**DOCUMENT NUMBER:** PBMT-GEN-069

**DOCUMENT TITLE:**
Administration of Chemotherapy Inpatient Unit

**DOCUMENT NOTES:**

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**Document Information**

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PBMT-GEN-069
ADMINISTRATION OF CHEMOTHERAPY INPATIENT UNIT

1 PURPOSE

1.1 To outline the procedure required for administration of Chemotherapy. Responsibilities of the Pediatric Blood and Transplant (PBMT) inpatient nursing staff for administering chemotherapeutic agents will be described.

2 INTRODUCTION

2.1 The administration of chemotherapy requires a specialized patient assessment and knowledge of the agents to be administered. The nursing care required for patients is based on a pre-treatment assessment to prevent discomfort and complications, knowledge of appropriate administration techniques, and early recognition of complications. Chemotherapeutic agents are classified as either non-vesicants or vesicants. Non-vesicants will not damage the surrounding tissue, if infiltration of the agent occurs. Vesicants are toxic to tissues and can cause necrosis of local tissue if infiltration or extravasation occurs.

3 SCOPE AND RESPONSIBILITIES

3.1 Interdisciplinary: Requires an order from an approved attending physician via the institutional electronic medical record (EMR), or in down-time on an institutional Chemotherapy Order Sheet.

3.2 Registered Nurses (RNs) may administer chemotherapy after successful completion of the medication administration test, the chemotherapy certification test and demonstration of clinical competency with their preceptors.

4 DEFINITIONS/ACRONYMS

4.1 EMR Electronic Medical Record
4.2 IV Intravenous
4.3 NG Nasogastric Tube
4.4 PBMT Pediatric Blood and Marrow Transplant
4.5 PFO Patent Foramen Ovale
4.6 PPE Personal Protective Equipment
4.7 RNs Registered Nurses

5 MATERIALS

5.1 See materials section in Section 8 below.

6 EQUIPMENT

6.1 See equipment section in Section 8 below.
7 SAFETY

7.1 Use appropriate Personal Protective Equipment (PPE) when handling chemotherapy products.

8 PROCEDURE

8.1 Patient Assessment

8.1.1 Assess intravenous (IV) access device for leakage, patency, and blood return.

8.1.2 Assess central venous access site for redness, swelling, drainage and pain.

8.1.3 Assess administration site for blood return, redness, swelling, or pain prior to, during and post administration of chemotherapy.

8.1.4 Monitor patient per protocol for specific chemotherapy.

8.1.5 Assess if patient requires Patent Foramen Ovale (PFO) filters.

8.1.6 Once patient has been assessed for and met criteria to receive chemotherapy, release the “nurse ok to treat” order from the chemotherapy treatment plan in the electronic medical record.

8.2 Administration

See following methods for infusion of chemo

8.2.1 Materials for IV Bolus in a syringe

- Chemotherapy in syringe prepared by pharmacy
- (2) Plastic lined blue pad
- (2) Sets of Nitrile chemical gloves
- (2) Chemotherapy Gowns
- (4) 10mL normal saline syringes
- Syringe tubing
- Alcohol prep pads
- Sterile Gloves
- Masks
- Caps
- PFO filter (if needed)
8.2.2 Equipment
- Volumetric infusion pump
- Cardiac Monitor

8.2.3 Administration

8.2.3.1 Educate patient and family regarding medication administration and document per hospital policy.

8.2.3.2 Verify chemotherapy orders with a second chemotherapy certified RN and ensure that hydration and antiemetic therapy per order has been initiated.

8.2.3.3 Don nitrile gloves and chemotherapy gown.

8.2.3.4 Prime the IV syringe set to be used for chemotherapy with 10 mL normal saline syringe.
8.2.3.5 If PFO filter is required, attach at the end of the tubing.

8.2.3.6 Place the chemotherapeutic agent on the plastic lined blue pad.

8.2.3.7 Verify correct patient by using two patient identifiers with a second RN.

8.2.3.8 Assess central line for (+) blood return and flush line with normal saline.

8.2.3.9 Connect the IV syringe set to the patient’s IV access device using only direct luerlock connection between the patient and the pump.

8.2.3.10 Secure the tubing to the patient in a manner that will prevent the IV access device from becoming dislodged from the insertion site.

8.2.3.11 Disconnect Saline syringe from IV syringe set and connect chemotherapeutic agent to IV syringe set and place syringe into volumetric infusion pump.
8.2.3.12 Set the pump at the required rate, volume, administration time, and trace the tubing from the chemotherapy syringe to the patient. These items must be verified by two chemo certified RNs.

8.2.3.13 Dispose gloves, gown and plastic lined blue pad following the DUHS Chemotherapy and Biological Agents: Safe Handling and Spill Management Protocol.

8.2.3.14 Upon completion of the infusion, don new chemotherapy gown and nitrile gloves. Disconnect chemotherapeutic agent, place it on a plastic lined blue pad and connect 10mL normal saline syringe to IV tubing.

8.2.3.15 Flush syringe tubing at same chemotherapy rate with a flush volume per tubing manufacturer recommendation.

8.2.3.16 Stop pump and disconnect tubing. Flush lumen with normal saline. Change patient’s cap per policy and heplock or begin med-line as indicated.

8.2.3.17 Dispose of empty infusion syringe, infusion set up, gloves, gown and pad once infusion is complete following the DUHS Chemotherapy and Biological Agents: Safe Handling and Spill Management Protocol.

8.2.3.18 Initiate the DUHS Chemotherapy and Biological Agents: Safe Handling and Spill Management Protocol. in the event of a chemotherapy spill.

8.2.3.19 Document administration following the DUHS Chemotherapy Administration Policy.

8.2.4 Materials for IV BOLUS/continuous infusion in a bag

- Chemotherapy in bag prepared by pharmacy
- (2) Plastic lined blue pad
- (2) Sets of Nitrile chemical gloves
- (2) Chemotherapy Gowns
• (2) 10mL normal saline syringes
• Alcohol prep pads
• 250mL normal saline bag
• Primary Chemotherapy tubing
• Secondary chemotherapy tubing
• Texium valve
• 30mL leur lock syringe
• Pink Adhesive Tape
• Kelly Clamp
• Sterile Gloves
• Masks
• Caps
• PFO filter if required
• 0.22 micron filter if required
8.2.5 Equipment
- Volumetric infusion pump
- Cardiac Monitor

8.2.6 Administration
8.2.6.1 Educate patient and family regarding medication administration and document per hospital policy.
8.2.6.2 Verify chemotherapy orders with another chemotherapy certified RN and ensure that hydration and antiemetic therapy per order has been initiated.
8.2.6.3 Don nitrile gloves and chemotherapy gown.
8.2.6.4 If PFO filter is required, attach to the end of the Primary Chemotherapy tubing.
8.2.6.5 If 0.22 Micron Filter is needed – place on the end of the secondary chemotherapy tubing.

8.2.6.6 Remove Texium valve from package and steriley connect white end to 30mL syringe. Pink tape the connection together. This is very important for disconnect to keep the valve attached to the syringe.

8.2.7 Chemotherapy Set Up (Primary Tubing)
- 8.2.7.1 Close all roller and slide clamps.
- 8.2.7.2 Spike 250 mL Normal Saline Bag into Primary Tubing.
- 8.2.7.3 Squeeze Saline into drip chamber.
- 8.2.7.4 Open MIDDLE blue roller clamp.
- 8.2.7.5 Slowly Open top WHITE roller clamp.
- 8.2.7.6 Prime Normal Saline until it reaches top port.
- 8.2.7.7 STOP and CLAMP! Do not prime past first port.

8.2.8 Chemotherapy Set Up (Texium Valve)
- 8.2.8.1 Alcohol most distal port and attach Normal Saline flush.
- 8.2.8.2 Flush Saline flush through the line until it reaches end cap.
- 8.2.8.3 CLOSE slide clamp.
- 8.2.8.4 Remove Saline flush and replace it with texium/syringe unit.
- 8.2.8.5 Don PPE.
8.2.8.6 2 Chemotherapy certified nurses check chemotherapy per DUHS Chemotherapy Administration Policy.

8.2.8.7 Place chemotherapy on blue chux prior to entering room

8.2.9 Patient Identifiers, Blood Return & Connection

8.2.9.1 Verify correct patient by using two patient identifiers with a second RN.

8.2.9.2 Hang both Normal Saline and chemotherapy bags on pole.

8.2.9.3 Place blue chux underneath to patient and smartsite port.

8.2.9.4 Check for blood return, flush and hook up primary line to the patient’s CVL, CLAMP patient’s lumen and make sure distal blue slide clamp is still closed.

8.2.9.5 Attach dry spiked chemotherapy to the very top port of primary line; one right below drip chamber and white roller clamp.

8.2.9.6 **Do not back prime** saline into chemo tubing, HOWEVER, squeeze chemotherapy drip chamber on secondary tubing with chemotherapy.

8.2.9.7 Open chemotherapy tubing roller clamp and open **middle blue roller clamp** on primary tubing. Keep primary white roller clamp and blue slide clamp **closed**.

8.2.9.8 Using texium/syringe, pull chemotherapy down the line. You will notice that you no longer need to follow a bubble, rather just watch chemo come down.

8.2.9.9 You should only have air in the texium syringe.

8.2.9.10 The second nurse should still help by roller clamping primary line when chemotherapy reaches the **bottom port**.

8.2.9.11 Disconnect syringe with texium valve attached and discard in biohazard.

8.2.10 Chemotherapy Administration

8.2.10.1 Place secondary chemotherapy line in pump.

8.2.10.2 **Primary line pump cartridge** will not be in pump and will be hanging below pump.

8.2.10.3 Set the pump at the verified rate, volume, and administration time, trace tubing from chemotherapy bag to patient. This must be verified by two chemo certified RNs.

8.2.10.4 You do not add flush volume to the rate

8.2.10.5 Once chemotherapy line beeps air in line, roller clamp primary line blue clamp.
8.2.10.6 Open module.
8.2.10.7 Take chemo tubing out and insert primary line cartridge into pump.
8.2.10.8 Set the flush on the pump at the verified rate, volume, and administration time, trace tubing from chemotherapy bag to patient. Dispose gloves, gown and plastic lined blue pad following the DUHS Chemotherapy and Biological Agents: Safe Handling and Spill Management Protocol.
8.2.10.9 If this is a **CONTINUOUS INFUSION** blood return must be verified from the port closest to the patient on the chemotherapy line q4hrs.
8.2.10.10 Upon completion of the normal saline flush don new chemotherapy gown and nitrile gloves and disconnect chemotherapy and saline tubing from the patient and place it on a plastic lined blue pad.
8.2.10.11 Flush line with normal saline. Change patients cap and heplock or begin med-line as indicated.
8.2.10.12 Dispose of tubing, gloves, gown and pad following the DUHS Chemotherapy and Biological Agents: Safe Handling and Spill Management Protocol.
8.2.10.13 Initiate the DUHS Chemotherapy and Biological Agents: Safe Handling and Spill Management Protocol in the event of a chemotherapy spill.
8.2.10.14 Document administration following the DUHS Chemotherapy Administration Policy.

8.2.11 Materials for IV push
- Chemotherapy in syringe prepared by pharmacy
- Plastic lined blue pad
- Nitrile chemical gloves
- Chemotherapy Gown
- (2) 10mL normal saline syringes
- 3-way stop-cock
- Alcohol prep pads
- Sterile Gloves
- Masks
- Caps
8.2.12 Administration

8.2.12.1 Educate patient and family regarding medication administration and document per hospital policy.

8.2.12.2 Verify chemotherapy orders with a second chemotherapy certified RN and ensure that hydration and antiemetic therapy per order has been initiated.

8.2.12.3 Don nitrile gloves and chemotherapy gown.

8.2.12.4 Place the chemotherapeutic agent on the plastic lined blue pad.

8.2.12.5 Attach 10mL normal saline syringe to female end of stopcock opposite male end.

8.2.12.6 Attach Chemotherapy syringe to other female end. Turn stopcock “OFF” to Chemotherapy.

8.2.12.7 Prime stopcock with small volume of normal saline.

8.2.12.8 Assess central line for (+) blood return and flush with normal saline.

8.2.12.9 Verify correct patient by using two patient identifiers with a second RN.

8.2.12.10 Connect male end of stopcock to central line.

8.2.12.11 Turn stopcock “OFF” to normal saline.
8.2.12.12 Slowly push chemotherapy over 2-3 minutes.

8.2.12.13 Once entire chemotherapy syringe is empty, BACKPRIME 0.2mLs of normal saline into chemotherapy syringe following the steps below:

8.2.12.13.1 Turn stopcock “OFF” to patient.

8.2.12.13.2 Slowly push 0.2mLs of NS back into chemotherapy syringe.

8.2.12.13.3 Turn stopcock “OFF” to normal saline.

8.2.12.13.4 Push 0.2mL normal saline rinse into line.

8.2.12.13.5 Turn stopcock “OFF” to chemotherapy syringe.

8.2.12.13.6 Slowly push 3-5mLs of normal saline over 2-3 minutes.
8.2.12.14 Clamp patient’s line and disconnect stopcock.

8.2.12.15 Flush line with normal saline. Change patients cap and heplock or begin med-line as indicated.

8.2.12.16 Dispose of stopcock, gloves, gown and pad following the DUHS Chemotherapy and Biological Agents: Safe Handling and Spill Management Protocol.

8.2.12.17 Initiate the DUHS Chemotherapy and Biological Agents: Safe Handling and Spill Management Protocol, in the event of a chemotherapy spill.

8.2.12.18 Document administration following the DUHS Chemotherapy Administration Policy.

8.2.12.19 Educate patient and family regarding medication administration and document per hospital policy.

8.2.13 Materials for administration of oral chemotherapy

- Chemotherapy prepared by pharmacy
- Chemotherapy in syringe prepared by pharmacy
- Plastic lined blue pad
- Nitrile chemical gloves
- Chemotherapy Gown
- Goggles and a mask OR Face Shield mask
8.2.14 Administration
8.2.14.1 Educate patient and family regarding medication administration and document per hospital policy.
8.2.14.2 Verify chemotherapy orders with a second chemotherapy certified RN and ensure that hydration and antiemetic therapy per order has been initiated.
8.2.14.3 Don nitrile gloves and chemotherapy gown.
8.2.14.4 Place the chemotherapeutic agent on the plastic lined blue pad.
8.2.14.5 Verify correct patient by using two patient identifiers with a second RN.
8.2.14.6 Administer chemotherapy by mouth to patient.
8.2.14.7 If patient has a Nasogastric (NG) tube:
   8.2.14.7.1 Confirm proper tube placement per protocol and flush tube with 3-5mls of sterile water.
   8.2.14.7.2 Connect chemotherapy syringe to Nasogastric (NG) tube and administer slowly over 1-2 minutes.
   8.2.14.7.3 Flush NG tube with 5mls of sterile water.
8.2.14.8 If patient has a Gastric (g-tube)
   8.2.14.8.1 Ensure that G-tube extension tubing is securely connected to patient’s G-tube and flush extension set with 3-5mls of sterile water.
   8.2.14.8.2 Connect chemotherapy syringe to the G-tube extension set and administer slowly over 1-2 minutes.
   8.2.14.8.3 Flush G-tube extension set with 5mls of sterile water.
8.2.14.9 Dispose of gloves, gown, pad and masks following the DUHS Chemotherapy and Biological Agents: Safe Handling and Spill Management Protocol.
   8.2.14.9.1 Goggles may be washed and worn again.
8.2.14.10 Initiate the DUHS Chemotherapy and Biological Agents: Safe Handling and Spill Management Protocol in the event of a chemotherapy spill.
8.2.14.11 Document administration following the DUHS Chemotherapy Administration Policy Guidelines.
9 RELATED DOCUMENTS/FORMS

9.1 DUHS Chemotherapy and Biological Agents: Safe Handling and Spill Management Protocol

9.2 DUHS Chemotherapy Administration Policy

10 REFERENCE

10.1 DUHS Online Chemotherapy Administration Policy

10.2 DUHS Chemotherapy and Biological Agents: Safe Handling and Spill Management Protocol.

11 REVISION HISTORY

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<td>- Acronyms defined throughout</td>
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<td>-DUH policy names updated to current names throughout.</td>
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<td>- Section 8.2.3.12 – Bag changed to “syringe”</td>
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<td>- Section 8.2.14 updated to include procedure for gastric tube.</td>
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