Giving Intravenous (IV) Nutrition Through a Central Line with a Curlin Pump

Receiving medicine and supplies
When you receive a shipment, make sure you have the correct medicine and supplies. Check the medicine, supplies and invoice for your child’s name, prescription and quantity. If all is correct, sign and date the invoice and accept the delivery. It is important to keep the yellow copy of your invoices for future reference. We are unable to take back any supplies once they are in your home. Carefully look at the IV bags and syringes, checking for cracks, leaks or discoloration and that they have not expired. See the pharmacy label for storage of medication and supplies.

Flush syringes

#_____ saline syringes with ______ ml of saline per syringe.

#_____ heparin (______ unit/ml) syringes with ______ ml of heparin per syringe.

Saline flush syringe

Blue heparin flush syringe 10 units/ml

Yellow heparin flush syringe 100 units/ml
### Supplies

- Work surface or tray
- Cleaning product
- Alcohol-based hand gel
- Non-sterile gloves
- Drape
- Alcohol pads
- Blue tip cover
- Sharps container
- ID Labels
- Curlin pump
- PN tubing – white filter
- Lipid tubing
- Y connector
- Blue pall filter
- Back check valve
- 5 pieces of Parafilm
- PN bag
- Lipid bag
- Omegavin bag
- Medicine syringe

### Additive supplies

- Pediatric multivitamins
- Adult multivitamins
- Diluent and powdered vial

- Syringe 5 ml
- Syringe 10 ml
- Regular needle
- Syringe ___ ml
Preparing the work surface and pump
1. Clean the work surface well with disinfectant and allow to air dry.
2. Wipe the outside of the pump(s) daily with disinfectant and let dry.
3. Check that the pump(s) have working batteries.
4. Wash hands well with soap and water for 30 seconds.
5. Gather supplies and place them in a clean spot near the work area.
6. Wash or gel hands.
7. Open 1 drape, handling the edges only, and place on a cleaned surface.
8. Arrange the supplies on the drape. Place the pump(s) next to the drape edge(s).
9. You will need 4 of each therapy’s ID labels.
10. Wash or gel hands. Put on gloves.

Preparing the additives

☐ Reconstituting / Mixing
1. Remove the flip tops on vials and foil on PN bag.
2. Scrub the rubber tops with alcohol for 15 seconds. Let dry for 15 seconds.
3. Draw _____ ml of air into the syringe with the needle.
4. Insert needle into vial and inject the air.
5. Recap the needle with the “scoop method.”
6. Gently swirl the vial until the liquid is clear (medicine is fully dissolved).
7. Draw _____ ml of diluent and inject into dry powder vial.
8. Draw _____ ml of air into the syringe with needle and inject into the vial.
9. Draw _____ ml of mixed medicine.
10. Inject into PN port.

☐ Medicine in a syringe
1. Remove the foil on the PN bag.
2. Scrub port with alcohol for 15 seconds. Let dry for 15 seconds.
3. Add needle(s) to syringe(s) of medicine.
4. Inject into TPN port.

☐ Pre-mixed liquid vials
1. Remove the flip tops on the vials and the foil on PN bag. Scrub the rubber ports with alcohol for 15 seconds. Let dry for 15 seconds.
2. Draw _____ ml of air into the syringe with the needle and inject into one of the vials.
3. Draw _____ ml of air into the same syringe with the needle and inject into the second vial. Draw up _____ ml to equal _____ ml.
4. Inject into PN port.
Setting up the tubing
1. Wash or gel hands. Put on gloves. See the picture of setup.
2. Put together the tubing pieces, starting from the bottom (catheter) of the setup. Work toward the top (IV bag/syringe).
3. Put Parafilm around each connection.
4. Remove the yellow oval tab on tubing(s).
5. Remove the tab from the IV bag.
6. Remove spike cover from tubing. Twist and push spike into the IV bag.
7. Repeat steps 5 and 6 with the second IV bag.
8. Remove gloves. Wash or gel hands.
9. Label tubing.

Placing the tubing into the pumps
1. Match the labeled IV pump to the labeled IV bag and tubing.
2. Open the door of the pump by lifting the latch.
3. Insert the blue tab into the hole marked with the blue arrow.
4. Lay the soft section of tubing over the top of the pump. Insert the yellow piece into the hole marked with a yellow arrow.
5. Close the door and latch in place.
6. Repeat for each setup.
7. Turn the pump ON.
8. Note remaining battery power. Change if remaining power is ¼ or less.
9. At the highlighted PROGRAM screen, press the YES key.
10. At the highlighted REPEAT Rx screen, press the YES key. (If at screen, “RESUME” is highlighted, press down the arrow key once to highlight “REPEAT Rx.”) Press “YES” then press “YES” again to repeat the program.
11. Watch the pump review program. Press any key to stop the automatic review. Press the YES key each time to scroll through each setting.

Prim ing the tubing
1. Prime the lipid or omegaven bag first.
2. Press the “PRIME” key once, to get to “PRIME SCREEN.” Then, hold to prime lipids/omegaven past the “Y” connection and before the blue pall filter.
3. Press “YES” when done priming and return the pump to the “RUN” screen.
4. Prime the TPN bag to the end of the complete tubing setup (end of filter).
5. Press YES when done priming, returning the pump to the RUN screen.
6. See the SASH/SASASH handout to give medication(s).
7. Wash or gel hands. Put on gloves.
8. Once the TPN is connected, put Parafilm over the connection with the PICC, Broviac or Hickman line.
Restarting an infusion
1. To restart an interrupted infusion, select resume, then press YES
2. Press RUN to start.

General troubleshooting

<table>
<thead>
<tr>
<th>Problem</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contamination</td>
<td>If an item is dropped or becomes contaminated, throw it out and replace with a new one. If anything under a cap is contaminated, throw it out including anything attached. Call HomeCare Services for replacement supplies if needed. <strong>If in doubt, throw it out.</strong></td>
</tr>
<tr>
<td>Parafilm connection gets dirty</td>
<td>Gel hands. Put on gloves. Remove Parafilm. Remove gloves. Wash hands for 30 seconds. Put on new gloves. Inspect the connection sites. If the connection site is dirty, call Home Care 425-482-4000. If the connection is clean, scrub the connection with alcohol for 15 seconds. Let dry for 15 seconds. Put on new Parafilm.</td>
</tr>
</tbody>
</table>
### Pump troubleshooting chart

<table>
<thead>
<tr>
<th>Message</th>
<th>What caused the problem</th>
<th>Solution</th>
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<tr>
<td>INFUSION COMPLETE</td>
<td>• The infusion has finished.</td>
<td>• Press the PAUSE key and turn the pump off by pressing the OFF key.</td>
</tr>
</tbody>
</table>
| AIR-IN-LINE                 | • The pump has detected air in the tubing.   | • Remove the tubing from the pump. If bubbles are present, hold the tubing upright. Tap the bubbles past the pump section toward the patient. RESUME the infusion.  
                              |                               | • Press and hold PRIME for 3 seconds. Then press RUN.                    |
| DOWN OCCLUSION              | • There are kinks or clamps on the catheter or IV tubing.  
                              | • There is a kink in the catheter under the dressing.                    | • Check the tubing from the pump to the child as well as the catheter. Unkink the tubing or open any closed clamps. When the problem is fixed, the pump will automatically restart infusion.  
                              | • The pump needs to be reset.            | • Reset the pump by turning OFF, taking the tubing out. Replace the tubing and turn back ON.  
                              | • The catheter is not flushing well.     | • Position the IV bag/syringe above the pump.  
<pre><code>                          |                               | • Disconnect the IV tubing from the catheter using the blue tip cap to save the tubing. Try briskly flushing with saline. Reconnect and RESUME. |
</code></pre>
<p>| PERFORM ROUTINE MAINTENENCE | • Yearly pump maintenance is required.       | • Call the Home Care Services supply coordinator, not the nurse. Tell them the pump is giving an alert and they will arrange for a pump exchange. THIS IS NOT AN EMERGENCY — the pump will continue to operate as usual. |</p>
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<td>UP OCCLUSION</td>
<td>• The infusion bag/syringe is empty.</td>
<td>• If the bag/syringe is empty, proceed with disconnect and flushing.</td>
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<tr>
<td></td>
<td>• There is a kink in the IV bag/syringe outlet or in the tubing from the IV bag/syringe to the pump.</td>
<td>• Unkink the IV bag/syringe port or the tubing from the bag/syringe to the pump.</td>
</tr>
<tr>
<td>UNATTENDED PUMP</td>
<td>• The pump has been in “Pause” mode for more than 2 minutes.</td>
<td>• Press the RUN/PAUSE key to start the infusion.</td>
</tr>
<tr>
<td>DOOR OPEN; SET NOT PROPERLY INSTALLED</td>
<td>• The pump door is open.</td>
<td>• Fully open the door, taking the tubing out of the pump. Put back in.</td>
</tr>
<tr>
<td></td>
<td>• The tubing is not put into the pump correctly.</td>
<td>• Fully close the door (latch).</td>
</tr>
<tr>
<td>REPLACE SET</td>
<td>• The pump has detected that the IV tubing is damaged.</td>
<td>• Turn the pump off. Take out the tubing and then put it back in. Close the door. Turn on the pump and run it as usual. If having the same problem, try using the back up pump (if you have one). If the problem persists, disconnect the IV tubing and flush the catheter. Set-up the new IV bag and tubing. Call Home Care at 425-482-4000 to report that you had to use a new bag or if you need further help.</td>
</tr>
<tr>
<td>EMPTY BATTERY LOW C BATTERIES</td>
<td>• Battery power is too low for the pump to operate.</td>
<td>• Turn the pump OFF. Replace both C-cell batteries. The program will not be affected by the removal of batteries.</td>
</tr>
<tr>
<td>ALARM: ALL OTHER ERROR CODES</td>
<td>• All error codes require pump evaluation.</td>
<td>• For all error codes, call Home Care Services immediately.</td>
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Who to call

- For emergencies: Call 911 for ALL emergencies. Notify Home Care Services about your child’s status after the emergency situation is addressed.

- For urgent issues after business hours Call Home Care Services at 425-482-4000 or 800-888-4429, and press “0” to reach our answering service for urgent issues that cannot wait until the morning or if you are unsure what to do. A Home Care Services nurse will return your call as soon as possible.

- For supplies: Contact Home Care Services between 8 a.m. and 5 p.m. to order supplies. Call 425-482-4000 or 800-888-4429. Please contact us at least 1 week ahead so that you do not run out. Always keep an extra 3 to 5 days of supplies, and 1 dose of medication on hand in case of emergency.

Free Interpreter Services

- In the hospital, ask your child’s nurse.

- From outside the hospital, call the toll-free Family Interpreting Line 1-866-583-1527. Tell the interpreter the name or extension you need.

To Learn More

- Home Care Services 425-482-4000 or toll-free 800-888-4429
- www.seattlechildrens.org