

Total Parenteral Nutrition (TPN) at Home Using the CADD Pump

Patient Name: _____ MRN _____ DOB _____

Medication Information

Name of Medication : _____ Dose: _____

Medication stable at room temperature for: _____

Pump settings

Pump # : _____

Change battery every: _____ hours / days

Lock Level : _____

Reservoir volume: _____ ml

Infusion volume: _____ ml

Infusion period: _____ hr _____ min

Taper-up period: _____ hr _____ min

Taper-down period: _____ hr _____ min

Plateau / Infusion Rate: _____

KVO Rate: _____

Infusion Start Date: _____ Pharmacist: ____/____

- Pump has been programmed and double checked
- Family to call pharmacist on call to reprogram pump

Normal saline flush solution

Amount to give: _____ ml

When to give it:

- before and after giving the TPN
- _____

Heparin flush solution

Solution: _____ units/ml

Amount to give: _____ ml

When to give it:

- After giving the medication and normal saline flush
- _____

What is TPN?

Your child needs to have total parenteral nutrition (TPN) at home. This is also known as hyperalimentation. You will be taught what to do, what to watch for, and whom to call for problems. Follow the checked instructions on this sheet. You will need these supplies to set up and give the TPN:

- hand soap
- CADD infusion pump
- Chlorhexidine (CHG) or alcohol wipes
- medicines and vitamins to be added to TPN bag
- normal saline syringe
- sharps container for needles
- syringes and needles
- TPN solution (stored in the refrigerator)
- tubing with TPN filter
- heparin syringe
- disinfectant cap

Preventing infection

It is very important to prevent infection. Failure to do so might require removal of the central venous catheter. The nurse will show you how to keep your supplies clean, so no germs will enter the catheter and cause an infection.

Cleanliness is a must! Each time you handle supplies or perform a procedure, do the following steps:

1. Prepare a clean work space area by cleaning a solid surface with household cleanser.
2. Clean hands well, using one of the following methods:
 - Use an alcohol hand sanitizer according to directions.
 - If hands are dirty or alcohol hand sanitizer is not available, wash hands for *at least 20 seconds* with soap, rubbing all surfaces briskly, including fingernails. Use a paper towel or clean hand towel to dry your hands, and then use the towel to turn off the faucet.

3. Before each time you flush or attach a new syringe/tubing to the injection cap, scrub the injection cap for 30 seconds with a fresh chlorhexidine wipe, using friction. Let it dry. Do not fan or blow on it.

Important Notes

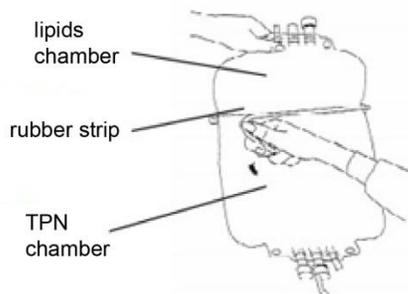
- Dual chamber bags have two chambers. The top part holds lipids (a fat solution that is white) and the bottom part holds the TPN (a clear solution). These are separated by a rigid plastic rod slipped over a rubber strip (or in some cases, a clamped tube).
- When the TPN arrives, make sure that the rod and strip are securely in place. Do not stack more than 3 bags on top of each other. Do not handle the bag divider until you are ready to use the bag.
- Use a new CADD pump tubing each day.
- A medicine is good until the end of the day on the day it expires. Throw it away sooner if you see sediment in it or if you question its cleanliness.

Getting Ready

1. Make sure the TPN is at room temperature
 - Remove the TPN from the refrigerator as directed. Your homecare nurse will discuss with you how early this should be removed to make sure it is safe to use.
 - Do not use a microwave, oven, or water to warm.
2. Check the label on the bag and verify:
 - Child's name
 - Medication/Dose
 - Expiration date
3. Do not use the TPN bag if:
 - The TPN solution is cloudy
 - The bag is leaking
 - The lipids have yellow streaks present

Setting up the TPN

1. Prepare the work area (see above).
2. Clean your hands well (see above).
3. Gather supplies.
4. Verify the labels of the vitamins.
5. Prepare the vitamins as directed.
 - If it has been ordered, the Vitamin K comes already drawn up for you. You will need to attach a needle to the syringe.
 - If there are two vials of multivitamins, you can use the same needle and syringe to draw the multivitamins out of both vials and to inject the multi vitamins into the bag of TPN. To do so, clean the top of both vials with alcohol wipes, allow to dry, insert needle and remove contents of both vials into same syringe.
6. Scrub the injection port of the TPN bag with a chlorhexidine wipe for 30 seconds and allow to dry.
7. Push the needle into the center of the injection port on the TPN bag and inject the vitamin K, multivitamins or other medications ordered into the TPN.
8. Add any other ordered medicines to the TPN the same way you added the vitamins. Scrub the injection port with a fresh chlorhexidine wipe before adding **each** medicine, and let it dry.
9. Just before using, peel the rubber strip away from the plastic rod on the **dual chamber** bag. The two chambers are now combined into one **bag**. Throw away the rubber strip and rod. (If using a **Halo bag**, simply unclamp the tubing that separates each bag.)



Picture used with permission of
The Metrix Co, Dubuque, IA

10. Mix the solution by holding the bag at both ends and gently rocking it back and forth about 4 or 5 times. After mixing, the solution should look completely white, or yellow if you have added vitamins. If your solution has streaks or oily layers, **do not** use the bag.
11. Put the used needles into the sharps container provided to you.

Connecting the TPN tubing to the TPN bag:

1. Remove the CADD pump tubing set from the package. Close all clamps.
2. Remove the cap from the spike located on the tubing and the cap on the TPN bag port, keeping the ends sterile. Insert the spike into the bag port using a twisting/pushing method.

Starting an infusion/medication with NEW tubing:

1. ALWAYS TURN ON the pump before attaching the tubing / cassette. To turn on the pump, remove the battery from the right side of pump, flip over, and replace cover.
2. The pump will go through all the settings. Be sure to verify these settings which are listed on the first page of this handout. Pump will beep multiple times when finished 'powering up'.
3. Once 'powered up', remove blue clip from tubing cassette and attach the cassette located on the tubing to the pump. Insert the 'feet' in first.
4. To latch cassette/tubing in place, use a coin and push in and turn the button located on the bottom right side of the pump, until the cassette/tubing is latched in place and the pump makes a beeping noise.
5. Screen will read "**Reset Reservoir Volume to _____ ml?**" Press Y(yes) to reset the volume. (Note: this will not take place with first connection- only on the following connections)

Priming the tubing:

1. Remove the cover at the end of the tubing and unclamp the tubing (keep the cover clean by placing it face up onto a clean surface).
2. When asked to “Prime Tubing?” Press the Y(yes) button.
3. With one hand, hold the tubing with the filter end down. With your other hand, hold down the **Y(yes)** button to pump fluid through the tubing until the filter and all tubing is filled with fluid and **all air is removed**. If air bubbles are present, tap filter to remove them.
4. Clamp the tubing and replace the clean cover.

Connecting TPN to patient

Review of S.A.S.H. method:

1. Flush with normal **Saline**
2. Administer medication or fluid
3. Flush with normal **Saline**
4. Flush with **Heparin**



Note: Every time you flush the IV line with normal saline or heparin, use **the “push-and-pause”** method: push a little solution, then pause for 1 to 2 seconds, then push a little more, pause, and so on. This method cleans the inside of the IV line. Your home care nurse will show you how to do this.

1. Gather supplies:
 - chlorhexidine wipes
 - normal saline syringes (2)
 - heparin syringe
 - TPN
 - non-sterile gloves
 - disinfectant cap
2. Put supplies in order of use on the work surface.
3. Check the labels of the normal saline and heparin syringes, and any other medicines or fluids before giving them. Make sure they are the right medicines.
 - A medicine is good until the end of the day on the day it expires. Throw it away sooner if you see sediment in it or if you question its cleanliness. If you do throw a medicine away, be sure to call the home care pharmacy for a replacement dose.

Preparing pre-filled syringes:

- **All** pre-filled syringes have an air bubble in them (normal saline, heparin). Remove the tip cover from the syringe and point the syringe upward, pull back slightly on plunger and squirt air bubble out.
4. Put on non-sterile gloves.
 5. Remove disinfectant cap OR if disinfectant cap not in place, scrub the injection cap with a chlorhexidine wipe for 30 seconds and let it dry.
 6. Attach normal saline syringe tip into the injection cap.
 7. Unclamp the catheter.
 8. Flush with normal saline using the push-and-pause method. When syringe is empty, remove it from the injection cap.
 9. If you are not giving medicines at this time, go to step 1 of the next section
 10. If you are giving medicines, scrub injection cap with a new chlorhexidine wipe for 30 seconds and let it dry.

11. Connect the medicine/IV tubing and give as instructed by your home care nurse.
12. Open all clamps.
13. Press the START/STOP button.
14. When “Start the Pump?” appears, press the Y (yes) button.
 - “Starting pump...” will appear on screen and pump will go through all settings once more.
 - “RUNNING” will appear on the screen, the green light will blink, and the fluid will start to flow.

At end of infusion or when medication complete:

1. Disconnect the tubing from the injection cap.
2. Scrub the injection cap with a new chlorhexidine wipe for 30 seconds and let it dry.
3. Attach normal saline syringe and flush using the push-and-pause method. When syringe is empty, remove it from the injection cap.
4. Scrub the injection cap with a new chlorhexidine wipe 30 seconds and let it dry.
5. Attach heparin syringe and flush using the push-and-pause method. When syringe is empty, remove it from the injection cap.
6. Clamp the line.
7. Apply disinfectant cap to injection cap.

Important tips

- Make sure the pump is turned on before attaching a new tubing.
- If the green light is on, the pump is running.
- If the amber light is on, the pump is not running.
- Between changing bags, at least every 24 hours, the line should be flushed with 5 mls of normal saline using the push-pause method.
- Refer to the CADD Prizm instruction booklet for detailed instructions, warnings, and trouble shooting that was included in your delivery of supplies.
- To turn pump off: remove battery, flip battery over, and place back into pump.
- The pump must have a charged 9 volt battery in it to run. If the 9 volt battery dies, the pump will not run even if it is plugged into the wall or power pack.

Questions?

If you have any questions, please call your home care nurse.

Reviewed by Home Care & Home Care Pharmacy 12/2016.