



# High Desert Health System POLICY AND PROCEDURE

POLICY NUMBER: 979  
VERSION: 1

## SUBJECT: EXTRAVASATION MANAGEMENT OF CHEMOTHERAPY AGENTS

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**PURPOSE:** To provide guidelines to the chemotherapy certified Registered Nurse in managing patients with an extravasation.

**POLICY:** Management of extravasation is performed by a chemotherapy certified Registered Nurse.

**DEPARTMENTS:** Medicine, Pharmacy, Nursing

### **DEFINITIONS:**

Extravasation is the infiltration or leakage of an intravenous (IV) chemotherapy agent into the local tissues causing tissue necrosis or destruction.

Vesicant is an agent capable of causing tissue necrosis or destruction.

Irritant is an agent capable of a short-term injury without tissue necrosis or destruction.

### **PROCEDURE:**

#### **STEPS/KEY POINTS:**

1. Assess site for signs and symptoms of extravasation (Refer to Table I).
  - Refer to Table II for drug classification.
2. Stop the administration of the chemotherapeutic agent.
3. Leave the needle in place.
4. Aspirate any residual drug and blood in the intravenous tubing, needle and suspected infiltration site.
5. Obtain Extravasation Kit (Refer to Table IV)
6. Apply warm or cold compresses as indicated (Refer to Table III).
7. Notify provider.
  - Patients are instructed to go the urgent care or the emergency room if provider is unavailable.
  - Refer to Table III for antidote and steps.
  - If unable to aspirate the residual drug from the intravenous tubing, do not instill the antidote through the needle. Proceed directly to the next step.

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8. Inject the intravenous antidote per provider's order (Refer to Table III).
  - Photograph the suspected area of extravasation, if possible. Obtain consent for photograph.
9. Cover lightly with an occlusive sterile dressing.
10. Elevate the affected extremity.
11. Observe the site frequently for pain erythema, indurations, and/or tissue necrosis.
  - Frequency of observation depends on drug, amount suspected to have infiltrated, extent of suspected injury, and the patient's needs and concerns.
12. Give patient follow up instructions, as ordered.

#### **DOCUMENTATION:**

Document the following information on the nurse's notes

- a. Date and time.
- b. Needle gauge and type.
- c. Insertion site.
- d. Drug, sequence of administration, I.V. solution.
- e. Drug administration technique (I.V. push, I.V. piggyback).
- f. Approximate amount of drug extravasated.
- g. Subjective symptoms reported by the patient.
- h. Nursing assessment of site.
- i. If photo documentation and consent signature obtained.
- j. Provider notification and intervention.
- k. Instructions given to the patient and response.
- l. Follow up instructions.
- m. Nurse signature.
- n. Complete a PSN.

Table I **Signs and Symptoms of Extravasation**

Assessment Parameter	Extravasations		Irritation of the Vein	Flare Reaction
	<b>Immediate Manifestations of extravasation</b>	<b>Delayed Manifestations of extravasation</b>		
Pain	Severe pain or burning that lasts minutes or hours and eventually subsides; usually occurs while the drug is being given and around the needle site	Hours – 48	Aching and tightness along the vein	No pain
Redness	Blotchy redness around the needle site; it is not always present at time of extravasation	Later occurrence	The full length of the vein may be reddened or darkened	Immediate blotches or streaks along the vein, which usually subside within 30 minutes with or without treatment
Ulceration	Develops insidiously; usually occurs 48-96 hours	Later occurrence	Not usually	Not usually
Swelling	Severe swelling; usually occurs immediately	Hours - 48	Not likely	Not likely; wheals may appear along vein line
Blood return	Blood return may still be present although slow or sluggish	Good blood return during drug administration	Usually	Usually
Other	Change in the quality of infusion	Local tingling and sensory deficits	_____	Urticaria

Table II **Anti-neoplastic Vesicants and Irritants**

Vesicants	Irritants
Amsacrine	Arsenic trioxide
Bendamustine*	Bleomycin
Carmustine	Bortezomib
Cisplatin (concentrations $\geq 0.5$ mg/mL)	Busulfan
Dactinomycin	Carboplatin
Daunorubicin	Carmustine
Docetaxel (rare)	Cisplatin**
Doxorubicin	Cladribine
Epirubicin	Cyclophosphamide
Idarubicin	Dacarbazine**
Liposomal vincristine	Docetaxel
Mechlorethamine	Etoposide
Mitomycin	Fluorouracil/floxuridine
Mitoxantrone (rare)	Gemcitabine
Oxalplatin (rare)	Ifosfamide
Paclitaxel (rare)	Irinotecan
Trabectedin	Ixabepilone
Vinblastine	Liposomal daunorubicin**
Vincristine	Liposomal doxorubicin**
Vindesine	Melphalan
Vinorelbine	Mitoxantrone**
	Oxaliplatin**
	Paclitaxel
	Streptozocin
	Teniposide
	Thiotepa
	Topotecan
	Trastuzumab emtansine

\* Although bendamustine is classified as a vesicant, postmarketing reports suggest that extravasation may lead to soft tissue injury.

\*\* May have vesicant properties, depending on the concentration of volume of drug extravasated. As an example, extravasation of large volume (>20 mL) of concentrated cisplatin (>0.5mg/mL) may produce tissue necrosis.

Table III **Vesicant Management of Chemo Agents**

Specific Agent	Local Antidote/Preparation	Method of Administration/ Comments	Thermal Compress
<b>Chemotherapy Agents</b>			

Cisplatin (greater than 20 ml of 0.5 mg/ml concentration or greater extravasated)  Mechlorethamine (Nitrogen Mustard, Mustargen)	Sodium thiosulfate 10%: Mix 4 ml of sodium thiosulfate 10% with 6 ml of sterile water for injection	Inject 0.1 ml subcutaneously clockwise around extravasation area: Maximum injection of 5 ml. Change needle with each injection.	<b>Cold:</b> 15 minutes four times a day for 48 hours
Dacintomycin	none	none	<b>Cold:</b> 15 minutes four times a day for 48 hours
Daunorubicin  Doxorubicin  Epirubicin  Idarubicin	Dexrazoxane (prepared by pharmacy-requires physician order) Day 1: (start within 6 hours of extravasation): 1000 mg/m <sup>2</sup> (max 2000 mg), Day 2: 1000 mg/m <sup>2</sup> (max 2000 mg), Day 3: 500 mg/m <sup>2</sup> (max 1000 mg)  <b>OR</b>  Dimethylsulfoxide (DMSO) apply using a saturated gauze pad to site 3-4 times a day for 7-14 days (allow to air dry)	<b>Dexrazoxane</b> Requires 50% reduced dose in patients with CrCl < 40 ml/min <b>Infuse in an area other than extravasation area (i.e. opposite arm) IV infusion over 12 hours</b> <b>Remove cold compress 15 minutes prior to, during, and 15 after infusion</b>  <b>Do not use DMSO if Dexrazoxane will be used</b>  <b>Apply non-occlusive dressing 10-25 minutes after DMSO applied</b>	<b>Cold:</b> 15 minutes four times a day for 48 hours
Mitomycin C	DMSO apply using a saturated gauze pad to site 3-4 times a day for 7-14 days (allow to air dry)	Apply non-occlusive dressing 10-25 minutes after DMSO applied	<b>Cold:</b> 15 minutes four times a day for 48 hours
Paclitaxel' Docetaxel	none	none	<b>Cold:</b> 20 minutes four times a day for 3 days
Vinblastine Vincristine Vinorelbine	Hyaluronidase 200 units/mL- in pharmacy, call pharmacy with physician order	Inject 0.2 ml six times subcutaneously clockwise around extravasation area. Change needle with each injection. Should be used within 60 minutes of extravasation	<b>Warm:</b> 20 minutes four times a day for 48 hours

**Table IV**

**Extravasation Kit Contents**

**HIGH DESERT HEALTH SYSTEM  
DEPARTMENT OF PHARMACY SERVICES**

EXTRAVASATION KIT #

Items	Qty.	Lot #	Exp.
<b>Hyaluronidase 200 units/ml</b>	1	Call Pharmacy with physician order	—
<b>Sodium Thiosulfate 10% 10ml</b>	2		
<b>Dexrazoxane</b>	-	Call Pharmacy with physician order	—
<b>DMSO 50 %</b>	1		
<b>Sterile Water for Injection 10ml</b>	2		
<b>Normal Saline for Injection 20ml</b>	2		
<b>Syringes 10ml</b>	2		
<b>Syringes 5ml</b>	2		
<b>25 Gauge Needles</b>	5		
<b>18 Gauge Needles</b>	5		
<b>Alcohol Swabs</b>	10		
<b>Non-occlusive Dressing</b>	1		
<b>Gauze Pads</b>	2		
<b>Copy of Vesicant Management Procedures</b>	1		

Revised 7/6/11re

Lock #:

Rph.:

Date:

**REFERENCES:**

Cassagnol, M., & McBride, A., (2009). Management of Chemotherapy Extravasations. U. S. Pharmacist. Retrieved August 22, 2011 from

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<http://www.uspharmacist.com/content/s/94/c/15675/dnnprintmode/true/?skinsrc={1}skins/u>

Fischer, D. Knobf, T., & Durivage, H., (2003). The Cancer Chemotherapy Handbook, St. Louis: Mosby.

Groenwald, S., et al, (2000). Cancer Nursing Principles and Practice. Boston: Jones and Bartlett.

LAC + USC Healthcare Network, (2009). Chemotherapy Recertification. March 2009.

Merck Manual (2011). The Merck Manual for Healthcare Professionals. Bortezomib Drug Information. Retrieved August 4, 2011 from <http://www.merck.com/mmpe/lexicomp/bortezomib.html>

Micromedex version 2. (2011). Cytotoxic Drug Extravasation Therapy. Last updated December 13, 2010.

Oncology Nursing Society, (2005). Core Curriculum for Oncology Nursing, 4<sup>th</sup> ed. W.B. Saunders Company.

Polovich, M., et al., (2009). Chemotherapy and Biotherapy Guidelines and Recommendations for Practice, 3<sup>rd</sup> ed. Oncology Nursing Society.

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Date: 02/11/2015	Original Date: Not Set
Reviewed: 02/11/2015	Next Review Date: 02/11/2016
Supersedes:	