

DEPARTMENT OF NURSING SERVICES AND EDUCATION

**CHEMOTHERAPY CONTINUOUS AMBULATORY DELIVERY DEVICE (CADD)
PROCEDURE**

PURPOSE:

To outline the safe delivery of antineoplastic drugs directly into a Central Venous Catheter (CVC) by CADD.

SUPPORTIVE DATA:

Continuous Ambulatory Chemotherapy infusion is most appropriately utilized in treatment of cancer patients with malignancies and metastases of malignancies.

Continuous Ambulatory Chemotherapy infusion provides the capability of dose titration during drug administration to meet the demands of the tumor burden with minimal systemic toxicity.

Continuous Ambulatory Chemotherapy infusion also allows administration of a drug in high/low doses over a long period of time without a hospital admission and in the comfort of the patient's home.

Chemotherapy certified RNs may administer approved chemotherapy and anti-neoplastic investigational drugs as listed in the LAC+USC Anti-neoplastic Drug Protocol.

RNs must be trained and complete the Chemotherapy Skills Checklist prior to administering Continuous Ambulatory Chemotherapy.

EQUIPMENT LIST:

- Ambulatory Infusion pump for intravenous (IV) medications
- Ambulatory infusion cassette/bag
- Ambulatory infusion extension tubing
- Chemotherapy solution (prepared by Chemotherapy Pharmacy in cassette or bag)
- Sterile 4x4 or 2x2 gauze pads (5 – 10)
- Chemotherapy gown (1)
- Chlorhexidine (2 large wing tipped applicators)
- Chemotherapy drape (1)
- Chemotherapy approved clean gloves (4 pair)
- 12 mL syringe (1)
- Pre-filled Normal Saline (NS) syringes (1-2) for flushing
- Gripper needle, if accessing implantable port
- Positive pressure valve, if necessary
- Central Venous Catheter (CVC) dressing change kit (1)

<u>STEPS</u>	<u>KEY POINTS</u>
<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;">PRE-CHEMOTHERAPY INFUSION</div>	
<p>1. Check laboratory values and pertinent data prior to administration and notify provider of abnormal labs or data per order or protocol and also for signs of severe toxicity:</p> <ul style="list-style-type: none"> • CBC and differential • Calculate absolute granulocyte count • Platelet count • Pregnancy test • Chemistry panel – BUN and Creatinine • Liver function tests • Other pertinent data 	<p>Signs of severe toxicity include mucositis, stomatitis, diarrhea, skin changes, myelosuppression). Medications may be held for toxicity and/or abnormal labs.</p>
<p>2. Assess patient's height (HT), weight (WT) and body surface area (BSA)</p>	
<p>3. Ensure there is an active order in the electronic health record (EHR) for Ambulatory Continuous Chemotherapy infusion.</p>	
<p>4. Scan the hard copy of the physician's order to the pharmacy</p>	
<p>5. Notify the Chemotherapy pharmacist that the patient has met criteria for chemotherapy and it is ok to mix the chemotherapy from the provider's order.</p>	
<p>6. Educate patient to the following:</p> <ul style="list-style-type: none"> • Procedure • Medication • Side effects - (e.g. stomatitis, mucositis, diarrhea, fevers, nausea, vomiting) and toxic effects • Reporting of adverse effects • Administration methods • Care and maintenance of the ambulatory infusion pump, program, and alarms • Positioning during infusion • Restriction of mobility • Post-administration observations and care • How to minimize side effects • Reporting of pain, burning, or discomfort at the infusion site 	<p>Give patient printed discharge instruction. Be sure to include:</p> <ul style="list-style-type: none"> • Signs and symptoms of chemotherapy side-effects • Care of the infusion pump • Function of the infusion pump • Emergency contact phone numbers.

<ul style="list-style-type: none"> Any signs and symptoms that may develop from the chemotherapy infusion after the patient is discharged home Catheter problems such as catheter dislodgement. 	
<p>7. Perform hand hygiene.</p>	
<p>8. Don clean gloves.</p>	<p>Be sure to use appropriate gloves according to CVC procedure. If dressing change is required follow Central Venous Catheter: Care, Maintenance, Troubleshooting and Removal Procedure and Central Venous Catheter Clinical Standard</p>
<p>9. Assess patient for comfort and tolerability:</p> <ul style="list-style-type: none"> Swelling in arm Pain in arm Catheter dislodgement 	
<p>10. Perform CVC care [Peripherally Inserted Central Catheter (PICC) line, Triple lumen, Port-A-Cath (Implantable port), etc.] according to the CVC Procedure with valve change.</p> <ul style="list-style-type: none"> <u>PICC catheter</u>: Lift catheter and hold downward. Remove old positive pressure valve. Ensure catheter is clamped as appropriate. Scrub hub and sides of lumen of with chlorhexidine for 15- 30 seconds. Then let dry for 15 seconds. Inspect hub for debris (If debris present repeat from the beginning). Attach new sterile positive pressure valve with primed IV tubing. <u>Implantable port</u>: Palpate port area to determine site for needle placement. Scrub port site skin with Chlorhexidine using vigorous back and forth strokes for 30 seconds. Completely wet site with antiseptic. Let dry for 30 seconds. Flush gripper needle with normal saline, then insert needle through the skin into the implantable port. Attach sterile positive pressure valve to extension tubing. 	<p>Reduces transmission of microorganisms. Time and friction are key elements.</p> <p>See Central Venous Catheter: Care, Maintenance, Troubleshooting and Removal Procedure and Central Venous Catheter Clinical Standard for more information.</p> <p>Use appropriate sized needle for patient and ensure needle is inserted in the Port chamber and not in the surrounding tissue.</p>
<p>11. Obtain a pre-filled NS syringe and discard 2 mLs.</p>	

12. Verify blood return and patency by aspiration and flushing of CVC utilizing the 10 mL NS pre-filled syringe.	Be sure to flush between each medication given.
13. Give IV hydration and pre-medication as ordered by the physician. (Ensure this is always done prior to 5FU administration).	Due to the nature of the high doses of antineoplastic drugs it is of utmost importance to pre-hydrate the patient and give medication for nausea.
14. Remove gloves and perform hand hygiene.	
15. Monitor patient's intake and output accurately.	Assessing intake and output is very crucial due to the risk of nephrotoxicity and retention of the anti-neoplastic drug.
16. Obtain chemotherapy solution from the pharmacy.	
17. Perform an independent double check. This should be done by two licensed staff (one must be the chemotherapy certified RN who will administer the medication). Check the medication order, dose, route, rate, and patient identification prior to administration.	Independent double checks provide for safety of the patient in administration of "High Alert Medications."
18. Assemble equipment and supplies.	
19. Perform hand hygiene.	Use proper hand washing technique.
20. Prepare supplies on a sterile disposable towel using aseptic technique: <ul style="list-style-type: none"> • Put pump down • Obtain chlorhexidine swab • Program pump 	
21. Don nitril/latex gloves for chemotherapy administration (double glove when administering chemotherapy agents) and gown.	Mandatory hazardous requirements per National Institute for Occupational Safety and Health (NIOSH). Use Nitril or Latex gloves. Don 1st pair of gloves. Then, don gown. Lastly, don 2nd pair of gloves.
22. Use the Ambulatory infusion pump to infuse the chemotherapy solution at the dose and rate ordered by the physician.	If the chemotherapy is not flowing freely, check for occlusion or kinked tubing. For patients with an Implantable port skip to # 28.

<p>23. Remove gown and gloves and place them in a yellow Chemotherapy container and hamper and perform hand hygiene.</p>	
<div style="border: 1px solid black; padding: 5px; text-align: center;"> <p>DISCHARGE PATIENT HOME WITH AMBULATORY PUMP</p> </div>	
<p>24. Educate patient on the CADD pump</p>	<p>Education to include:</p> <ul style="list-style-type: none"> • How to care for pump • How to call to report side effects and toxicity • How to troubleshoot pump problems <p>If appropriate, instruct patient to turn the infusion pump off and flush catheter at home. Also to return the pump with the cassette clamped.</p> <p>If not appropriate, instruct patient to return to the clinic for the nurse to turn off the pump and flush the catheter.</p>
<div style="border: 1px solid black; padding: 5px; text-align: center;"> <p>POST CHEMOTHERAPY INFUSION PICCs (IF PATIENT RETURNS TO CLINIC FOR PUMP DISCONNECTION)</p> </div>	<p>For patients with Peripherally Inserted Central Catheters (PICCs) who are unable or unwilling to flush their catheters at home.</p>
<p>25. Perform hand hygiene.</p>	
<p>26. Don nitril/latex gloves, gown, and mask.</p>	<p>Remember to double glove when handling chemotherapy agents. Don 1st pair of gloves. Then, don gown. Lastly, don 2nd pair of gloves.</p>
<p>27. Scrub catheter end and positive pressure valve with chlorhexidine for 15 - 30 seconds. Then let dry for 15 seconds.</p>	
<p>28. Flush catheter with pre-filled NS syringe.</p>	
<p>29. Flush catheter</p>	<p>Refer to CVC Nursing Clinical Standard for flushing instructions regarding Open-end catheters and Closed-ended catheters.</p>
<p>30. Remove gown and gloves and place them in a yellow Chemotherapy container and hamper and perform hand hygiene.</p>	

<p style="text-align: center;">POST CHEMOTHERAPY INFUSION IMPLANTABLE PORT (WHEN PATIENT RETURNS TO CLINIC FOR PUMP DISCONNECTION)</p>	<p>Instruct patient to return to the clinic for catheter flushing, and gripper needle removal. Also, to return the infusion pump.</p>
<p>31. Perform hand hygiene.</p>	
<p>32. Don nitril/latex gloves, gown and mask.</p>	<p>Remember to double glove when handling chemotherapy agents. Don 1st pair of gloves. Then, don gown. Lastly, don 2nd pair of gloves.</p>
<p>33. Flush catheter.</p>	<p>Refer to CVC Clinical Protocol for flushing instructions regarding Implantable Ports. If patient is allergic to Heparin, flush with 20mLs. NS only.</p>
<p>34. Remove gripper needle and tubing.</p>	
<p>35. Disconnect chemotherapy cassette and discard into a yellow chemotherapy container.</p>	<p>Equipment and supplies used in chemotherapy administration must be kept separate from other trash. Be sure to follow the Chemotherapy Safety Plan.</p>
<p>36. Remove gown and gloves and place them in a yellow Chemotherapy container and hamper and perform hand hygiene.</p>	
<p style="text-align: center;">CARE AND MAINTENANCE OF THE CADD PUMP</p>	
<p>37. Perform hand hygiene.</p>	
<p>38. Don nitril/latex gloves and gown.</p>	<p>Remember to double glove when handling chemotherapy agents.</p>
<p>39. Clean infusion pump with bleach wipe:</p> <ul style="list-style-type: none"> • Wipe pump for at least 3 minutes and let dry. Place back into circulation. 	<p>The assigned RN needs to take a daily count of the outgoing and incoming infusion pumps. The RN also needs to update the log and ensure the pumps are cleaned before returning them to the pool. If a patient has not returned a pump, the patient needs to be called to return the pump asap to Outpatient Clinic 2P1.</p>
<p>40. Remove gown and gloves and place them in a yellow Chemotherapy container and hamper and perform hand hygiene.</p>	

<p>41. Document:</p> <ul style="list-style-type: none"> • eMAR • Chemotherapy infusion band under iView • Discharge summary • Tolerance of procedure • Patients teaching • Discharge instructions given 	<p>Documentation of the chemotherapy infusion should include medication, dose, solution type and amount, and rate.</p> <p>Patient instructions should appear on the discharge summary given to the patient when appointment is completed.</p> <p>Review oncology flowsheet for MAR Summary.</p>
---	---

<p>Initial date: 11/18</p>	<p>Reviewed and approved by: Professional Practice Committee Pharmacy & Therapeutics Committee Nurse Executive Council Attending Staff Association Executive Committee</p>	<p>Revision date:</p>
--------------------------------	--	-----------------------