



**McMaster Children's  
Hospital**

# TPN

## **Caring for your child on Total Parenteral Nutrition**

**A guide for parents and families**



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**Important information for:**

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(your child's name)



**Doctor:**

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**Registered Nurse:**

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**Registered Dietitian:**

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**Pharmacist:**

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**Pharmacy:**

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**Case Manager:**

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**Home Care Agency:**

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**Supply Company:**

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**Other:**

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# Caring for your child on TPN

## A guide for parents and families

While you are in the hospital, the health care team will help you learn about total parenteral nutrition and how to give your child TPN. You may feel anxious at first, but we will give you lots of information and support. With a little time and practice, you will begin to feel more comfortable.

When you leave the hospital, you should be able to:

- give your child TPN
- order supplies and take care of the TPN equipment
- know how to manage common problems and who to call for help

The book is your guide to caring for your child at home.

**If you have any questions or concerns about your child's TPN,  
please call your doctor, registered dietitian or nurse.**

**905-521-2100, ext \_\_\_\_\_**

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# Total Parenteral Nutrition, TPN

## What does TPN stand for?

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<b>T = Total</b>	Total means that all the daily nutritional needs for your child are in the TPN bag.
<b>P = Parenteral</b>	Parenteral means that the daily feedings are given to your child through a vein.
<b>N = Nutrition</b>	Nutrition means all the proteins, fats, carbohydrates, vitamins and minerals that are needed for growth and activity.

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## What are the 2 liquids in the bag?

The white fluid is fat, called **lipids**. Fat is an important energy source for your child's diet. Fat accounts for about half of your child's total calories.

The yellow liquid is called **aminosyns**. The label on the bag lists the nutrients in the TPN, which includes:

- proteins
- carbohydrates
- vitamins
- minerals
- electrolytes
- fats

**The aminosyns PLUS the lipids provide your child with the right nutrition to grow and be active.**

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## **Who decides what goes in my child's TPN?**

Your child's doctor, registered dietitian and pharmacist work together to prescribe your child's TPN.

The amount and type of TPN is based on the growth needs of your child.

When your child visits the clinic, your child will be weighed and measured. These measurements, along with lab results are used to determine the right TPN prescription for your child.

## **Will my child feel hungry while on TPN?**

TPN provides your child with a healthy diet. The nutrients go right into your child's blood stream. If your child feels hungry, then changes can be made to the TPN and/or what your child eats. Please let the team know if your child is hungry.

TPN should be gradually stopped or it can lower your child's blood glucose too quickly. To prevent a drop in blood glucose, the rate of TPN is reduced to half during the last hour.

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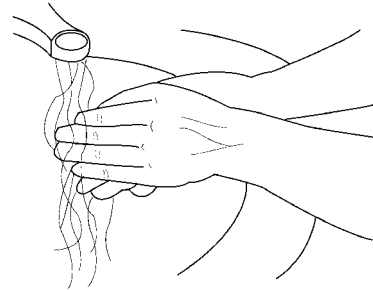
# Washing your hands

Good handwashing is the best way to prevent the spread of germs and infection. It is important that everyone who helps care for your child washes their hands well. You will need to wash your hands often as you get ready and then give your child TPN.

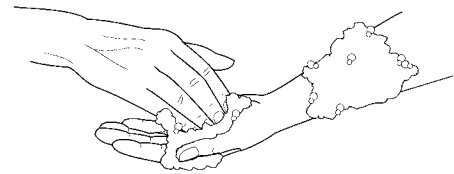
It is best to use liquid soap in a pump bottle. If needed you may use waterless soap. You do not need to use antibacterial soap. Dry your hands with paper towels, or a clean, dry towel.

## How to wash your hands with soap and water:

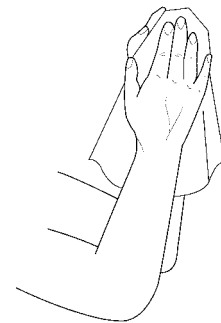
1. Take off your jewelry and watch.
2. Turn on the water and leave it running.  
Adjust the temperature.
3. Wet your hands and lower arms.



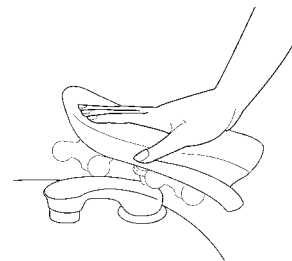
4. Apply 1 to 2 pumps of soap.  
Work into a lather. Scrub your hands, fingers, nails and lower arms as well.  
Wash for 30 seconds.



5. Rinse hands well. Hold your hands up to let the rinse water drip towards your elbows.
6. Dry your hands well. If using paper towels, throw them out.



7. Turn off the tap with the towel or a fresh paper towel. Do not touch the tap with your bare hands.

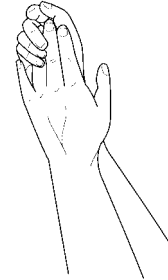




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## How to wash with waterless soap

1. Take off your jewelry and watch.
2. Squirt a small amount of waterless soap 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 with the waterless soap for about 5 seconds. Scrub your hands, fingers, nails and lower arms as well.
5. Rub your hands and wrists together for about 15 seconds.



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## Equipment

A staff member at the hospital will arrange a supplier who will provide you with a pump and all the equipment you will need.

The doctor, registered dietitian, nurse and pharmacist will order your first 2 weeks of supplies and have them delivered to your home. After that, you will need to order your supplies and arrange their delivery.

Before you go home, we will give you a list of the supplies you need to order. You will need to order new supplies every 2 weeks.

### Sharps Box

We will give you a sharps box, for disposal of used equipment such as needles and glass containers.

When it is full, bring it back to the hospital and we will replace it for you.



### Refrigerator

A separate refrigerator must be used to store the TPN. A small bar fridge works well for this.

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## Tacklebox

Having a central venous catheter does not mean that you or your child are confined to your home. Good organization and a few simple supplies will enable you to leave your home.

We suggest that you buy a fishing tacklebox and stock it with the supplies we have checked on this list:

- dressing supplies for 3 dressing changes
- clamp
- alcohol wipes
- sterile cap for central venous catheter
- waterproof tape
- cloth tape
- safety pin
- bacteriostatic saline
- needle and syringe
- normal saline
- heparin
- other \_\_\_\_\_
- other \_\_\_\_\_
- other \_\_\_\_\_

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## Getting ready

### Supplies

- clean, unused towel
- bag of TPN
- pump
- alcohol wipe
- extension tubing
- filtered tubing

1. Wash your hands.
2. Remove TPN from the refrigerator about 2 hours before hook up time.  
**Add multivitamins just before capping on.**

Check TPN for:

- **correct name**
- **expiry date**

3. When ready to cap on, gather supplies and place on a clean towel.

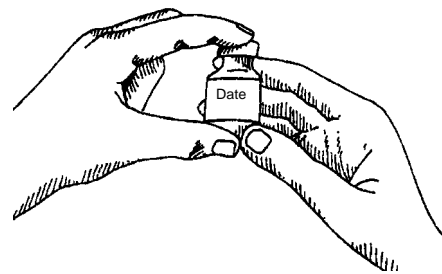
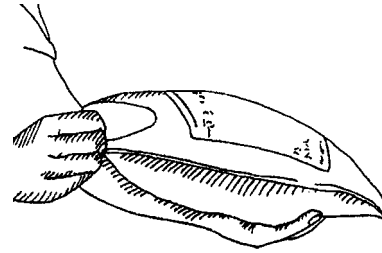
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## Follow these steps when checking your supplies:

1. Inspect all bottles or bags of solution for anything that looks unusual.

### Do not use the bottles or bags if:

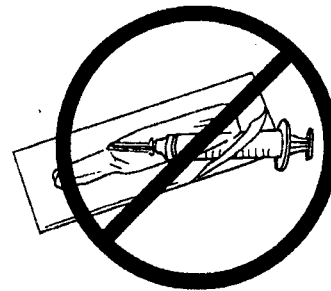
- there are any leaks
- there is any cloudiness or discoloration that does not disappear with gentle mixing of the solution (except for the lipids)
- there are any particles or specks in the solution
- your child's name is not on the label
- the label has a different medication or dose listed
- the expiry date on the label has passed



2. Check to see that packages are sealed.

### Do not use the packages if:

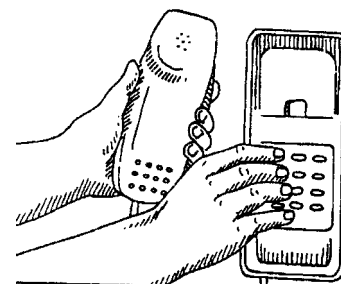
- the seal is broken
- the package is torn
- the inside or outside of the package is wet



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

4. Call your supply company if you have any contaminated supplies.

They will send you new supplies and may want to check the contaminated supplies.



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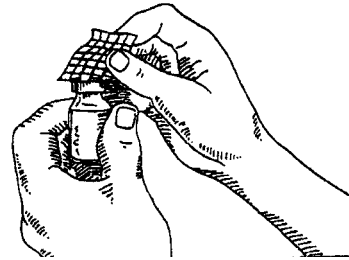
## Additives

Gather the supplies:

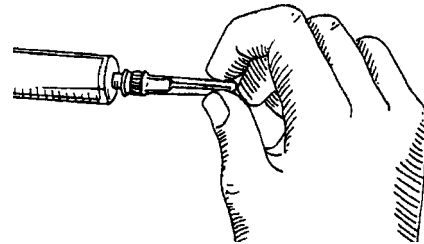
- vitamin vial
- syringes
- needles
- alcohol wipes

**Follow these steps when drawing up liquid vitamin from a vial:**

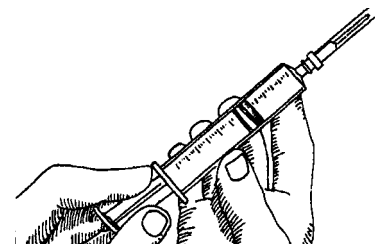
1. Remove the vial cap, if necessary. Clean the rubber stopper of the vial with an alcohol wipe and let it air dry completely.



2. Remove the syringe and needle from its package. Tightly attach the needle to the syringe.



3. 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.

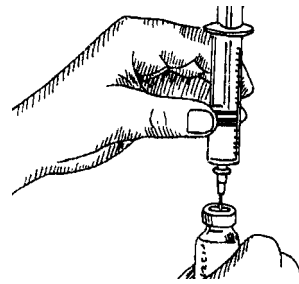


The desired amount of multivitamins for your child is \_\_\_\_\_ ml.

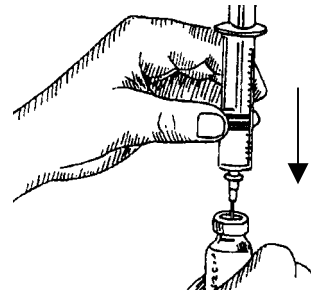
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4. Remove the cap from the needle and set on a clean surface.

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



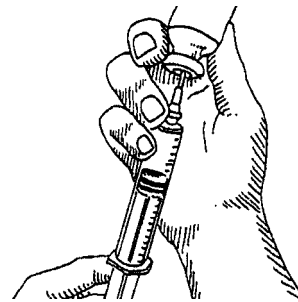
6. Inject the air from the syringe into the vial of medication.



7. Turn the vial, with the needle inserted, upside down.

8. Pull back the desired amount of medication into the syringe.

9. 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. Remove any air bubbles. To do this hold the syringe up and gently flick with your finger. Using the plunger on the syringe, push out any extra air through the needle. Clean the medication port of the TPN bag with an alcohol wipe and let it air dry completely.

11. Inject the medication to the TPN solution through the medication port. Gently mix the TPN solution again.

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## Priming the line (purging the tubing)

Gather the supplies:

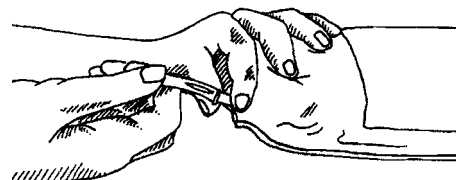
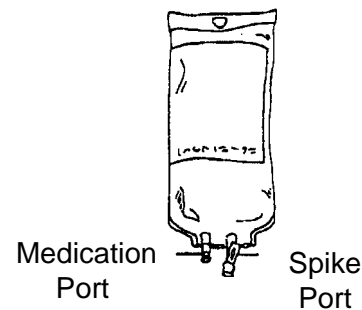
- TPN solution – at room temperature
- IV tubing with filter
- extension tubing
- alcohol wipes
- infusion pump
- IV pole
- clean, unused towel

### Follow these steps to fill the IV tubing:

1. Open the package(s) of IV tubing and **close the roller clamp** on each tubing. Connect the IV tubing to the extension tubing and place on towel.
2. Pull the ripcord from the TPN bag. Gently turn bag over to mix the solution. Place on towel.
3. Lay the TPN bag flat on the clean work area and identify the spike port of the solution bag.

Add the multivitamins to the TPN in the Medication Port (see additives section page 12-13)

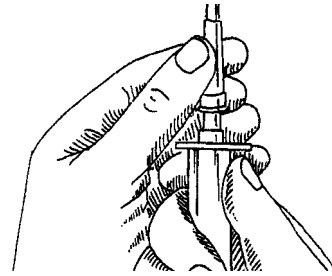
4. Remove the spike port tab. Do not touch the spike port once you have removed the tab.



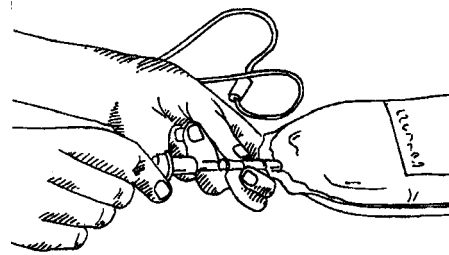


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5. Remove the spike cover from the IV tubing.

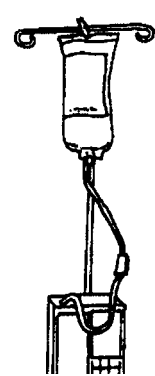
Do not touch the spike.



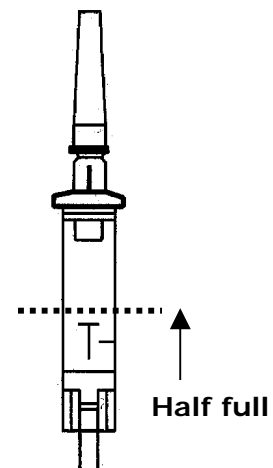
6. Insert the spike of the IV tubing into the spike port of the solution bag, using a gentle pushing, twisting motion.



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



8. Squeeze and release the drip chamber of the IV tubing until it is half full of solution.
9. 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.

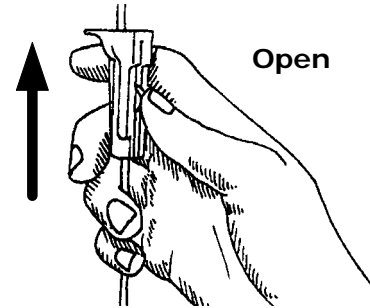


10. Hang the bag on the IV pole.

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11. Open the roller clamp.

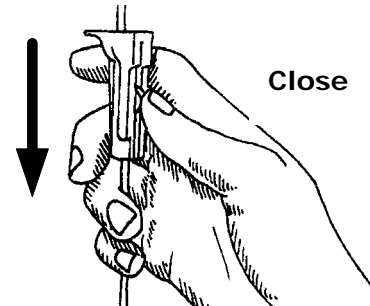
12. Allow solution to run slowly through the tubing until a few drops of solution drip out of the end of the tubing and all air is removed from the tubing. Check for bubbles.



If a bubble is found in the tubing, run the TPN to push the bubble out. Do not remove the cap from the tubing.

13. Close the roller clamp.

Place the end of the tubing on a clean surface.



**If your child needs be admitted to hospital,  
put the TPN in a cooler with an icepack.  
Bring it to the hospital so it can be used for your child.**

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## Setting up the pump

1. Load the tubing into the pump (see IV pump manual).
2. Make sure the pump is plugged in.
3. Your doctor, registered dietician and pharmacist will order the rates, volume and time of the infusion. Follow the pump instructions for setting the rate, volume and time of infusion.

**Remember to plug in the pump when you are at home to charge the battery.**

**Check the battery level before using the pump and when unplugging the pump.**

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# Capping on the TPN to the catheter

## Supplies

- IV tubing primed with TPN and ready on pump
- 1 alcohol wipe
- 1 sterile 4 x 4 gauze
- 1 piece of adhesive tape with tabbed ends
- clean towel

## Follow these steps to cap on the TPN to the catheter:

1. Wash your hands.
2. Gather your supplies and place them on a clean towel.
3. Make sure catheter is clamped.
4. Turn the pump on and open the clamps. Make sure the rate is correct.
5. Place a sterile 4 x 4 gauze under the capped end of the catheter.
6. Remove the pin from your child's clothing and catheter. Clean the connection with the alcohol wipe and let it air dry completely.
7. Place the capped end of the IV tubing on the 4 x 4 gauze near the capped end of the catheter. Remove the injection cap and the cap from the end of the tubing.
8. Hold IV tubing over the end of the catheter. Connect the IV tubing to the catheter. Make sure the connection is tight and locked. Push the start button on the pump to start the TPN going into the catheter.

Continued on next page →

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9. Tape the catheter, the tabbed ends can be used to pin the catheter to your child's clothing.
  10. Double check the solution and the rate.

**If you notice a slow increase in the pressure of the IV pump, check that the clamps are open.**

**If no clamps are closed, try flushing the catheter with 5 to 10 cc of normal saline (see Flushing your catheter).**

**If the pressure remains high, call the doctor or nurse.**

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# Capping off/flushing the catheter

## Supplies

- sharps container
- garbage bag
- alcohol wipes
- 2 – 20 gauge 1½ inch needles
- 2 – 10 ml luer lock syringes
- 1 vial normal saline
- 1 sterile 4 x 4 gauze
- clean, unused towel
- 1 vial prescribed flushing solution
- 1 injection cap, if capping off
- 1 inch adhesive tape

## Getting ready

1. Wash your hands.
2. Put your supplies on the inside of a clean, unused towel.
3. Remove cap from the vial of flushing solution. Clean the top off with an alcohol wipe and let it air dry completely. Be careful not to touch the top.
4. Open the bottle of normal saline and put it beside the clean towel.

## Preparing the needles and syringes

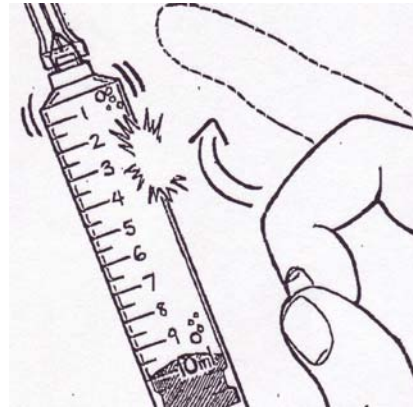
1. Take the 2 syringes out of their packages. Put the syringes back on the towel.
2. Take the 2 needles out of their packages. Attach the needles with the caps to the syringes. Place the syringes on the clean towel.

**Be careful not to touch the end of the syringe or needle.**

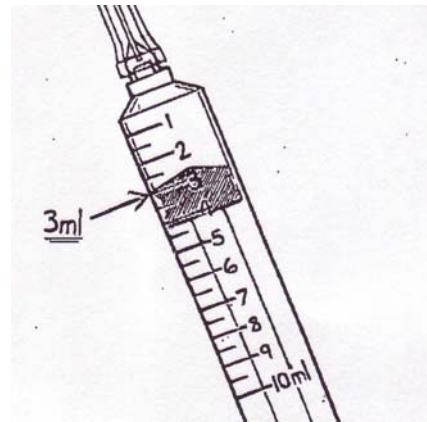
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## Preparing to flush and to cap off

1. Pick up one of the syringes and remove the needle cover. Put the cover on the towel.
2. Draw up 10 ml of normal saline into the 10 ml syringe. Remove the air from the syringe. To do this hold the syringe up and gently flick with your finger. Using the plunger on the syringe, push out any extra air through the needle. Put the needle cover back on. Put the syringe back on the towel.



3. Pick up the other syringe with the needle and remove the cover. Put the cover on the towel.
4. For capping off, also, draw up 3 to 5 ml of the prescribed flushing solution into the syringe. Put the needle cover back on. Remove the air from the syringe. To do this hold the syringe up and gently flick with your finger. Using the plunger on the syringe, push out any extra air through the needle. Put the syringe back on the towel. Date the unused prescribed solution and put back into the refrigerator. If kept refrigerated, the prescribed solution can be used for \_\_\_\_\_.



5. Remove the safety pin from your child's clothing, allowing the IV tubing and catheter to be easily accessed.
6. Open the new injection cap but leave it in the package.
7. Wash your hands.

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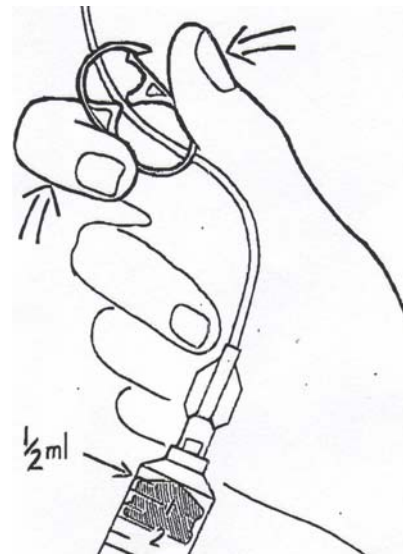
## Flushing the catheter

1. With the alcohol wipe, clean the connections between the IV tubing and the catheter and let it air dry completely.
2. Put the sterile 4 x 4 gauze under the connection area you just cleaned.
3. Clamp the catheter and the IV tubing.
4. Put the pump on hold to flush.
5. If capping off, turn off the IV pump.
6. Disconnect the IV tubing from the catheter. Protect the end of the central line and IV tubing – keep it clean by putting it on the sterile 4 x 4 gauze.
7. Remove the needle from the syringe filled with normal saline. Connect the syringe to the catheter. Open the clamp to the catheter.
8. Gently flush the central line with normal saline. Close the clamp on the catheter. Remove the syringe.
9. Reconnect to the IV tubing and unclamp all clamps. Restart IV pump.

## Capping off the catheter

**Follow steps 1 - 8 from above**

9. Remove the needle from the syringe with the prescribed flushing solution. Connect the syringe to the catheter. Open the clamp.
10. Gently flush the catheter with the prescribed flushing solution. As you push the last  $\frac{1}{2}$  ml in, slowly close the clamp on the catheter. Try to clamp the catheter at a different site to prevent wear.
11. Put the injection cap on the catheter.
12. Place adhesive tape on the catheter and pin the tape to your child's clothing.
13. Dispose of all the needles in the sharps box. Discard the TPN and IV tubing.





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## Catheter site check

At least once each day, check the area around the site of the central venous catheter (through the dressing) for these problems:

- leaking
- swelling
- redness
- bleeding
- pain

**If you notice any problems or have concerns about the CVL,  
call the doctor or nurse right away.**

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# Infections and TPN

When your child is on TPN, the chances of your child getting an infection are increased.

This is because:

- The catheter is a foreign object in your child's body. This catheter allows a path for infection to enter into your child's body.
- TPN is high in sugar and fat, and is the perfect food for bacteria.
- The catheter is opened at least twice a day. When the catheter is opened this provides an entry for bacteria. **The fewer times the catheter is opened, the less chances for bacteria to enter.**
- Bacteria grow well in damp places. Keep your child's dressing dry.

## What do the words sterile and aseptic mean when talking about TPN?

A sterile or aseptic object is free from bacteria (germs), which cause infection. Sterile objects have had all living things removed from them. Sterile objects in TPN supplies include:

- the inside and tips of IV tubing
- the inside and tip of the catheter
- 4 x 4 gauze

When we talk about sterile fields we are talking about a specific area on a sterile towel or sterile gauze. This area has no bacteria or germs. The outer edges of all sterile fields are not sterile because germs may touch them.

When something that is sterile, such as the tip of tubing, comes into contact with something that is not sterile, such as your hands, then that object is no longer sterile. In this case, the tubing must not be attached to the catheter. Throw tubing out and get new tubing.

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## **Other ways to prevent infection**

If you have a cold or the flu, wear a mask when you change the dressing or cap the catheter on or off.

When doing a dressing change or opening the catheter, keep the door to the room and the windows closed. Turn fans off. Limit the number of people in the room.

Please realize that no matter how careful you are with your technique, your child may develop an infection:

Signs of infection include:

- redness
- swelling
- discharge
- tenderness
- fever

**If you notice any of these signs of infection,  
call the doctor or nurse right away.**

## What to do – patient problems

Possible problem	Signs and symptoms	What to do	How to prevent
<b>Infection</b> (may occur at the catheter site or somewhere else in the body)	<ul style="list-style-type: none"> <li>chills</li> <li>sweating</li> <li>weakness</li> <li>tiredness</li> <li>irritability</li> <li>fever - 37.6°C or higher</li> <li>redness at the exit site</li> </ul>	<ul style="list-style-type: none"> <li>Change the dressing.</li> <li>Call the doctor. The doctor will let you know if you need to come to the hospital and whether or not to give your child medication for fever.</li> </ul>	<ul style="list-style-type: none"> <li>Wash your hands before all procedures.</li> <li>Change dressing using sterile technique.</li> <li>Change every 7 days or as needed.</li> <li>Avoid pulling on catheter exit site.</li> </ul>
<b>Hyperglycemia</b> (high levels of glucose in blood)	<ul style="list-style-type: none"> <li>headache</li> <li>nausea</li> <li>increased thirst</li> <li>weakness</li> <li>restlessness</li> <li>irritability</li> <li>passing more urine</li> </ul>	<ul style="list-style-type: none"> <li>Call the doctor.</li> </ul>	<ul style="list-style-type: none"> <li>Infuse the TPN at the same time each day.</li> <li>Do not suddenly stop the TPN infusion.</li> <li>Check flow rate of TPN when capping on.</li> </ul>
<b>Hypoglycemia</b> (low levels of glucose in blood)	<ul style="list-style-type: none"> <li>headache</li> <li>tiredness</li> <li>irritability</li> <li>nausea</li> <li>a “shaky” feeling</li> <li>feeling nervous</li> <li>increased sweating</li> </ul>	<ul style="list-style-type: none"> <li>Call the doctor.</li> </ul>	<ul style="list-style-type: none"> <li>Check flow rate of TPN when capping on.</li> <li>If your child is able to drink, give juice before and after capping off.</li> <li>Taper the infusion rate over 1 hour before stopping.</li> </ul>

Possible problem	Signs and symptoms	What to do	How to prevent
<b>Dehydration</b>	<ul style="list-style-type: none"> <li>• dry skin</li> <li>• sticky or dry mouth</li> <li>• dry eyes</li> <li>• weight loss</li> <li>• increased thirst</li> <li>• sunken eyes</li> <li>• no tears</li> <li>• passes less urine</li> <li>• less active or weak</li> </ul>	<ul style="list-style-type: none"> <li>• Give your child more fluids.</li> <li>• <b>If your child is able to drink,</b> offer fluids such as water or gingerale.</li> <li>• <b>If your child cannot drink,</b> give your child extra water through the nasal tube or tube in stomach.</li> <li>• Call the doctor.</li> </ul>	<ul style="list-style-type: none"> <li>• Keep your child cool on hot days.</li> <li>• Ask if you can give extra fluids when your child is off his or her TPN. Remember that only specific fluids can be given and it does NOT include water.</li> </ul>
<b>Fluid overload</b>	<ul style="list-style-type: none"> <li>• faster breathing</li> <li>• shortness of breath</li> <li>• grunting while breathing</li> <li>• hard for your child to breath lying down</li> <li>• swelling, especially around eyes and feet</li> <li>• passes less urine</li> </ul>	<ul style="list-style-type: none"> <li>• Stop TPN, flush and cap line.</li> <li>• Call the doctor.</li> </ul>	<ul style="list-style-type: none"> <li>• Check rate before capping on.</li> </ul>

Possible problem	Signs and symptoms	What to do	How to prevent
<p><b>Air embolus.</b> (Air trapped in tubing enters body. Air enters through a hole in CVL.)</p>	<ul style="list-style-type: none"> <li>• coughing</li> <li>• shortness of breath at rest or with activity</li> <li>• chest pain</li> <li>• loss of consciousness</li> <li>• bluish nail beds</li> <li>• grey colour in face</li> <li>• fast breathing</li> <li>• fast heart rate</li> <li>• feeling faint or dizzy</li> </ul>	<ul style="list-style-type: none"> <li>• Clamp the catheter.</li> <li>• Call the doctor right away.</li> <li>• Place your child on left side with head lower than feet.</li> <li>• If your child becomes unconscious, turns pale or blue, call 911.</li> </ul>	<ul style="list-style-type: none"> <li>• Check connections very well when getting ready and capping on.</li> <li>• Always clamp catheter before changing the cap or IV tubing.</li> </ul>
<p><b>Vein irritation or CVL no longer in correct place.</b></p>	<ul style="list-style-type: none"> <li>• Tenderness, pain or swelling around the face, neck, collarbone and/or along arm on side where catheter is placed.</li> <li>• TPN infusion is slow.</li> <li>• There is leakage or drainage at CVL site.</li> <li>• Your child has pain when CVL is being used.</li> <li>• The CVL is hard to flush or will not flush at all.</li> </ul>	<ul style="list-style-type: none"> <li>• Call the doctor.</li> <li>• If TPN infusing, stop flow and try to flush and cap.</li> <li>• Your child will need to go to the hospital.</li> </ul>	<ul style="list-style-type: none"> <li>• Always make sure CVL is well secured.</li> <li>• Pin the catheter tubing to the body to prevent twisting and kinking.</li> </ul>

## What to do – equipment problems

Possible problem	Signs and symptoms	What to do	How to prevent
<b>Air in tubing</b>	<ul style="list-style-type: none"> <li>• Air bubble in tubing.</li> </ul>	<ul style="list-style-type: none"> <li>• Clamp the CVL.</li> <li>• Using sterile technique, disconnect the tubing.</li> <li>• Increase the pump rate and let the air be pushed out as quickly as possible.</li> <li>• Reconnect the tubing to the CVL.</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect tubing carefully for air before capping on.</li> </ul>
<b>Cap is loose or falls off.</b>	<ul style="list-style-type: none"> <li>• Loose cap or no cap.</li> </ul>	<ul style="list-style-type: none"> <li>• Make sure all clamps are closed.</li> <li>• Clean the end of the catheter with an alcohol wipe.</li> <li>• Put a new sterile cap on the catheter and tighten.</li> <li>• Call the doctor.</li> </ul>	<ul style="list-style-type: none"> <li>• Make sure the cap is taped to CVL.</li> <li>• Make sure cap is tight.</li> <li>• Make sure CVL is clamped when not in use.</li> </ul>
<b>CVL is dislodged or moved.</b>	<ul style="list-style-type: none"> <li>• You see the cuff or notice a longer CVL.</li> </ul>	<ul style="list-style-type: none"> <li>• Secure the CVL as best as you can.</li> <li>• Call the doctor.</li> <li>• Cap the line off.</li> </ul>	<ul style="list-style-type: none"> <li>• Make sure that the CVL is secured to undershirt with a safety pin and looped under dressing.</li> </ul>

Possible problem	Signs and symptoms	What to do	How to prevent
<b>Blood backing up in the catheter.</b>	<ul style="list-style-type: none"> <li>• Blood in the tubing.</li> </ul>	<ul style="list-style-type: none"> <li>• Clamp the catheter.</li> <li>• Check to make sure all the tubing is connected.</li> <li>• Tighten all connections.</li> <li>• Flush the CVL.</li> <li>• Make sure the tubing is in the pump and the pump is running.</li> </ul>	<ul style="list-style-type: none"> <li>• Make sure all connections are tight.</li> </ul>
<b>Blocked CVL.</b>	<ul style="list-style-type: none"> <li>• Unable to flush the CVL.</li> <li>• CVL is very hard to flush.</li> </ul>	<ul style="list-style-type: none"> <li>• Make sure the catheter is not clamped when injecting solutions.</li> <li>• Try to flush the catheter with a bit of force.</li> <li>• If unable to flush, call the doctor.</li> </ul>	<ul style="list-style-type: none"> <li>• Check the pressures on the pump on a regular basis.</li> <li>• If higher than usual, flush the catheter with normal saline.</li> </ul>
<b>Damaged CVL.</b>	<ul style="list-style-type: none"> <li>• Crack in CVL.</li> <li>• Hole in CVL.</li> <li>• Broken CVL.</li> </ul>	<ul style="list-style-type: none"> <li>• Take a 2x2 gauze and clamp.</li> <li>• Place the gauze on the CVL between the damaged area and your child. Clamp the catheter here. Cap off line.</li> <li>• Call the doctor and bring your child to the hospital Emergency Department.</li> </ul>	<ul style="list-style-type: none"> <li>• Only clamp on the thicker parts of the catheter.</li> <li>• Avoid getting chlorhexidene on the part of the CVL that is clamped.</li> </ul>



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## Words to know

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<b>Aminosyns</b>	Fluid which helps your child grow. Aminosyns contain nutrients such as sugar, protein, minerals and vitamins. The solution is yellow in colour.
<b>Ampule</b>	A small, sealed glass container of medication that is only used once.
<b>Aseptic</b>	The absence of germs. Sterile.
<b>Aseptic technique</b>	Any procedure that uses precautions to prevent contamination.
<b>Bacteriostatic Saline</b>	This type of fluid is used to flush the central venous catheter. There is a preservative in this saline.
<b>CVL</b>	CVL stands for central venous catheter. This catheter or tube is placed in the body to provide a route for fluid, nutrition and medications.
<b>Clean</b>	To clean an area, use 1 part bleach to 3 parts water and allow the area to air dry. To clean a towel or cloth, wash in hot water with bleach.
<b>Dextrose</b>	A sugar that is part of carbohydrates. It is an important nutrient for the body.
<b>Discharge</b>	A clear, pink or yellowish fluid around the catheter exit site, which is not normally found there.
<b>Exit site</b>	The point at which the catheter leaves the body.
<b>Filter</b>	A device that screens out particles and air from the solution.

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<b>Hyperglycemia</b>	Hyperglycemia is when there is a high level of glucose in the blood. It can cause nausea, weakness, headache, thirst, irritability and restlessness.
<b>Hypoglycemia</b>	Hypoglycemia is when there is a low level of glucose in the blood. It can cause increased sweating, headache, nausea, tiredness, nervousness, irritability and shakiness.
<b>Lipids</b>	The fat solution that helps your child grow. An important nutrient for the body.
<b>Metabolic</b>	Physical and chemical processes.
<b>Minerals</b>	Important nutrients for the body such as iron and zinc.
<b>ML (ml)</b>	A unit of measurement for liquid medications. 1 ml = 1 cc      30 ml = 30 cc = 1 fluid ounce
<b>Multivitamins</b>	Vitamins, which are added to the Aminosyn solution. Important nutrients for the body.
<b>Septic</b>	The presence of germs or infection.
<b>Sharps</b>	Any needles or vials that could cause an injury. Dispose of all used sharps in the sharps box.
<b>Sterile</b>	Free from germs, such as bacteria and viruses.
<b>TPN</b>	Total Parenteral Nutrition. Fluids that help your child grow. TPN contains nutrients such as sugar, protein, minerals, vitamins and fat. The amnosyns are yellow; the lipids (fat) are white. When these two parts are mixed, the TPN is white in colour.
<b>Vial</b>	A small bottle with a self-sealing rubber top. It may contain a medication, vitamin or other solution.



The staff of McMaster Children's Hospital would like to thank all the health professionals, parents and families who helped to develop this book.

If you have comments or questions about patient education, we invite you to send a message to: [PatientEducation@hhsc.ca](mailto:PatientEducation@hhsc.ca)



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