

Safe Work Procedure for Preparation of Oral Solid Hazardous Drugs (Tablets or Capsules)

Site Applicability

All Providence Health Care sites, including acute, long term care, and ambulatory care areas, where hazardous drugs are prepared outside of pharmacy.

Practice Level

Basic:

- All clinicians with medication preparation and administration within their scope.

Requirements

A risk assessment ([Appendix A](#)) must be in place for this Safe Work Procedure to be followed.

Need to Know

- The final dosage form of a drug is a unit-dose packaged drug, ready to be administered to the patient without any preparation by the clinician.
- Preparation is any action taken to alter a drug product by means other than compounding or repackaging.
- When a hazardous drug is provided in the final dosage form the clinician is to follow the precautions outlined in the Control Matrix of the Exposure Control Program (Appendix B) for administration.
- This document outlines the steps to follow when preparation of the hazardous drug is required outside of pharmacy.
- When possible dedicate equipment to use for hazardous drugs (e.g. pill crusher).
- Based upon a point of care risk assessment, conduct preparation in a low traffic area such as a medication room, alcove, or the patient's room as appropriate.
- All areas where hazardous drugs are stored, prepared or administered must have a Cytotoxic Spill Kit available.

Equipment and Supplies

- Accelerated hydrogen peroxide wipes (i.e. Accel Intervention)
- Oral syringe
- Pill crusher/dissolver syringe

- Pill crusher and pill pouch
- Pill cutter
- Plastic backed pad
- PPE:
 - Two pairs of chemo-approved gloves
 - Chemo-approved gown
 - Eye and face protection (i.e. medical mask, and full face shield, or goggles)
 - An N95 respirator for which the clinician is fit-tested for all procedure below, except for dissolving in a syringe, and splitting tablets using a pill cutter.

Procedure

Work surface preparation

1. For all procedures below, place plastic backed pad on surface on which the hazardous drug will be prepared.

Opening Capsules

1. Determine if the capsule contains powder or gel/liquid.
 - a. **If liquid**, consult with pharmacy to determine if it is appropriate to dissolve the capsule in water.
 - If so, refer to “Dissolving Using an Oral Syringe” section below.
 - If not appropriate to dissolve, contact the prescriber to determine an alternate plan.
 - b. **If powder**, open the capsule gently.
 - Lightly apply pressure to the ends of the capsule and rotate gently back and forth to open
 - Avoid pulling the ends abruptly apart, as sudden opening could cause aerosolization of powder.
 - Empty the powder gently into the food being used to administer it. Gently tap the ends to ensure powder is all emptied. Stir gently, taking care to minimize aerosolization of powder.

Dissolving Using an Oral Syringe:

1. Select an oral syringe large enough to accommodate the capsule, water and air.
2. Remove the plunger from the oral syringe.
3. Place tablet/capsule in syringe without crushing/opening it.
4. Insert plunger into syringe barrel.
5. Draw enough warm water to fully submerge the drug and enough air to allow room to agitate the contents. Turn the tip of the syringe up while drawing in air to avoid dripping.
6. Place cap on tip of syringe.
7. Allow the drug to dissolve, or gently swirl the syringe until the drug is fully dissolved.
8. Administer the dose directly from the syringe.
9. Draw up additional water (2 to 5 mL) into syringe, shake and administer to ensure entire dose is given.

Crushing and Dissolving Tablets Using a Crusher/Dissolver Syringe for Administration via Enteric Tube

1. Remove orange cap from the syringe.
2. Remove the plunger from the syringe barrel.
3. Place the tablet in the syringe.
4. Replace the plunger into the barrel until it is touching the tablet.
5. With the tip of the syringe facing up, rotate the plunger until the tablet is sufficiently crushed.
6. Draw water (volume as prescribed) into the syringe.
7. Replace orange cap and swirl the drug and water until suspended, and administer.

Crushing Tablets Using a Pill Crusher:

1. Place the drug in the pill crusher pouch and fold over the top, minimizing the amount of air in the pouch as much as possible.
2. Open and empty the bag into the prepared container of food or fluid with which the medication will be administered, and stir gently to minimize aerosolization of the powder.

Splitting Tablets Using a Pill Cutter:

1. Place the tablet in the pill cutter and gently cut the pill.
2. Refer to tablet crushing and dissolving to prepare final dosage form, if required.

Work Surface Cleaning

1. After each procedure above the work surface must be cleaned and decontaminated using a two-step process using accelerated hydrogen peroxide wipes (i.e. Accel Intervention).
2. Reusable equipment including pill cutters and crushers must be cleaned and decontaminated using a two-step process using accelerated hydrogen peroxide wipes (i.e. Accel Intervention).

Related Documents

- [Low Level Cleaning and Disinfection \(Infection Control\)](#)

References

Adapted from provincial Safe Work Procedure *Hazardous Drugs Safe Work Procedure: Preparing Tablets or Capsules in Care Settings*

Appendices

- [Appendix A: Risk Assessment](#)
- [Appendix B: Providence Health Care Hazardous Drug Control Matrix](#)

Appendix A: Risk Assessment

A. Detailed Risk Assessment

Site:	All PHC acute, long term, and ambulatory sites	Unit:	Generic template
Date of assessment:	02-FEB-2022	Next review date (1 year)	02-FEB-2022
Name of Drug:		Drug Group (1 or 2)	Group 1 or 2
Route of Administration:	Oral or enteric tube	Formulation:	Tablets or Capsules

- Reason pharmacy unable to provide final dosage form. Check all that apply:
 - ☒ Biological safety cabinet (BSC)/ Containment – Primary Engineering Control (C-PEC) not available
 - ☒ Pharmacy staff are not available (e.g. qualifications, outside of operational hours)
 - ☒ Transportation limitations/restrictions
 - ☒ Stability of drug
 - ☒ Anticipated urgency (i.e. urgent need for drug administration)
- Proposed deviation from standard practice (e.g. drug will be crushed, mixed, combined etc.):
Tablets or capsules will be crushed, split or dissolved.
- Based on the required type of preparation, what are the potential exposure routes (i.e. without control measures in place, how could staff be exposed?). Check all that apply:
 - ☒ Absorption (skin and eye contact)
 - ☒ Inhalation
 - ☒ Ingestion (eating/drinking)
 - ☐ Puncture (needle stick)
 - ☐ Other (describe):
- Based on the type of preparation and/or formulation, is there a risk of environmental contamination?
 - ☒ Yes
 - ☐ No

B. Alternate Control Measures for Development of Safe Work Procedures

Use the list below to identify control measures for the development of Safe Work Procedures (SWP) or reviewing an existing Safe Work Procedure for applicability. Note that when identifying control measures, **the hierarchy of controls must be considered**. In this process, engineering controls must be considered prior to or, in addition to, personal protective equipment (PPE).

The following lists can help to identify control options. Check all that applies and provide details in the SWP on how the control measures are utilized to prevent exposure. Refer to the Exposure Control Plan: Managing the Risks.

1. Proposed Engineering Control(s):

- ☐ Closed System Transfer Device
- ☐ Filtered Venting Device
- ☒ Pill crusher (enclosed system)
- ☒ Pill dissolver (enclosed system)
- ☒ Pill cutter (enclosed system)
- ☐ Other (describe):
- ☐ None

2. Proposed Administrative Control(s):

- ☒ Education on the safe preparation technique and equipment
- ☒ Identification of a location(s) for preparation which minimizes the number of individuals (staff, patients etc.) potentially exposed to hazardous drugs.
- ☒ Methods used for minimizing surface contamination identified (e.g. using dedicated equipment, put an absorbent pad down)
- ☒ Products and processes are in place for cleaning space post-preparation
- ☒ Drug transportation and storage practices identified
- ☒ Hazardous Drugs Spill kit is available and staff are trained on how to use it.

3. Required PPE (refer to ECP Control Matrix, Decision Support Tools, and consider all potential routes of exposure):

- ☒ Chemo-approved gloves (two pairs)
- ☒ Chemo-approved gown
- ☒ Eye/face protection
- ☐ Respiratory protection
- ☐ Other (describe):

C. Safe Work Procedure





A Safe Work Procedure must be written considering all of the factors identified in both the **A. Detailed Risk Assessment** and **B. Alternative Control Measures** sections above. The SWP must be approved as per this risk assessment process prior to the administration of the drug.

Recommendation for SWP:

- ☒ Utilize a standardized Safe Work Procedure, all components are achievable
- ☐ Modify an existing standardized Safe Work Procedure
- ☐ Develop a unit or area based Safe Work Procedure
- ☐ No appropriate alternate practices or SWP can be identified, consult with your
- ☐ Health Authority Hazardous Drugs Working Group.

Risk Assessment and Safe Work Procedure Developed By:	
Occupational Health and Safety	Hygienist, Occupational Health and Safety
Pharmacy	Pharmacy Coordinator
Professional Practice and Nursing	Practice Consultant
Risk Assessment and Safe Work Procedure Endorsed By:	
Clinical Operations	Executive Director Acute Care Program Director Seniors Care
Occupational Health and Safety	Director, Occupational Health and Safety
Professional Practice and Nursing	Director, Professional Practice and Nursing
Pharmacy	Director, Pharmacy (Acute Care) Director, Pharmacy (Long Term Care)




Appendix B: Providence Health Care Hazardous Drug Control Matrix

PROVIDENCE HEALTH CARE – HAZARDOUS DRUGS CONTROL MATRIX						
BC Hazardous Drug Control Matrix Nursing Section		Group 1 				
		Parenteral (IV, I/e, IM, SUBCUT, IT, IP)	Oral Solid (Tablet, Capsule)	Oral Liquid	Topical, Rectal & Vaginal	Implants and Ophthalmic
LABELLING MEDICATION		  				
TRANSPORT IN FACILITY		Do not use tube system • If transporting drugs in a reusable outer container - two pairs of chemo-approved gloves are required • If transporting drugs in a disposable outer container (e.g. plastic bag), PPE is not required • Ensure a Hazardous Drugs spill kit accompanies drug transport or is readily available				
PREPARATION OF DRUGS BY NURSING	PERSONAL PROTECTIVE EQUIPMENT (PPE)	See Safe Work Procedures				
PRIMING IV LINES		• Do not prime IV lines with hazardous drugs				
MEDICATION ADMINISTRATION Drugs in final dosage form (including when using CSTDs)	Gloves	two pairs of chemo- approved gloves	one pair of chemo-approved gloves	two pairs of chemo-approved gloves		
	Gown	chemo-approved gown	None	chemo-approved gown if risk of splash		
	Eye/Face N95	eyeface protection	None	eyeface protection if risk of splash		
	PPE	None				chemo-approved gown eye protection N95 Required
WORK SURFACE CLEANING		• Wear two pairs of chemo-approved gloves, chemo-gown, eyeface protection if risk of splash • Use Accelerated Hydrogen Peroxide 0.5% (e.g. Accel Intervention wipes™)				
PRECAUTIONARY PERIOD Place precautionary signage at the bedside or entrance to client room		The precautionary period is 48 hours following each administration of a Group 1 HD • During precautionary period <ul style="list-style-type: none"> Required PPE: two pairs of chemo-approved gloves, chemo-approved gown, eyeface protection if risk of splash for any activities for which there is a risk of contact with BBF • Outside precautionary period <ul style="list-style-type: none"> Follow routine precautions when handling blood and body fluids 				
LABORATORY		• During an individual's precautionary period all blood, urine and stool samples; other body fluids visibly contaminated with blood (except swabs and sputum) and tissues or organs not in fixatives must be labelled with a laboratory HD1 label • All laboratory specimens from a patient in the precautionary period are to be placed in an outer sealed plastic bag. Blood specimens may be tubed, and must be labelled and placed in two sealed bags, with the outer bag labelled				
LAUNDRY		• During precautionary period: All linen to be placed in Group 1 HD labelled laundry bag <ul style="list-style-type: none"> Required PPE: two pairs of chemo-approved gloves, chemo-approved gown, eyeface protection if risk of splash • Outside precautionary period: All linen to be placed in regular laundry bag <ul style="list-style-type: none"> Required PPE: Follow routine practices 				
		Drug Waste		Sharps	BBF Waste	Other Waste (e.g. PPE and packaging)
SPILL MANAGEMENT Hazardous drug spill kits in all areas where hazardous drugs are handled		Intact solid dosage form Required PPE: one pair of chemo-approved gloves All other dosage forms: Manage spills according to Hazardous Drug Spill Procedures for size of spill. See Appendix L in ECP		• Manage spills according to Hazardous Drug Spill Cleanup Procedures for size of spill. See Appendix L in ECP		
WASTE MANAGEMENT Acute/Long Term Care (i.e., in facility)		Controlled Substances: Pharmaceutical Waste Bin Non-Controlled Substances: Cytotoxic Waste Bin Required PPE: <ul style="list-style-type: none"> two pairs of chemo-approved gloves chemo-approved gown if risk of splash eyeface protection if risk of splash 		Cytotoxic Sharps Container	Where possible, disposed of through the sewer. Where not disposed of through sewer, use a leak-proof cytotoxic container.	Cytotoxic container

Acronyms: CSTD = Closed System Transfer Device IV = Intravenous I/e = Intravesicular IM = Intramuscular SUBCUT = Subcutaneous IT = Intrathecal IP = Intraperitoneal BBF = Blood and Body Fluid HD = Hazardous Drug

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PROVIDENCE HEALTH CARE – HAZARDOUS DRUGS CONTROL MATRIX

BC Hazardous Drug Control Matrix Nursing Section		Group 2 						
		Parenteral (IV, I/ve, IM, SUBCUT, IT, IP)	Oral Solid (Tablet, Capsule)	Oral Liquid	Topical, Rectal & Vaginal	Implants and Ophthalmic	Inhalation Therapy	
LABELLING MEDICATION		<div><div>Precautions Required</div><div>Hazardous Drug GROUP 2</div></div> <div></div>						
TRANSPORT IN FACILITY		Do not use tube system		Do not use tube system	Do not use tube system if liquid			
		<ul style="list-style-type: none">If transporting drugs in a reusable outer container - two pairs of chemo-approved gloves are requiredIf transporting drugs in a disposable outer container (e.g. plastic bag), PPE is not requiredEnsure a Hazardous Drugs spill kit accompanies drug transport or is readily available						
PREPARATION OF DRUGS BY NURSING	PERSONAL PROTECTIVE EQUIPMENT (PPE)	See Safe Work Procedures						
PRIMING IV LINES		<ul style="list-style-type: none">Do not prime IV lines with hazardous drugs						
MEDICATION ADMINISTRATION Drugs in final dosage form (including when using CSTDs)	PPE	Gloves	two pairs of chemo- approved gloves	one pair of chemo- approved gloves	two pairs of chemo-approved gloves			
		Gown	chemo-approved gown	None	chemo-approved gown if risk of splash		None	Chemo approved gown
		Eye/Face	eye/face protection if risk of splash	None	eye protection if risk of splash		None	eye protection
		N95	None				N95 required	
WORK SURFACE CLEANING		<ul style="list-style-type: none">Wear two pairs of chemo-approved gloves, chemo-gown, eye/face protection if risk of splashUse Accelerated Hydrogen Peroxide 0.5% (e.g. Accel Intervention wipes™)						
PRECAUTIONARY PERIOD		<ul style="list-style-type: none">Not applicable to Group 2 HD						
LABORATORY		<ul style="list-style-type: none">Use routine practices for collection, labelling and transport						
LAUNDRY		<ul style="list-style-type: none">All linen to be placed in regular laundry bags						
		Drug Waste		Sharps	BBF Waste	Other Waste (e.g. PPE and packaging)		
SPILL MANAGEMENT		Intact solid dosage form Required PPE: one pair of chemo-approved gloves		<ul style="list-style-type: none">Follow routine precautions				
Hazardous drug spill kits in all areas where hazardous drugs are handled		All other dosage forms: Manage spills according to Hazardous Drug Spill Procedures for size of spill. See Appendix L in ECP						
WASTE MANAGEMENT		Controlled Substances: Pharmaceutical Waste Bin		Regular Sharps Container	Where possible, disposed of through the sewer. Where not disposed of through sewer use regular garbage or anatomical or biohazardous waste per usual practices.	Regular garbage		
		Non-Controlled Substances: Cytotoxic Waste Bin <td colspan="3"></td>						
Acute/Long Term Care (i.e., in facility)		Required PPE: <ul style="list-style-type: none">one pair of chemo-approved gloveschemo-approved gowneyeface protection if risk of splash		<ul style="list-style-type: none">Follow routine practices and standard procedures				

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