

## AN INDUSTRIAL HYGIENE GUIDE AND CHECKLIST FOR THE COLLECTION OF HAZARDOUS DRUG SURFACE WIPE SAMPLES TECHNICAL INFORMATION PAPER No. 55-084-1017

### INTENT

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The intent of this checklist and guide is for the use of the installation Industrial Hygiene (IH) staff and Hazardous Drug Officer (HDO) to help with the semi-annual collection of surface wipe samples for residual hazardous drug (HD) contamination of work surfaces. Please note that this guide and checklist is not all inclusive; for additional questions please contact the U.S. Army Public Health Center (APHC) Industrial Hygiene Field Services Division at 410-436-3118. This guide does not change any existing Department of the Army (DA) directives, policies, or procedures related to handling of HD or HD usage at DA medical treatment facilities (MTF).

**REFERENCES** - See Appendix A for References and Acronyms

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### DEFINITIONS

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- Field Sample – exposed sample material used to determine potential location of residual HD contamination.
- Field Blank – exposed sample material used to determine environmental HD contamination. Created within MTF by wetting swab with wetting agent and exposing it to the environment prior to placing sample in collection vial.
- Media Blank – non-exposed sample material used to determine contamination of media. Created outside of pharmacy by wetting swab with wetting agent and immediately placing sample in collection vial.

### SAMPLING STRATEGY

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The installation IH office, working in coordination with the HDO, sets up the wipe sampling strategy. Semi-annual (every 6 months) wipe sampling is required by United States Pharmacopeia (USP) <800>. Increased sampling frequency is acceptable based on the professional judgment of the installation IH. Sampling locations are any location within the MTF where HD may be located, including but not limited to, workbenches, storage shelves, secondary containment units, and compounding isolation equipment. (See USP <800> for extensive listing of sampling locations.) Conduct additional sampling when any changes occur in the drugs used, operations, procedures, equipment, or engineering controls.

The APHC Laboratory Sciences Directorate (LAB) is the analytical laboratory for HD analysis. Contact the APHC LAB for listing of HD currently available for analysis. Commercial: 410-436-2208, DSN: 584-2208, or via email: [usarmy.apg.medcom-phc.list.org-ls-ls@mail.mil](mailto:usarmy.apg.medcom-phc.list.org-ls-ls@mail.mil)

## **SAMPLING PREPARATION**

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To prepare for sampling, the installation IH, in coordination with the HDO, must determine all locations within the MTF and MTF-controlled outlying facilities where HD is received, stored, prepared, dispensed, or administered. Use Flow Chart (Figure 1) to determine total quantity of sampling materials needed. When quantity of sampling materials needed is determined, contact the APHC LAB to request sampling materials. Sampling materials must be procured from the APHC LAB; sampling materials not procured from the APHC LAB will not be analyzed.

The APHC LAB will provide the following supplies to support all HD sampling material requests:

- Ultraclean Flat-head Swabs
- Methanol Wetting Solution
- 100 cm<sup>2</sup> templates (10cm by 10cm)
- Collection vials

The installation must supply the following materials for sampling:

- Proper PPE (Chemotherapy ASTM D6978 rated gloves and, if needed, cleanroom garb)
- Vial labels
- Snips (wire snips are recommended to cut swab handle)

All requested sampling supplies shipped from the APHC LAB will be in a cooler with re-usable ice packages. Upon receipt, re-freeze the ice packages for return to APHC LAB.

## **SAMPLING PROCEDURE**

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See sampling checklist for a detailed description of HD surface wipe sampling.

Note:

- Enter all samples into the DOEHRS-IH system.
- Use unique identifiers for each sample label (ex. for sampling conducted on 29 August 2017 in the inpatient pharmacy – 082917INPT01)
- Change gloves between each sample.

## **POST SAMPLING PROCEDURE**

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Immediate post-sampling actions:

- Dispose of excess methanol wetting agent as hazardous waste in accordance with Federal and State regulations. Contact the installation environmental office for assistance.
- Dispose of used PPE and templates in approved HD waste container.
- Enter all sample data into DOEHRS-IH.
- Export sampling data file from DOEHRS-IH.
- Access the APHC LAB Extranet site and log-on using your CAC. (Select email certificate at log-on.)
- Generate a LIDS 9 Form for APHC LAB using exported sample data.
- Submit LIDS 9 Form and print a copy for shipment with samples.
- Place in shipping cooler:
  - Labeled samples
  - Frozen reusable ice packages
  - LIDS 9 Form
- Ship samples overnight to APHC Lab.

Results interpretation:

- Any sample result above the Limit of Quantitation (LOQ) of the APHC LAB is outside of acceptable controls.
- All locations outside of acceptable controls must have deactivation, decontamination, and cleaning protocols executed.
- Investigate why samples exceeded the LOQ. Review SOPs and perform training as needed. Ensure all equipment is operating properly.
- Resample all locations outside of acceptable controls after cleaning occurs for continued persistence of residual HD.

## **POINT OF CONTACT**

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For more information contact APHC IHFSD at commercial 410-436-3118 or DSN 584-3118.

**Prepared by:** Industrial Hygiene Field Services Division

**Dated:** 7 May 2018

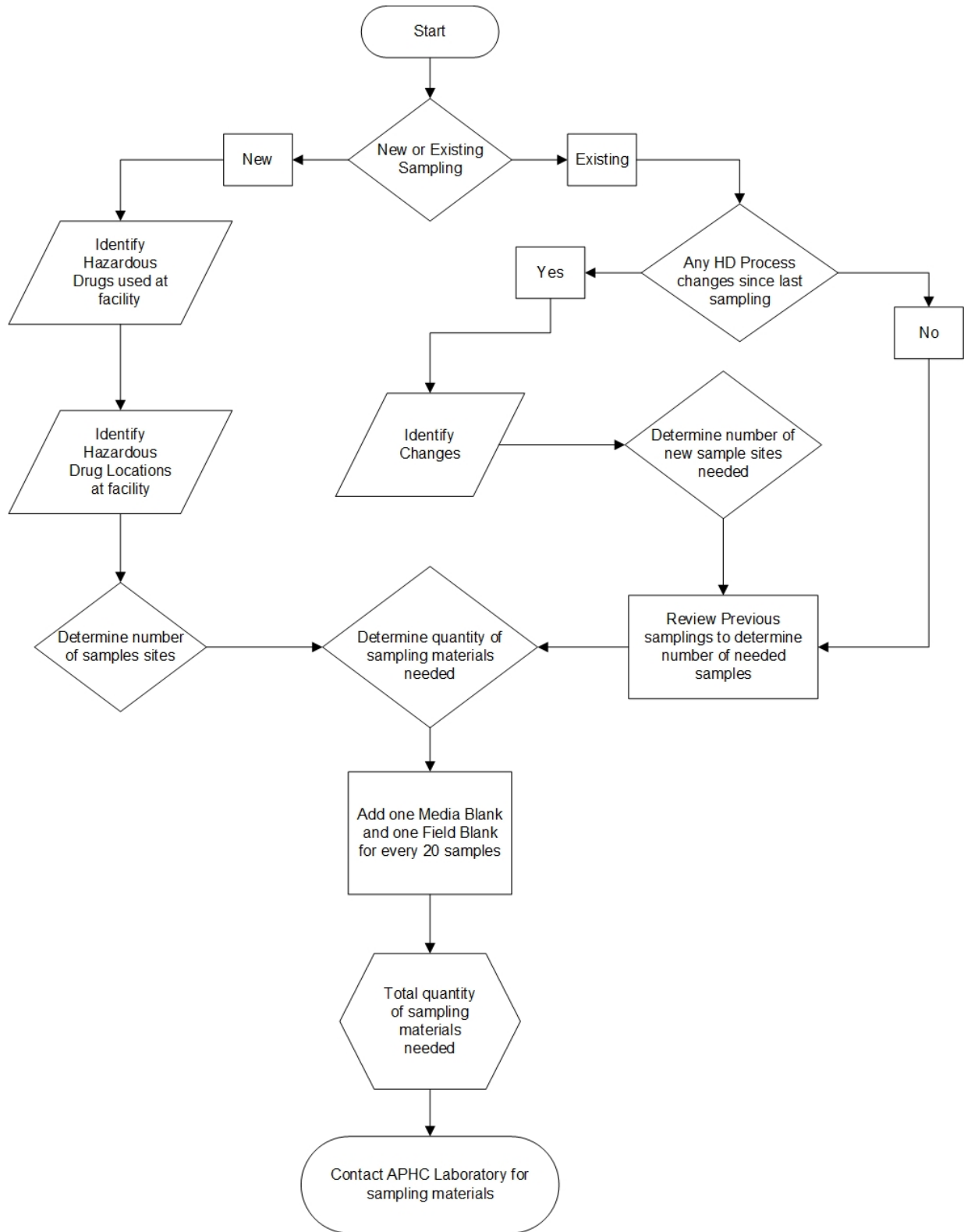


Figure 1 - Flow Chart

## REFERENCES

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U.S. Army Technical Bulletin-Medical (TB-MED) 515. Occupational Health and Industrial Hygiene Guidance for the Management, Use, and Disposal of Hazardous Drugs, 22 April 2014

U.S. Department of Health and Human Services (DHHS). 2016. U.S. Public Health Service, National Institute for Occupational Safety and Health (NIOSH). September 2016. DHHS (NIOSH) Publication No. 2016-161 – NIOSH List of Antineoplastic and other Hazardous Drugs in Healthcare Settings, 2016

U.S. Pharmacopeia Convention Compounding Compendium. Chapter <800> - Hazardous Drugs – Handling in Healthcare Settings, February 2017.

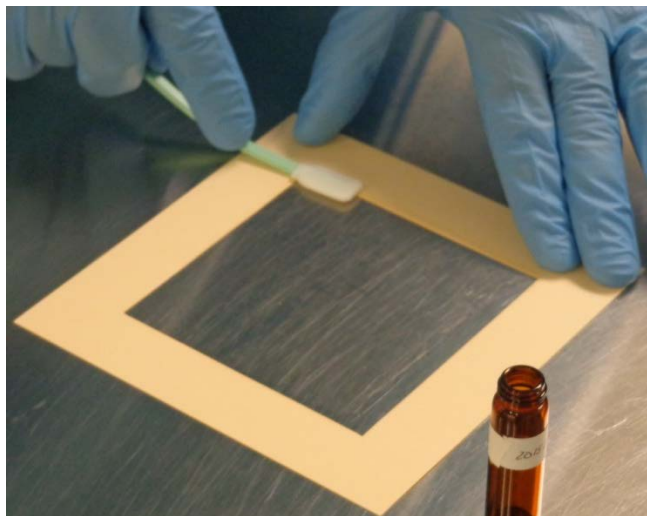
## ABBREVIATIONS

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- APHC – U.S. Army Public Health Center
- APHC LAB – APHC Laboratory Sciences Directorate
- CAC - Common Access Card
- cm – Centimeter
- cm<sup>2</sup> - Centimeter squared
- DOEHS-IH - Defense Occupational and Environmental Health Readiness System Industrial Hygiene
- HD - Hazardous Drug
- HDO - Hazardous Drug Officer
- IH - Industrial Hygiene
- IHFSD - Industrial Hygiene Field Services Division
- LIDS 9 - Laboratory Information Document System Industrial Hygiene Sample Submission Form
- LOQ - Limit of Quantitation
- MTF - Medical Treatment Facility
- PPE - Personal Protective Equipment
- USP - United States Pharmacopeia Convention
- USP <800> - Compounding Compendium Chapter 800

### Hazardous Drug Surface Wipe Sampling Checklist

- Label collection vial (ex. 082917INPT01).
- Don 2 pairs of disposable gloves (new gloves are required for each sample taken).
- Don other PPE required for the area you are sampling. This may include gowns, booties, head covering, and respiratory protection. NOTE: Use of respiratory protection requires enrollment in respiratory protection program and medical clearance.
- Define sampling area by applying 100 cm<sup>2</sup> template. (If location cannot accommodate a template, note and describe the surface sampled.)
- Retrieve swab from packaging material (Do Not Touch Swab End).
- Wet swab with methanol wetting solution. Ensure swab is moist but not over saturated. The preferred method of wetting is to dip swab into methanol solution and drag swab across lip of vial to remove excess methanol.
- Place flat end of swab within the borders of template and depress handle to ensure full surface of swab is in contact with the work surface. Wipe the surface, right to left ensuring all of templated surface is covered.



- Lift swab and turn over. Depress swab, ensuring the full swab surface is in contact with the work surface. Wipe the surface top to bottom, ensuring the entire templated surface is covered.
- Place sampled swab into pre-labeled collection vial.
- Using snips, remove handle of swab. Ensure removal of majority of swab handle.
- Seal sample vial.
- Doff gloves and discard with used template. Doff any other PPE and dispose of properly.
- Prepare one media blank and one field blank for every 20 field samples.