in the X-ray Department. You will need to sign a consent form before the procedure. You will have a cream applied to your skin about two hours before the procedure to “freeze” your skin so that you do not feel the needle poke. The PICC is inserted in a vein near you elbow. The catheter is then slowly advanced until the tip is in a big vein.

Limitations

Swimming is not allowed if you have a PICC. It also needs a dressing over it at all times.

When you have a PICC you cannot lift any objects greater than 10 lbs.



Can the PICC be replaced?

PICCs can last for a long time without any problems. If the PICC should break or develop a hole, it is possible to repair it if it is a single lumen. If something were to happen that it could not be repaired, a new PICC would be inserted.

Your nurse will talk with you about what to do if your PICC breaks.

How is the PICC removed?

The PICC will be removed if you no longer need it. It will also be removed if your doctor thinks that it may be infected. A PICC is removed by the nurse.



What is a tunneled device (Hickman catheter)?

This is a catheter made of a soft, silicone material.

How is it inserted?

It is tunneled under your skin before the catheter enters the vein. This “tunneling” helps to keep the catheter in place. The catheter comes out on your chest wall. The catheter is inserted in the operating room or in the X-ray department. The insertion is done under sterile conditions. You may have either a general anesthetic or a local anesthetic. The type of anesthetic that will be used will be discussed with you before the procedure.

If you are having a local anesthetic, the skin will be “frozen” where the device is put in. You will also get some medication to help you relax. The procedure usually takes around 60 minutes. You will need to sign consent form before the procedure.

It needs a dressing over it at all times.

Limitations

Swimming and contact sports are activities you cannot do if you have a tunneled device in place.

Can the catheter be replaced?

This catheter is able to last for a long time without any problems. If the catheter should break or develop a hole, it is possible to repair it if it is a single lumen catheter. If something were to happen that could not be repaired, a new catheter would be inserted.



How is the catheter removed?

The catheter will be removed if you no longer need it. It will also be removed if complications occur that cannot be managed.

The tunneled catheter is removed by making a small incision and pulling it out. Local anesthetic is used when removing a tunneled catheter.



Asepsis

Asepsis is the absence of infection. Special care and good technique are the keys to success in preventing infection.

Skills that help to prevent infection are:

- careful handwashing
- proper organization of working area
- gloving
- appropriate use and handling of the equipment

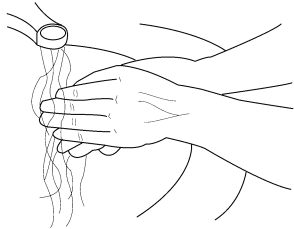
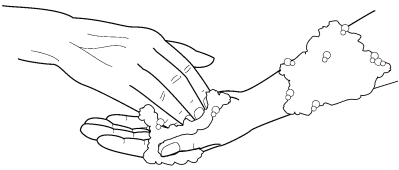
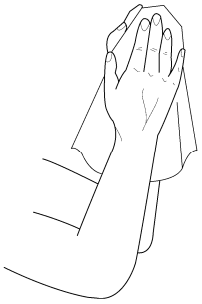
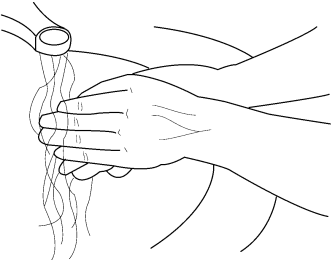
Handwashing

Handwashing is the single most important aspect of your Home PN care. Careful handwashing is important to help prevent contamination and infection through the central venous catheter and the Home PN delivery system. It is important that you follow the handwashing steps outlined on the next page, before you start any of your Home PN procedures.

Skin, clothing and the environment are covered with bacteria. If even the smallest quantity of these bacteria is transferred to any part of the intravenous system, it can be a potential threat to your life.



Handwashing

	<p>1.</p> <ul style="list-style-type: none">➤ Remove jewellery and watches.➤ Turn on water.➤ Adjust temperature and leave running.➤ Wet hands and lower arms.
	<p>2.</p> <ul style="list-style-type: none">➤ Apply soap, 1 to 2 pumps. Work into a lather. When washing, scrub your hands, fingers, nails and lower arms well. Wash for 30 seconds. One way to time how long you wash your hands is to sing or listen to a song.
	<p>3.</p> <ul style="list-style-type: none">➤ Rinse your hands well.➤ Hold hands up to let the water drip towards the elbow.➤ Dry hands well. If using paper towels, throw them out.
	<p>4.</p> <ul style="list-style-type: none">➤ Turn off tap with towel or a fresh paper towel. Do not use bare hands. <p>(The taps are loaded with bacteria which, if transmitted to your infusion system, can cause life-threatening infections.)</p>



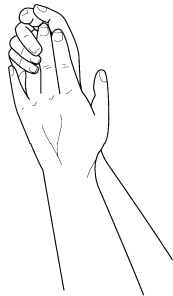
Foaming alcohol handrub – antiseptic does not remove obvious dirt or soil. Use soap and water to remove dirt or soil.

The 5 steps to washing your hands with foaming alcohol handrub - antiseptic

1. Remove jewellery and watches.
2. Squirt a small amount of foaming alcohol handrub – antiseptic into your palm. About the size of a dime.
3. Rub some of the soap from your palm into the other palm.



4. Rub each set of nails in the foaming alcohol handrub – antiseptic for about 5 seconds.
5. Rub your hands and wrist together for about 15 seconds.





Aseptic technique

A sterile object is an object which is treated by a special process, either heat or chemical, to make it free of bacteria (germs). A sterile object will become contaminated when it comes in contact with an unsterile object. For example, if you were holding a sterile needle and it fell to the floor, the needle would be contaminated.

While performing any sterile Home PN procedure ...



- Always face the sterile field. This is to keep the field in your view and prevent touching non-sterile objects with sterile objects.
- Hold sterile objects above waist level. This will keep the object in sight and thus avoid accidental contamination.
- Do not talk, cough, sneeze or reach over a sterile field or object. This is to prevent contamination by droplets from nose or mouth.

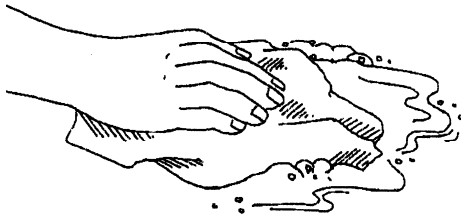


The work area

Controlling infection in your home

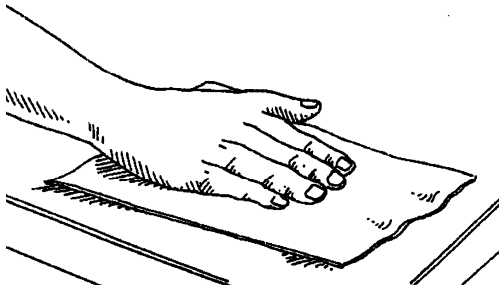
Selecting your work area ...

1. Select an area in your home that is free from drafts and fans, visible dirt, dust and clutter.
2. Select a smooth table, counter top or tray that can be cleaned with soap and water.
3. Select an area that has enough space and good light in which to work.
4. Select an area that is close to your supplies.



Preparing your work area ...

1. Pour a small amount of soap and water onto your work area and wash.



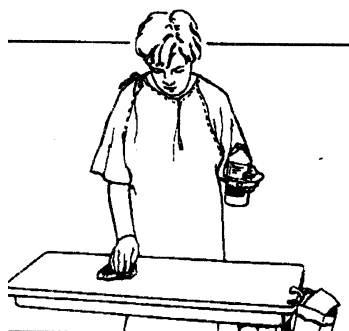
2. Wipe dry with a clean paper or cloth towel.
3. Your work area has now been prepared for your supplies.
4. If you contaminate your work area during use, clean it again with soap and water and a clean paper or cloth towel.



Organizing the work area ...

Organizing your work area is important. Gather all your equipment before you start. This will help you be efficient and avoid contamination.

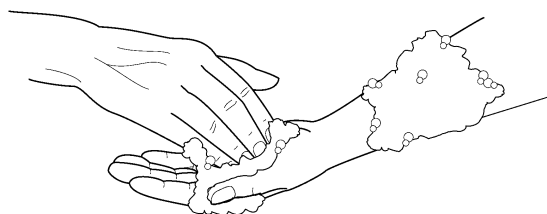
Before you start ...



1. Roll up sleeves, remove watch and hand jewelry, and tie hair back if needed.
2. Wash hands and clean the work surface with an antiseptic solution using a 20 second friction rub.



3. Gather all materials and equipment necessary in a quiet and clean working area.



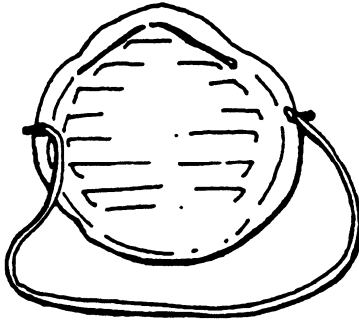
4. Wash hands and forearms (15 to 20 seconds lathering).
5. Begin procedures.



Home PN equipment

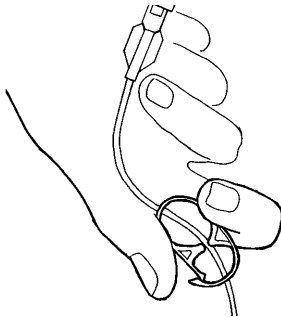
You will have the opportunity to examine, discuss and use each piece of equipment during the teaching sessions with your nutrition support nurse.

Mask



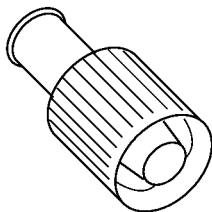
A disposable mask is only worn if needed. The nurse will decide if it is needed.

Catheter Clamp



This clamp creates pressure to keep positive pressure in your central venous catheter.

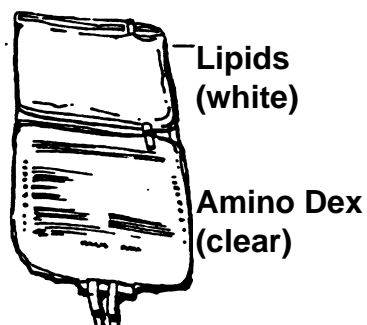
Cap Adapter



This cap adapter attaches to the end of your CVAD.



Home PN Solutions



Every patient has different nutritional requirements. Your Home PN solution is prescribed especially for you, to meet your body's nutritional needs.



Infusion Tubing

This tubing connects the Home PN solution to the end of your central venous catheter. It fits through the infusion pump. The tubing also has a filter.

Infusion Pump

The infusion pump delivers the required volume of your Home PN solution at a consistent rate.

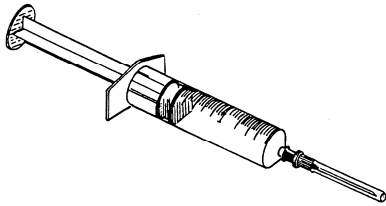
Antiseptic Swabs



The antiseptic swab is used to wipe tubing connections, the top of your medication bottles and your injection cap. The purpose of the antiseptic swab is to help prevent infection.



Syringe and Needle



The syringe and needle are used to add vitamins or other additives to your Home PN solution.

Prefilled saline syringes are used to flush your CVAD.

Sharps Container



The sharps container is for safe disposal of the needles used for flushing your CVAD or adding your vitamins.



Home PN supplies

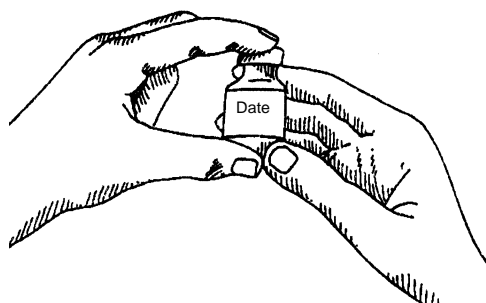
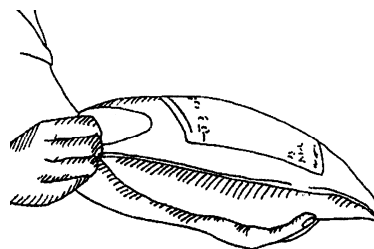
Checking your supplies ...

All supplies used in your Home PN should be in sealed packages to prevent contamination.

Follow these steps when checking your supplies:

1. Inspect all bottles or bags of solution for anything that looks unusual. Do not use your bottles or bags if:

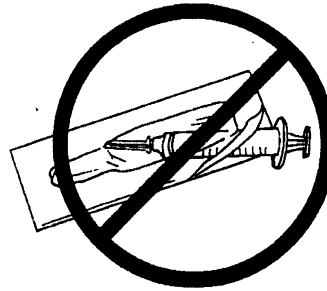
- there are any leaks
- there is any cloudiness or discoloration that does not disappear with gentle mixing of the solution (except for the lipids)
- there are any particles or specks in the solution
- the label on the bag or bottle does not have your name on it
- the label on the bag or bottle has a different drug or dose listed
- the expiration date on the label has passed





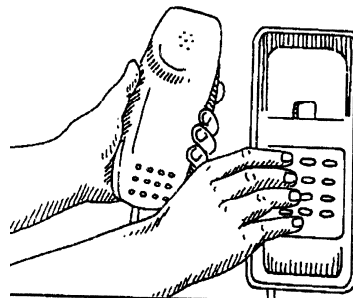
2. Check to see that packages are sealed. Do not use the packages if:

- the seal is broken
- the package is torn
- the inside or outside of the package is wet



3. Do not use any items that you think may be contaminated.

4. Call your supplies contact person if you have any contaminated supplies. They will send you new supplies and may want to check the contaminated supplies.



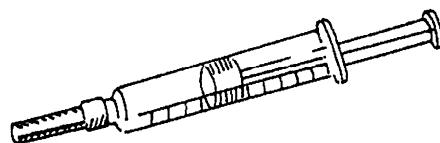


Preparing your supplies ...

1. Place supplies on your clean work area.
2. Open packages.



3. Check to see that tubing ends, syringe ends and needles have a protective cover on them to keep them sterile.
4. Do not use any items that have protective covers missing.





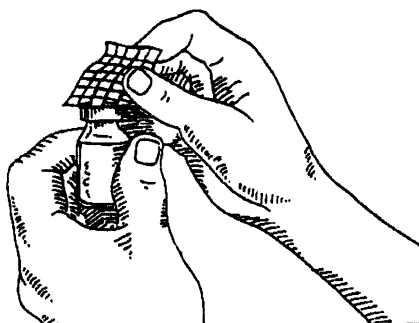
Additives

1. Gather the supplies:

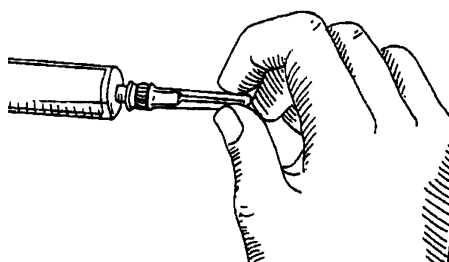
- vitamin ampules
- syringes with needles
- alcohol prep

When drawing up liquid vitamin from a vial

2. Remove the vial cap, if necessary. Clean the rubber stopper of the vial with an alcohol swab and let it air dry completely.

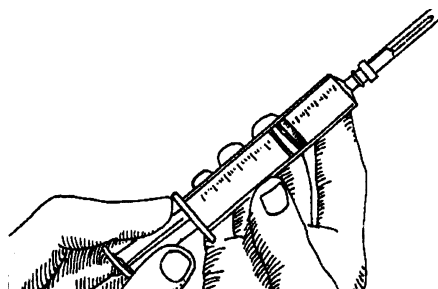


3. Remove the syringe and needle from its package. Be sure the needle is tightly attached to the syringe.

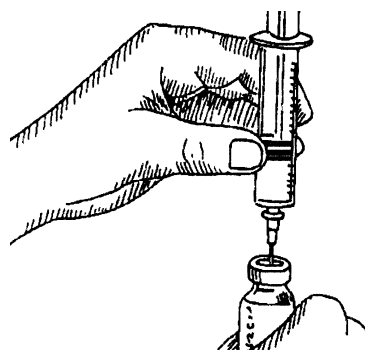




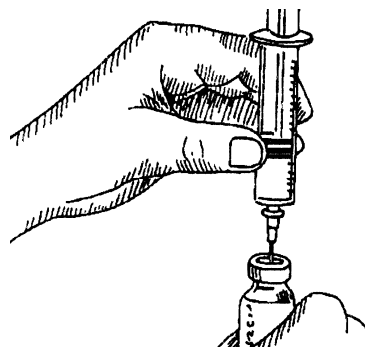
4. Pull the syringe plunger back to fill the syringe with the amount of air that is equal to the desired amount of solution to be withdrawn from the vial.



5. Remove the needle cap from the needle and set aside.



6. Hold the syringe like a dart and insert the needle into the centre of the rubber stopper on the vial.

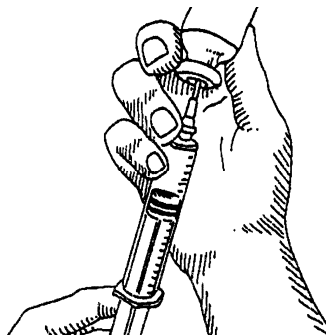


7. Inject the air from the syringe into the vial of medication.



8. Turn the vial, with the needle inserted, upside down.
9. Pull back the desired amount of medication into the syringe.

Be sure that the tip of the needle is in the medication. You do not want to draw up air.



10. Remove the syringe and needle from the vial. Ensure that air bubbles are removed. Swab the medication port with an alcohol swab.
11. Inject the medication to the Home PN solution through the medication port.



Priming the line

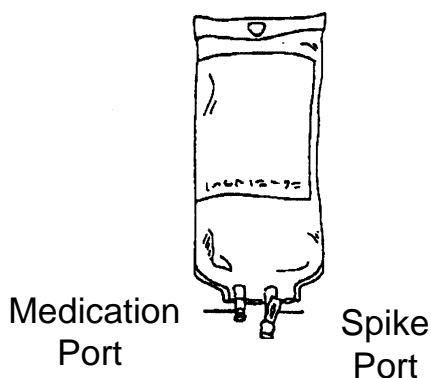
Gather these supplies:

- Home PN solution (room temperature)
- IV tubing with filter
- Antiseptic swabs
- Infusion pump
- IV pole

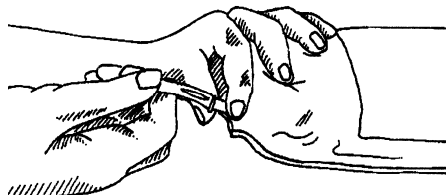
Filling the IV tubing

1. Open the package(s) of IV tubing and close the roller clamp on each tubing.

2. Lay the Home PN bag flat on your clean work area and identify the spike port of the solution bag.

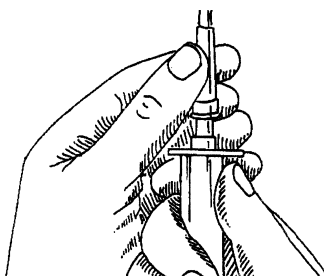


3. Remove the spike port tab. Do not touch the spike port once you have removed the tab.

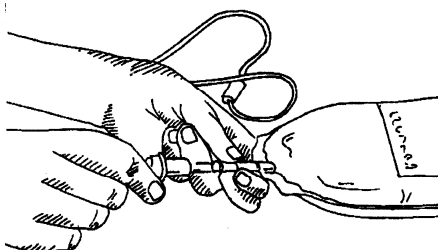




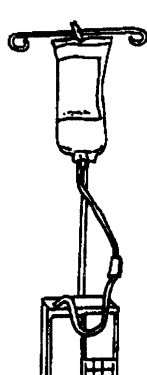
4. Remove the spike cover from the IV tubing. Do not touch the spike.



5. Insert the spike of the IV tubing into the spike port of the solution bag, using a gentle pushing, twisting motion.



6. Hang the solution bag with IV tubing from the IV pole.

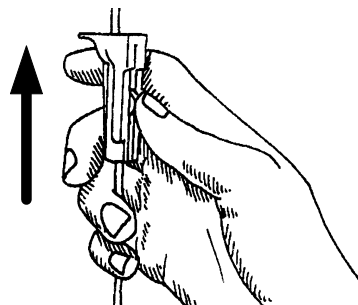




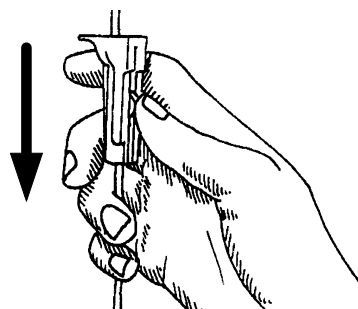
7. Squeeze and release the drip chamber of the IV tubing until it is half full of solution.
8. If the drip chamber fills completely, you will not be able to see the drops of solution fall. Turn the bag upside down and squeeze the drip chamber until some of the solution flows back into the bag. Hang the bag on the IV pole.



9. Open the roller clamp.
10. Allow solution to run through the tubing until a few drops of solution drip out of the end of the tubing and all air is removed from the tubing.
Do not remove the cap from the tubing.



11. Close the roller clamp.



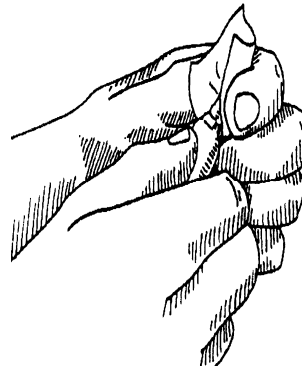


Preparing medications from ampules

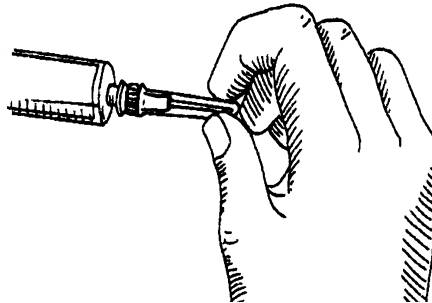
1. Do not use an ampule of medication if:
 - the drug name or strength of the drug is wrong
 - the expiration date has passed
 - the ampule is cracked or chipped
 - there is mold or particles in the solution

2. Clean the neck of the ampule with an alcohol swab, using plenty of friction.

Allow it to dry completely.

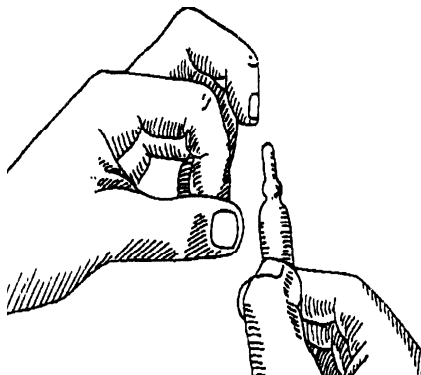


3. Remove the syringe and needle from its package. Attach a needle tightly to the syringe. Then, set the syringe and covered needle down on the clean work area.

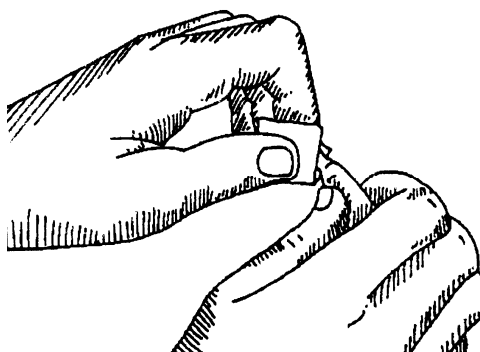




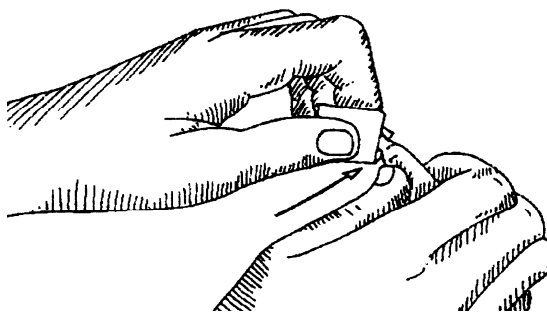
4. Tap the top of the ampule to make sure all of the medication is in the bottom part of the ampule.



5. Grasp the neck of the ampule with an alcohol swab.

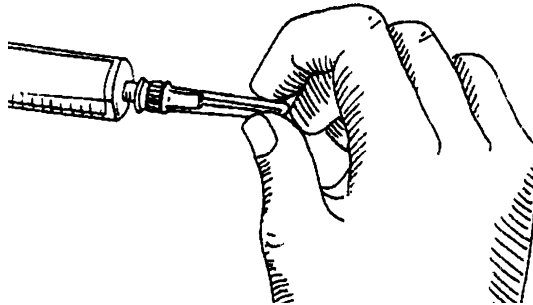


6. With equal pressure from one thumb above and one thumb below the neck, break off the top of the ampule pressing **away from you**. Set the ampule down on the clean work area.

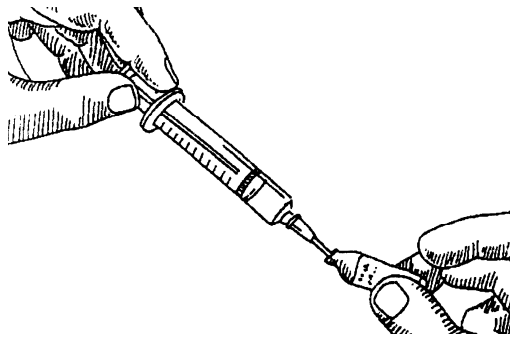




7. Remove the needle cap from the needle and set the cap aside for later use.



8. With one hand, insert the needle (which is attached to the syringe) into the opening of the ampule, while holding the ampule with the opposite hand.

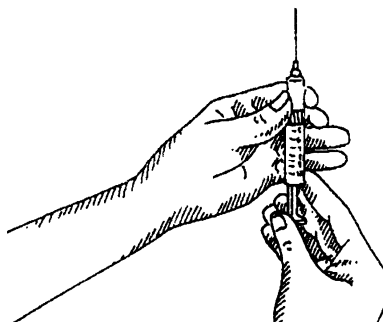


9. Pull back on the syringe plunger to draw up the solution from the ampule as you slowly tilt the ampule. Remember to keep the tip of the needle in solution so as not to draw up air.

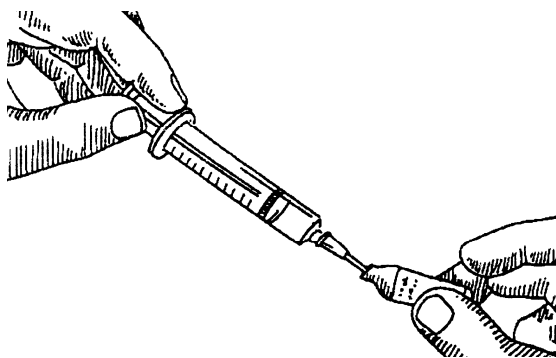
10. Keep drawing back until you have a little more than the correct amount of liquid in the syringe.
11. Take the syringe and needle out of the ampule. Set the ampule down on the clean work area.



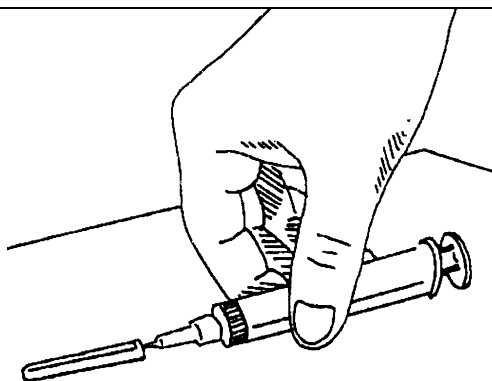
12. Hold the syringe with the needle straight up in air. Push any air out of syringe through the needle.



13. Check to see if the amount of liquid in the syringe is correct. If so, go on to the next step. If not, insert the syringe and needle back into the ampule and repeat steps 7 through 12.



14. Replace the needle cover only by scooping it up from a flat surface with the needle on the syringe, or by using a recapping device.



15. Add the medication to the solution as directed.



16. Discard the needle and syringe and discard in the puncture-resistance sharps container.

When the container is full, bring it to your local hazardous waste disposal site.

Some pharmacies will also take full containers and dispose of them properly. Check with your local pharmacy.





Home PN problems and what to do

Infection

May occur at the catheter site or somewhere in your body.

Symptoms

- redness
- swelling
- discharge/drainage
- tenderness/pain
- fever ($T \uparrow 38.5^{\circ}\text{C}$)
- chills
- sweating
- feeling of weakness and tiredness

Possible cause

- problems with aseptic technique
- contaminated equipment
- cold, flu
- other source in the body (i.e. urinary tract infection)

What to do

If your temperature is greater than 38.5°C with two checks, one hour apart:

- notify the Home PN Team immediately
- go to the Emergency Department

Prevention

- Monitoring with daily log of temperatures.
- Wash hands before ALL procedures.
- Maintain aseptic technique (do not touch the end of the syringes, needles, tubings, caps) if unsure if something is sterile, use a new one.
- Refrigerate all Home PN bags and additives – do not use them if they appear cloudy or discolored.
- Change the dressing weekly and more often if it becomes soiled, wet or loose.
- Avoid people with known illnesses or possible exposure to communicable diseases.



Hyperglycemia

(high blood sugar)

Symptoms

- nausea
- weakness, tiredness
- increase hunger and thirst
- headache
- abdominal pain or cramps
- increased frequency in urination

Possible cause

- know diabetic
- new diagnosis of diabetes
- side effects from other medications
- being sick or under stress
- acute pancreatitis

What to do

- notify the Home PN Team and MRP
- go to the Emergency Department

Prevention

- Infuse the Home PN solution at the same time every day.
- Do not stop infusing suddenly.
- Do not try to “catch up” by increasing the rate.
- If the rate remains the same and the symptoms persist, call the Home PN Team. Additional blood work may be ordered. If you are a known diabetic, you may be asked to check your blood sugars while the Home PN is infusing.



Hypoglycemia

(low blood sugar)

Symptoms:

- sweating
- numbness or tingling of fingers, lips, tongue and toes
- nausea
- dizziness
- headache
- feeling of nervousness
- 'shaky' feeling
- blurred vision
- light-headedness or feeling faint
- irritability
- very hungry
- weak
- abdominal pain or upset stomach
- slurred speech

Possible cause

- blood sugar (level) is too low
- Home PN solution stopped suddenly
- * This is more likely to occur 15-20 minutes after the infusion has finished.

What to do

Notify the Home PN Team and MRP.

If possible:

- check your blood sugar
- drink $\frac{3}{4}$ to 1 cup of sweetened juice or regular pop,
- or
- 3 to 4 teaspoons of honey or corn syrup, or crunch 6 to 8 Lifesavers,
- or
- let 3 to 4 teaspoons of sugar melt in your mouth or dissolve in water and drink.

If symptoms do not go away within 15-20 minutes go to the Emergency Department.

Prevention

- Close monitoring of the blood sugar levels by yourself and routine weekly blood work.
- Taper the infusion rate over one hour before stopping if instructed.



Dehydration

Symptoms:

- dry mouth, coated tongue
- dry skin
- dizziness, lightheadedness
- thirst
- weakness
- weight loss
- racing heart rate
- dark coloured urine
- decreased urine output
- headache

Possible cause

- your body is losing more fluid than is being replaced
- not taking extra IV fluids as ordered
- diarrhea or vomiting
- high ostomy output

What to do

- extra fluids by mouth or by IV – your CCAC nurse will assess this
- notify the PN Team
- follow up with blood work as ordered by the team

Prevention

- Keep track of your weight.
- Keep track of intake/output (urine, ostomy, stool, drains).
- Check for low blood pressure, increased heart rate and shortness of breath.
- 6 litres of Normal Saline to be available in home at all times.



TPN Associated Liver Disease

Biliary Disease: Cholestasis (abnormal secretion of bile acids),
gallbladder sludge and gallstones.
Hepatic steatosis ("fatty liver")

Symptoms:

- jaundice (yellowing of the skin and the whites of the eyes)
- dark urine
- pale coloured stools

Possible cause

- overfeeding of calories
- lack of oral feeding
- underlying diagnosis of cancer with spread to liver
- bacterial overgrowth
- catheter-related blood stream infections
- medications

What to do

- If you have a fever or notice your skin or whites of your eyes becoming yellow, contact the Home PN office. If they do not have any recent blood work, they will ask that you get blood work done.
- Your Home PN Team checks your blood work closely and will adjust your TPN as necessary. With any changes to your prescription they may ask that you have blood work drawn more often.
- Your Home PN Team may arrange for you to have an ultrasound.
- They may also prescribe a medication to help reduce gallstone formation.

Prevention

- If you are able to eat, eat! Try to eat foods that contain fat (peanut butter, butter, cream).



Glossary

Additive:	A drug, medication, or vitamin which is added to your IV solution.
Administer:	To give a solution or medicine either by mouth or through a vein.
Administration Set:	The IV tubing which connects the solution container to the IV catheter. This set consists of a spike (used to enter the solution container), tubing and an adapter (used to connect the tubing to the needle or catheter). There is a roller clamp on the tubing to adjust the rate of flow of the solution.
Amino Acids:	Building blocks of protein. An important macro-nutrient for the body.
Ampule:	A small, sealed glass container of medication which can only be used one time.
Antibiotic:	A medication (drug) used to fight an infection.
Aseptic (or Sterile):	The absence of germs or a “germ-free”. All equipment used in administering IV medications is delivered sterile from the manufacturer.
Aseptic Technique:	A method used to keep an area free from germs.
Bacteria:	A small organism which may cause infection.



Carbohydrates:	Starches and sugars which are important nutrients for the body.
Cap Adapter:	A cap which attaches to the end of the IV catheter.
Central Catheter:	An IV catheter which is threaded through a vein to a point close to the heart.
Clamp:	The device used to close off the catheter so air and fluids cannot enter or leak out. There are different types of clamps. They may be rolled, pinched or squeezed to close.
Components:	Parts or pieces of a whole.
Contaminated:	Dirty, soiled or infected by contact with unsterile objects or surfaces. Because your solutions and/or medications flow directly into the bloodstream, it is very important not to touch any surface that is not sterile to any sterile parts of your equipment.
Dehydrated:	Excess loss of fluid from the body.
Dextrose:	A sugar. An important macro-nutrient for the body.
Drip Chamber:	Part of the IV tubing where rate of the flow of drops can be counted.
Electrolytes:	Necessary parts of body fluid and cells such as potassium and sodium.
Esophagus:	The tube in the body through which food and fluid travel from the mouth to the stomach.



Excrete:	Elimination of body waste.
Exit Site:	The point at which the IV catheter leaves the body.
Fats:	Lipids. An important macro-nutrient for the body.
Fatty Acids:	Refer to “fats”.
Filter:	A device which screens out particles and air from solution.
Final Flush Solution:	The solution that is left in the catheter when the catheter is not hooked up. It is usually Heparin or Normal Saline.
Gastrointestinal Tract:	Consists of the mouth, throat, esophagus, stomach and intestines, where food travels to be absorbed by the body.
Heparin:	A medication that is used to prevent blood from clotting in the IV catheter. Only a very small amount of heparin is used so it does not affect the clotting of blood in the entire body.
Hub:	The end of the catheter where the IV tubing, injection cap or catheter cap (end cap) is attached.
Infection:	Invasion of the body by germs such as bacteria or a virus.
Infusion:	Fluid (such as TPN or antibiotic solution) flowing into the body.



Insertion Site:	Point where the IV catheter enters the skin.
Intake:	Fluid or food which is taken into the body.
Intravenous:	(IV) entering the bloodstream by way of a catheter directly into a vein.
Invert:	Turn upside down.
IV Catheter:	A flexible plastic tube which is placed in a vein to deliver fluid and medication directly into the bloodstream.
Luer-Lock:	A locking device that may be on the end of IV tubing, injection cap, catheter cap or syringe. A twisting motion is used when working with a luer-lock.
Lipids:	Another name for “fats”.
Minerals:	Necessary micro-nutrients for the body such as iron and zinc.
ml or cc:	A unit of measure for medications. The term cc and ml are interchangeable; 30 cc or ml = one fluid ounce.
Monitoring:	Carefully watching and observing for any changes.
Most Responsible Physician:	The doctor responsible for aspects of your care other than Home PN.
Nutrients:	A substance that provides nourishment for growth and metabolism.



Occluded:	The catheter or IV tubing is blocked.
Output:	Waste which is excreted from the body such as urine.
Parenteral:	Administration of fluids, nutrients or medication through a vein.
Peripheral:	The extremities (arms or hands). Peripheral IVs are placed in veins in the arms or hands.
Peripheral Catheter:	An IV catheter which is inserted into a peripheral vein in the hand or arm.
Positive Pressure:	A way of flushing the catheter so that the clamp on the tubing is slowly closed just as syringe empties.
Priming:	Preparing IV lines by filling with fluids and removing the air.
Procedure:	A series of steps which are followed to do a therapy.
Proteins:	Nutrients which are important for growth and repair of the body.
Septic:	Infection.
Sharps:	Needles.
Side Effect:	A result of taking a medication or therapy which was not wanted.
Solution:	A fluid with a dissolved substance in it.



Spike:	The sharp tip of the IV tubing that is inserted into the IV medication solution or bag.
Sterile (or Asepsis):	The absence of germs or a “germ-free”. All equipment used in administering IV medications is delivered sterile from the manufacturer.
Trace Elements:	Elements which are present in the body in small amounts.
Turbulent Flush:	A special way of flushing the catheter using the stop/start method.
Vial:	A small bottle with a self-sealing rubber top which may contain medication, vitamins, or other solutions.
Vitamins:	Complex substances found in food which are essential for normal healthy and growth, such as vitamin A and vitamin C.
Vomits:	Another word for throw-up, barf or puke.





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