



INSTRUCTIONAL CHECKLIST:

Administration of Total Parenteral Nutrition (TPN)/Central Parenteral Nutrition (CPN) by an Electronic Pump



<https://www.youtube.com/watch?v=uMJEIbkToks>

For additional education please contact your agency for assistance

Additives/Medications to add to TPN/CPN:

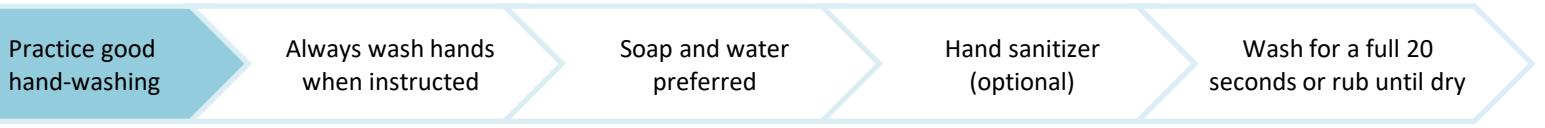
Home Infusion Nurse (name, phone #):

Home Infusion Pharmacist (name, phone #):

Four Components for Performing Infusions:

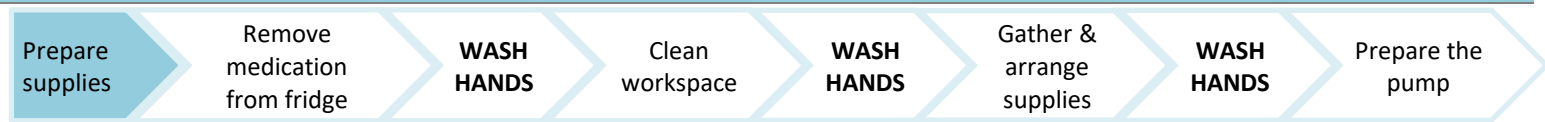
1. Practice good handwashing
2. Prepare supplies
3. Prepare TPN/CPN / additives & start TPN/CPN
4. Stop infusion, disconnect & flush

STEP 1: PRACTICE GOOD HAND-WASHING



- Always remember to **WASH YOUR HANDS** for a full 20 seconds when instructed.
 - ❖ Soap and water are always preferred. If soap and water are not available, hand sanitizer is acceptable.
 - ❖ Make it a habit to wet your hands, apply soap, and lather for 20 seconds (hum the Happy Birthday song twice).
 - ❖ If using hand sanitizer, rub a dime-sized amount between your hands until dry. Never wave or blow on your hands to speed up drying.
 - ❖ Remember, if using gloves, you must still wash your hands when instructed.
 - ❖ Washing your hands helps reduce your chance of infection.

STEP 2: PREPARE SUPPLIES



Note the time to start the infusion: _____ AM PM and how long the infusion is to run: _____ hrs.

You may be ordered fat free (clear or yellow bag) or fat bags (white bag) containing lipids. Your orders will dictate how many days you are to receive each type. Please discuss the schedule with your care team.

❖ **fat free bags** on **SUN MON TUE WED THU FRI SAT**

❖ **fat bags** on **SUN MON TUE WED THU FRI SAT**

- Note the time to remove the TPN/CPN from refrigerator: _____ AM PM
 - ❖ Remove medication from refrigerator 2-4 hours BEFORE the infusion. Follow your medication recommendations.
 - ❖ Your medication will infuse at the correct rate if administered at room temperature. If administered while cold, you will feel the medication as it infuses AND the infusion may take longer. Infusing cold medication could also lead to the pump alarming due the creation of air bubbles that will not harm you, but would be detectable by the pump. Refer to trouble shooting guide or contact your home infusion provider for help.
 - ❖ Do NOT attempt to warm the medication by other methods.
 - ❖ TPN/CPN is good for no more than 24 hours at room temperature.

- Compare your TPN/CPN bag with your orders to confirm the following information before the infusion:
 - ❖ Medication has your name and date of birth.
 - ❖ Medication name is correct.
 - ❖ Medication dose is correct.
 - ❖ Medication is not expired.
 - ❖ *If any of this information is incorrect, stop and call your home infusion pharmacist immediately.*

WASH YOUR HANDS.

- ❖ Soap and water are preferred, hand sanitizer optional if soap and water are not available.
- ❖ Wash for 20 seconds (hum the Happy Birthday song twice) or rub with hand sanitizer until your hands are dry.

- Clean your workspace and SASH mat with cleaning solution (alcohol/Clorox wipes or Lysol and paper towels).
 - ❖ Try to select a dry, hard work surface to set up your medication and supplies.
 - ❖ Place the TPN bag and additives on your SASH mat where indicated.

WASH YOUR HANDS.

- ❖ Soap and water preferred (hand sanitizer optional).
- ❖ Wash for 20 seconds (hum the Happy Birthday song twice) or rub with hand sanitizer until your hands are dry.

Gather the following supplies:

- ❖ **5—10** Alcohol pads (to clean your supplies and hub (IV-line tip))
- ❖ **2** Prefilled saline syringes (to clear your IV line and remove any leftover medication)
- ❖ **1** Prefilled heparin syringe (to clear your IV line and prevent blockage; your nurse will tell you if you need it)
- ❖ **1** Electronic pump (to facilitate your infusion; use the electronic pump provided to you)
- ❖ **1** Carrier pouch (to place and carry your pump during your infusions)
- ❖ **1** Infusion Pump Tubing (to spike your bag and infuse through)
- ❖ **1** Trash Bag (small grocery bag will do for trash collection)
- ❖ **1** Sharps Container
- ❖ **1** TPN/CPN bag
- ❖ You will need to obtain additional supply items (syringe and needles) based on the below chart

Additive Name	Frequency of Use	Syringe Size	Needle to Add	Room Temp/Refrigerated

- Arrange your alcohol pads, wrapped prefilled syringes and tubing **above** your SASH mat in their respective location. Do not place any of these items on top of your SASH mat yet.

- ❖ "S" = Saline
- ❖ "A" = Administer or Antibiotic (includes your medication bag and attached tubing)
- ❖ "S" = Saline
- ❖ "H" = Heparin (if your nurse tells you that you need it)

WASH YOUR HANDS.

- ❖ Soap and water are preferred, hand sanitizer optional if soap and water are not available.
- ❖ Wash for 20 seconds (hum the Happy Birthday song twice) or rub with hand sanitizer until your hands are dry.

- Unwrap both saline syringes and the heparin syringe (if prescribed). Place the unwrapped prefilled syringes in the correct location **on** your SASH mat.

- Check the unwrapped syringes for any air bubbles. If there are air bubbles, do the following:

- ❖ Remove the protective cap from the syringe and place the cap flat side down on your SASH mat.
- ❖ Hold the syringe with the end up and plunger at the bottom.
- ❖ Pull back on the syringe plunger slightly to break the seal. You will be able to see the air bubble in the syringe.
- ❖ Slowly push the plunger up to let the air bubble out.
- ❖ Once the air is removed, pick up the protective cap from the table and put the cap back on the end of the syringe. Place the syringe back on the SASH mat. Repeat for the other syringes.

- Prepare your TPN/CPN Bag

- ❖ Remove your medication bag from the plastic bag if it is in one.
- ❖ Locate the inject port on the TPN bag (usually to the far right and it is covered with tin foil). This port is used to add the additives. Remove the foil and scrub the end with an alcohol pad for 15 seconds.
- ❖ Place the unwrapped medication bag above the A of your mat. You can put a clean alcohol pad under the port to protect it from recontamination.
- ❖ Remove the pump tubing from the wrapping and place with the TPN/CPN bag.
- ❖ Place your carrying bag to the side until later

- Check your infusion pump. Inspect for any obvious issues.

- ❖ Power the pump on to check the battery life by pressing and holding the Power button located on the side of the pump until the display powers on. Power the pump back off by pressing and holding the Power Switch located on the side of the pump until the display powers off. Set the pump close to your TPN/CPN bag and tubing.

WASH YOUR HANDS.

- ❖ Soap and water are preferred, hand sanitizer optional if soap and water are not available.
- ❖ Wash for 20 seconds (hum the Happy Birthday song twice) or rub with hand sanitizer until your hands are dry.

STEP 3: PREPARE TPN/CPN, ADDITIVES & PUMP

Prepare TPN/CPN, additives & pump

Review your orders

Draw up each additive

Inject into TPN/CPN

WASH HANDS

Spike your TPN/CPN

Place tubing in the pump

Prime your tubing

Flush line and start TPN/CPN

- Double check your additives**

- ❖ Review your orders one last time to be certain you have the correct additives for your infusion.
- ❖ Double check you have the correct supplies to draw up and inject each additive

WASH YOUR HANDS.

- ❖ Soap and water are preferred, hand sanitizer optional if soap and water are not available.
- ❖ Wash for 20 seconds (hum the Happy Birthday song twice) or rub with hand sanitizer until your hands are dry.

It is best practice to draw up one additive at a time and inject it into the TPN/CPN bag starting with the smallest volume.

Draw up each additive and inject into the TPN/CPN (*If no additives ordered, skip this section*).

- ❖ Your orders will have specific instructions on each additive and the prescribed dose. Refer to your orders for the volume to draw up with each syringe.
- ❖ Remove the plastic caps from the additive vials and discard.
- ❖ Clean the top of each vial with a separate alcohol pad by swiping the pad across the top of the vial one time.
- ❖ Allow to dry for 15 seconds.
- ❖ Open the packaging of your syringe and remove the syringe.
- ❖ If your syringe does not include a needle, remove the separate needle from its packaging and place on the end of the syringe. Screw the needle onto end of the syringe.
- ❖ If multi-vitamins are ordered and provided in two vials (one with a white top and one with a blue top), you will only need one syringe for both vials.
- ❖ Remove the cap on the needle careful not to touch the needle itself.
- ❖ Pull back on the plunger of the syringe to the volume you intend to withdraw from the vial.
- ❖ Place the tip of the needle directly over the center of the vial and gently push the needle into the vial.
- ❖ Invert the vial so that the vial is upside down and above the syringe. Slowly push the plunger injecting the air into the vial.
- ❖ Pull back on the plunger. You may have to adjust the vial so that the tip of the needle is in the fluid. Be sure to remove the total volume based on the order.
- ❖ When you are certain you have the proper amount of drug in the syringe, pull the needle from the vial.
- ❖ If you are drawing up the multi-vial multi-vitamin, withdraw an additional 5 mL of air and follow the same steps as you did for the first vial.
- ❖ When you have drawn up all the medication needed, remove any air left in the syringe by holding the syringe with the needle facing upwards. Push the plunger in slowly until no air is left in the syringe. Only medication remains in the needle.
- ❖ Locate the cleaned port on your TPN/CPN bag. Grasp the port without touching the end of the port. Insert your needle into the center of the port, careful not to push the needle through the sides of the bag. Push the fluid in the syringe into the TPN bag by pushing the plunger in until the syringe is empty.
- ❖ Remove the empty needle and syringe from the TPN/CPN bag and place in the sharps container.
- ❖ Repeat these steps for each additive. Scrub the injection port prior to inserting each additive.

Once all the additives have been added to the TPN/CPN bag, gently swirl the bag massaging it with your hands to be sure it is mixed. (DO NOT SHAKE)

WASH YOUR HANDS.

- ❖ Soap and water are preferred, hand sanitizer optional if soap and water are not available.
- ❖ Wash for 20 seconds (hum the Happy Birthday song twice) or rub with hand sanitizer until your hands are dry.

'Spike the bag' in order to attach the medication tubing to your medication bag:

- ❖ Pull the plastic protective tab off the medication bag. Just pull. Do not twist.

- ❖ Check to be certain all clamps are clamped on your tubing.
- ❖ Remove the clear protective cap from the spike (located on your medication tubing).
 - *Make sure the spike does not touch anything. If the spike touches anything, throw that tubing set away and begin again with a new tubing set.*
- ❖ Insert the tubing spike into the medication bag (where the tab was removed).
 - Use a “push and twist” motion (like putting a key into an ignition).
 - You will know the bag is spiked when you see the tip of the tubing spike in the medication bag and fluid is in the drip chamber of the tubing.

Load the pump with a new medication cassette and bag:

- ❖ Power the pump on by pressing and holding the Power button located on the side of the pump until the display powers on.
- ❖ Make sure the pump latch is in the down position.
- ❖ Insert the tubing cassette hooks into the hinge pins on the bottom of the pump, then swing the tubing cassette to the latch position to attach the pump and cassette together.
- ❖ Sit the pump upright on a firm surface and press down on the latch side to be sure the tubing cassette fits tightly against the pump. Lift the latch handle to the closed position. If resistance is felt, the tubing cassette is not properly attached. You will need to unlatch and attempt the process again.
- ❖ Visually be sure the top of the tubing cassette lines up evenly with the bottom of the pump. There should not be any gaps in between the pump and tubing cassette. A message will briefly appear on the screen verifying the type of tubing cassette that was attached.

Open all clamps on your tubing.

Prime the tubing.

- ❖ Invert the TPN/CPN bag so the tubing exiting the bag is at the top (upside down). Inspect the bag and pinch all free air so that any remaining air in the bag is at the top of the bag. You want to prime this air through the tubing and out the other end.
- ❖ Place the pump on its side with the door latch facing down.
- ❖ Remove the protective cap from the end of the IV tubing and place it face up on your clean surface.
- ❖ You will note the screen says, “Prime Tubing?” Select Yes.
- ❖ The screen will remind you to be sure the tubing is disconnected from the patient and select “Prime”.
- ❖ Hold the end of the tubing over the trash bag. Continue to prime the tubing until the fluid begins to run out of the end of the tubing, select “Stop Priming”.
- ❖ Replace the cap on the end of the tubing. Do not allow the end of the tubing or the inside of the cap to touch anything.

Be sure you have removed all air from the line to prevent unnecessary alarms once you start the infusion.

- ❖ Remove the tubing cassette from the pump by pulling the arm of the latch down on the side of the pump. Remove the tubing cassette from the pump.
- ❖ Inspect the tubing cassette for trapped air specifically where the tubing is latched to the tubing cassette. With your finger, flick the area to allow the air to escape. Make sure the escaped air rises towards the end of the tubing and not the bag.
- ❖ Once you are sure that all trapped air has been released, reattach the tubing cassette to the pump.
 - Make sure the tubing cassette latch is in the down position.
 - Insert the tubing cassette hooks into the hinge pins on the bottom of the pump, then swing the cassette to the latch position to attach the pump and cassette together.
 - Sit the pump upright on a firm surface and press down on the latch side to be sure the tubing cassette fits tightly against the pump. Lift the latch handle to the closed position. If resistance is felt, the tubing cassette is not properly attached. You will need to unlatch and attempt the process again.

- Visually be sure the top of the tubing cassette lines up evenly with the bottom of the pump. There should not be any gaps in between the pump and tubing cassette. A message will briefly appear on the screen verifying the type of tubing cassette that was attached.
- ❖ The pump will ask you if you want to reset the reservoir volume. Select no. The pump will ask if you want to prime the tubing again. Remove the protective cap from the end of the tubing and place on your clean surface with the open end up. Select yes and allow the pump to prime for 1-2 mL and select “Stop Priming.”
- ❖ Replace the protective cap on the end of the tubing and sit the pump, bag, and tubing on your clean work area.

WASH YOUR HANDS.

- ❖ Soap and water are preferred, hand sanitizer optional if soap and water are not available.
- ❖ Wash for 20 seconds (hum the Happy Birthday song twice) or rub with hand sanitizer until your hands are dry.

‘Scrub the hub’ of your IV line. Clean the end cap (hub) by wrapping the alcohol pad over and around the sides for at least 15 seconds.

- ❖ Use the first alcohol pad on your SASH mat (the one before the first “S”).
- ❖ Once you have cleaned the hub, hold the hub with two fingers. Keep the hub from touching anything else.
- ❖ If your hub touches anything, **wash your hands** and scrub the hub again with a new alcohol pad.

Flush your IV line with saline (“pulse flush”):

- ❖ Hold the hub in one hand. Grasp the saline syringe on the first “S” of your SASH mat with your other hand.
- ❖ Remove the protective cover on the saline syringe. Screw the syringe onto the hub using a “push and twist” motion. It is like putting a key into an ignition.
- ❖ Once the syringe is connected to the hub, open the clamp on your IV line and slowly push 1 to 2 mL of saline at a time. Stop and push 1 to 2 mL more. Repeat this “pulse flush” until the saline syringe is empty. Flushing this way each time helps keep your IV line from getting clogged.
- ❖ If you have trouble flushing your IV-line, double check to make sure the clamp on your IV line is open. *If your clamp is open and you are still having trouble, stop and call your home infusion nurse.*

Remove the empty saline syringe from your IV line. Throw it away.

- ❖ Do not remove the end cap from the hub of your IV line. Be sure you are holding the IV line by the end cap (the blue device) to prevent from unscrewing the cap from your line.

Connect your medication tubing to the hub of your IV line by doing the following:

- ❖ Hold the hub in one hand. Find the end of the medication tubing. Remove the medication tubing cap.
- ❖ Connect the medication tubing to the hub of your IV line. Use the same “push and twist” motion as before.

Check your settings and start the infusion.

- ❖ If prompted select New Bag.
- ❖ You will note the screen says, “Prime Tubing?” Select No.
- ❖ When “Start Pump” appears, select “Yes. You will note the green “Running” message will appear to confirm the infusion has begun.

Place the pump and TPN/CPN bag into the carry pouch provided.

STEP 4: STOP, DISCONNECT, AND FLUSH

Stop,
disconnect
& flush

**WASH
HANDS**

Stop pump
and power
off

**WASH
HANDS**

Disconnect
tubing and
discard

**WASH
HANDS**

Flush the
line

Plug in the
pump

**WASH
HANDS**

- Your pump will beep when the infusion is complete. You should check the pump bag to be sure the bag is empty. If it is not, please contact your home infusion provider.
 - ❖ The pump will alarm when there is approximately 5 mL of fluid remaining in the pump. When the pump beeps, select “Acknowledge” to clear the alarm and complete the infusion.
- WASH YOUR HANDS.**
 - ❖ Soap and water are preferred, hand sanitizer optional if soap and water are not available.
 - ❖ Wash for 20 seconds (hum the Happy Birthday song twice) or rub with hand sanitizer until your hands are dry.
- Stop the pump by hitting the Red/Green Stop/Start button on the device. Select YES when asked “Stop Pump”. Turn the pump off by pressing and holding down the Power button on the side of the pump.
- WASH YOUR HANDS.**
 - ❖ Soap and water are preferred, hand sanitizer optional if soap and water are not available.
 - ❖ Wash for 20 seconds (hum the Happy Birthday song twice) or rub with hand sanitizer until your hands are dry.
- Disconnect your medication tubing (attached to your medication bag) from your IV line. Grasp the end cap (hub) of your IV line with one hand while using your other hand to unscrew the medication tubing. Do this until it is disconnected from the hub. Do not remove the hub from your IV line.
 - ❖ The end cap is also known as the hub. It is located at the tip of your IV line. The hub protects your IV line from bacteria.
 - ❖ Do not remove the hub from your IV line.
- Remove the used cassette and discard.
 - ❖ Make sure the clamp is closed on the tubing.
 - ❖ Pull the arm of the latch located on the side of the pump down until the cassette detaches from the pump.
 - ❖ Discard of the used cassette and bag in the trash bag.
- WASH YOUR HANDS.**
 - ❖ Soap and water are preferred, hand sanitizer optional if soap and water are not available.
 - ❖ Wash for 20 seconds (hum the Happy Birthday song twice) or rub with hand sanitizer until your hands are dry.
- ‘Scrub the hub’ of your IV line with a NEW alcohol pad for at least 15 seconds.
 - ❖ Use an alcohol pad to scrub the end of the port tubing.
 - ❖ Once you have cleaned the hub, hold the hub with two fingers. Keep the hub from touching anything else.
 - ❖ If your hub touches anything, **wash your hands** and scrub the hub again with a new alcohol pad.
- Flush your IV line with saline (“pulse flush”):
 - ❖ Hold the hub in one hand. Grasp the saline syringe on the second “S” of your SASH mat with your other hand.
 - ❖ Remove the protective cover on the saline syringe. Screw the syringe onto the hub using a “push and twist” motion. It is like putting a key into an ignition.

- ❖ Once the syringe is connected to the hub, open the clamp on your IV line and slowly push 1 to 2 mL of saline at a time. Stop and push 1 to 2 mL more. Repeat this “pulse flush” until the saline syringe is empty. Flushing this way each time helps keep your IV line from getting clogged.
- ❖ If you have trouble flushing your IV-line, double check to make sure the clamp on your IV line is open. If your clamp is open and you are still having trouble, stop and call your home infusion nurse.

Remove the empty saline syringe from your IV line. Throw it away.

Plug your pump into the charger for the rest of the day until needed.

Make a habit to:

Find a **CLEAN WORKSPACE** to perform infusions and store supplies.

WASH YOUR HANDS for at LEAST 20 seconds.

- ❖ Soap and water preferred (use hand sanitizer if soap or water are unavailable).
- ❖ Hum the Happy Birthday song twice.

CHECK YOUR MEDICATION to confirm:

- ❖ Your name and date of birth AND the dose, expiration date and medication name.

REMOVE YOUR MEDICATION from the refrigerator 2-4 hours **BEFORE** the infusion.

FOLLOW THE SASH PROTOCOL:

- ❖ Saline flush → Administer medication → Saline flush → Heparin flush (if prescribed)

BE SURE TO MONITOR FOR INITIAL TITRATION

ALARM MANAGEMENT If the pump alarms, press **SILENCE**, to stop the alarm for 2 minutes. You can then select **HELP**, allowing the pump provide explanation of the alarm

REPORT ANY SYMPTOMS INCLUDING FEVER 100.5 OR GREATER, HEADACHE, CONFUSION, CHANGES IN SPEECH, DISORIENTATION AND/OR COORDINATION AND BALANCE ISSUES.