

Standard Operating Procedure

ABCD-21-16-90037

Lead Protective Equipment: Use and Cleaning

SITE APPLICABILITY:

All Lower Mainland Medical Imaging (LMMI) sites in Fraser Health (FH), Providence Healthcare (PHC), Provincial Health Services Authority (PHSA), and Vancouver Coastal Health (VCH)

PURPOSE:

To provide LMMI staff with a procedure for the safe use and cleaning of lead personal protective equipment (PPE)

SCOPE:

Applicable to all Medical Imaging staff and departments that use lead PPE

RESPONSIBILITIES:

Lead PPE is to be worn, stored and transported according to manufacturer's recommendations to maintain lead protection integrity

Lead PPE is to be cleaned and disinfected when required

Lead PPE is to be inspected annually for defects and is documented

PROCEDURE:

Lead Apron PPE

Personnel participating in procedures where by ionizing radiation is produced, should refer to the [Safe Installation and Use of X-ray Medical Equipment](#) for guidance on appropriate lead PPE to be worn for the specific modality.

Wear:

- Line up Velcro closures. Failure to do so can cause damage to fabric, bindings or embroidery
- Avoid catching items in Velcro as this reduces the Velcro efficacy
- Avoid sharp objects or corners as this can cause unseen damage to the underlying protective material

Handling and Storage:

- Hang lead aprons on specifically designed hangers
- Line up the Velcro closures to avoid damage to the fabric, bindings or embroidery
- NEVER fold, crease or pile the lead aprons as this will cause stress points in the protective material
- Refer to the [Safe Installation and Use of X-ray Medical Equipment](#) for further information

Transportation:

- Roll the lead PPE in a tube shape and carry in an appropriate carrying bag when transporting to another site.
- Avoid extended exposure to extreme temperatures. If exposed to extreme temperatures it should be left undisturbed until it reaches room temperature.

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Cleaning and Disinfection: See [Table 1](#)

Considerations for Nuclear Medicine Lead PPE:

- a) Prior to cleaning, the garment must be monitored for radioactive contamination by a nuclear medicine (NM) technologist
- b) If the garment is contaminated, the NM technologist will follow the [Radioisotope Spill Clean-up Procedure](#)
- c) If the garment is not contaminated, proceed with the [Cleaning Process](#) and [Disinfection Process](#) as required

1. Lead PPE Spot or Entire Garment Cleaning

Use a cleaning solution specifically formulated and safe for cleaning the Lead PPE and follow manufacturer's cleaning instructions.

An example of the cleaning instructions from Ultra Ray follows:

Cleaning Process

- a) Perform hand hygiene. Donn gloves.
- b) APPLY/ POUR (do not spray) cleaner onto a cloth moistened with tap water to clean stains or entire garment one section (25cmx25cm) at a time and let stand a few minutes.
- c) SCRUB area with a soft bristle brush and blot moisture with clean dry cloth. Do not let solution dry before rinsing.
- d) RINSE the section with cloth moistened with tap water
 - Wet a cloth with tap water and remove all soap residue. Blot with a dry cloth.
 - NOTE: Rinse without immersing in any fluid.
- e) RINSE and blot again.
 - Wet a cloth with tap water and remove all soapy residue. Blot with a dry cloth.
 - NOTE: Rinse without immersing in any fluid. It's important to rinse each area well until there's no soap residue left on garment to prevent soap ring.
- f) CONTINUE steps 1-4 until the entire apron is clean. For cleaning, dispose or recycle the bristle brush.
- g) DRY. Allow garment to air dry.
- h) TOUGH STAINS: Stubborn stains may need more than one application.
- i) Doff gloves. Perform hand hygiene.

2. Lead PPE Low Level Disinfection (LLD)

Use a disinfection solution specifically formulated and safe for lead aprons. To achieve disinfection, staff should follow the described process below using Accelerated Hydrogen Peroxide 0.5% (AHP) wipes.

Disinfection Process

Step 1: Clean Using Wipe #1:

- a) Perform hand hygiene. Donn gloves.

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- b) Clean lead apron from cleanest area to dirtiest area using friction (rub/scrub motion) to remove any foreign matter with 1st wipe(s) or cloth(s).

Example: dust, dry skin, blood, feces, sputum.

Step 2: **Disinfect** Using Wipe #2:

- a) Disinfect lead apron from cleanest area to dirtiest area using friction (rub/scrub motion) with 2nd wipe(s) or cloth(s).
- b) Complete disinfection process by allowing lead apron to remain wet long enough to maintain the product label stated wet contact or dwell time. (1 or 3 min)
- c) Allow garment to air dry.
- d) Doff gloves. Perform hand hygiene after doffing gloves.

Lead PPE Glasses

Storage:

When not in use, lead PPE glasses should be stored face-up in a dedicated unit that protects them from scratching and airborne contaminants.

Cleaning: See [Table 1](#)






All lens types should be cleaned daily or more often if required (eg: body fluid exposure, etc)

1. For Dust removal, use water
 - a) To prevent scratching, rinse glasses under a stream of warm water to clear off dust
 - b) Dry with an unused microfiber cloth
2. For Dirt, Debris removal and Hygienic purposes, use Soap and Water
 - a) To prevent scratching, rinse glasses under warm water to remove any visible dirt and grime
 - b) Add a small amount of diluted dish soap to lenses and clean using an unused water moistened soft microfiber cloth
 - c) Rinse off soap under a stream of warm water
 - d) Dry with an unused microfiber cloth
3. For Soiled Lenses, Disinfect using 70% alcohol
 - a) To prevent scratching, rinse glasses under warm water to removed any visible dirt or grime
 - b) Mix 4 parts 70% alcohol and 1 part tap water in a container
 - c) Pour diluted alcohol onto lenses and clean with an unused microfiber cloth
 - d) Allow the alcohol to air dry, rinses glasses under a stream of warm water to clear off alcohol residue and dry with an unused microfiber cloth

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 Table 1: Cleaning and Disinfection Equipment and Supplies

	Cleaning	Disinfection
	Products & Equipment	Products & Equipment
Lead Aprons + Thyroid Collars	 <p>Scrubbles - Available from Infab Corp. https://www.infabcorp.com/product/revolution-scrubbles/</p> <p>Warm tap water + diluted dish soap (ammonia or chlorine free) <i>NB: Dawn is recommended by UltraRay</i></p> <p>Bristle brush and Soft Towel can be purchased at Dollar stores</p>	 <p>Accel Wipes - Available at all sites</p>
Lead Glasses	 <p>Warm tap water + diluted dish soap (ammonia or chlorine free) <i>NB: Dawn is recommended by American Optometric Association</i></p> <p>Dry microfiber cloth can be purchased from Amazon</p>	 <p>Microfiber cloth</p> <p>4 parts 70% alcohol + 1 part water</p>
	<p>Thyroid covers may be used.</p> 	<p>Washed using hot water and laundry detergent by hand or machine wash.</p>

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REFERENCES/ASSOCIATED DOCUMENTS:

Diagnostic Accreditation Program Standards retrieved from: <https://www.cpsbc.ca/accredited-facilities/dap/accreditation-standards-DI>

Provincial Health Services Authority- MSDS Safety Data Sheets retrieved from: https://sds.phsa.ca/msds_files/10283.pdf

Radioisotope Spill Clean-up.
[ABCD-21-16-90035 \(healthcarebc.ca\)](ABCD-21-16-90035 (healthcarebc.ca))

Safe Installation and Use of Medical X-ray Equipment retrieved from: <http://shop.healthcarebc.ca/MedicalImaging/ABCD-21-08-90177.pdf>

Standard-Radiation Protection Apparel Selection for Nuclear Medicine. (2019).
<https://my.vch.ca/working-here-site/Documents/Purchasing-staff-radiation-protection-apparel-radioisotopes.pdf#search=standard%20of%20radiation%20apparel%20for%20nuclear%20medicine>

Standard-Radiation Protection Apparel Selection for Xray. (2019).
<https://my.vch.ca/working-here-site/Documents/Purchasing-Staff-Radiation-Protection-Apparel-for-Xray-Equipment.pdf#search=standard%20of%20radiation%20apparel>

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