

## TOTAL PARENTERAL NUTRITION (TPN) AT HOME USING THE CADD® SOLIS-VIP PUMP – TAPER MODE

**Patient Name** : \_\_\_\_\_ **MRN** \_\_\_\_\_ **DOB** \_\_\_\_\_

### Medication Information

Name of Medication : \_\_\_\_\_ Dose: \_\_\_\_\_

Medication stable at room temperature for: \_\_\_\_\_

### Pump settings

Pump # : \_\_\_\_\_

Change AA batteries or rechargeable battery as noted by battery life indicator on pump.

Infusion volume: \_\_\_\_\_ ml ( \_\_\_\_\_ ml hyperalimentation + \_\_\_\_\_ ml Lipids)

Taper-up : \_\_\_\_\_ hr \_\_\_\_\_ min

Taper-down : \_\_\_\_\_ hr \_\_\_\_\_ min

Infusion duration : \_\_\_\_\_ hr \_\_\_\_\_ min

Plateau Rate Calculated by Pump

KVO Rate \_\_\_\_\_ ml/hr

Reservoir volume: \_\_\_\_\_ ml (Infusion volume + \_\_\_\_\_ ml overfill)

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 15 seconds with a fresh chlorhexidine wipe, using friction. Let it dry completely. Do not fan or blow on it.

### **Important Notes**

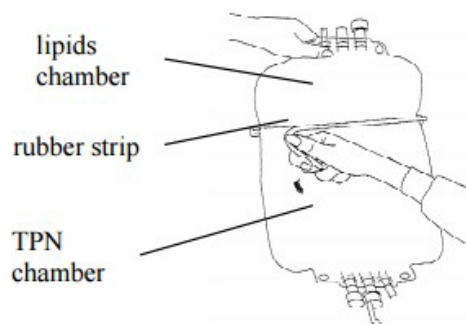
- Dual chamber bags have two chambers. The top part holds lipids (a fat solution that is white) and the bottom part holds the TPN (a clear solution). These are separated by a rigid plastic rod slipped over a rubber strip (or in some cases, a clamped tube).
- When the TPN arrives, make sure that the rod 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 15 seconds and allow to dry completely.
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.



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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 push the power button located on the right side of the pump.
2. Pump will beep multiple times when finished 'powering up'.
3. Once 'powered up', remove blue clip from tubing cassette, open the silver latch handle located on the right side of the pump and attach the cassette located on the tubing to the pump. Insert the 'feet' in first.
4. To latch cassette/tubing in place, close the silver latch handle.
5. Screen will read "**Reset Reservoir Volume to \_\_\_\_\_ ml?**" Press (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 (yes) button.
3. With one hand, hold the tubing with the filter end down. With your other hand, press **(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 **S**aline
2. **A**dminister medication or fluid
3. Flush with normal **S**aline
4. Flush with **H**eparin



**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. Wash hands and put on non-sterile gloves. Put supplies in order of use on the clean work surface.
3. Check the labels of the normal saline and heparin syringes, and any other medicines or
  - 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:

**Saline and Heparin** syringes have an air bubble in them. With the tip cap on, press the syringe rod forward until it "pops." Remove the cap, being careful not to touch the inside of the cap. Point the syringe tip up and gently squirt the air bubble out. Replace the cap.

4. Remove disinfectant cap **OR** if disinfectant cap not in place, scrub the injection cap with a chlorhexidine wipe for 15 seconds and let it dry completely.
  5. Attach normal saline syringe tip into the injection cap.
  6. Unclamp the catheter.
  7. Flush with normal saline using the push-and-pause method. When syringe is empty, remove it from the injection cap.
  8. If you are not giving medicines at this time, go to step 1 of the next section
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9. If you are giving medicines, scrub injection cap with a new chlorhexidine wipe for 15 seconds and let it dry completely.
  10. Connect the medicine/IV tubing and give as instructed by your home care nurse.
  11. Open all clamps.
  12. Press the START/STOP button.
  13. When “Start the Pump?” appears, press the (yes) button.
    - “Infusion is starting now...” will appear on the screen.
    - “RUNNING” will appear on the top of 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 15 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 15 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 Solis instruction booklet for detailed instructions, warnings, and trouble shooting that was included in your delivery of supplies.
- To turn pump off: push the power button on the right side of the pump. When “Power Down” appears press “Yes” button.
- The pump must have a charge battery (rechargeable battery or 4 AA batteries) in it to run. If the batteries die, the pump will not deliver fluids or medication even if it is plugged into the wall.
- If using the rechargeable battery, do not wait until it is depleted to recharge. Depending on the rate of your infusion, it may need to be recharged every day.

**Questions?**

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

Reviewed by Home Care & Home Care Pharmacy 11/2024.