**Formaldehyde Usage in Gross Anatomy**

Welcome to the Faculty of Medicine and the Gross Anatomy Lab. Your time spent dissecting in the Gross Anatomy Lab will involve working with formaldehyde.  This document will inform you of the potential hazards of formaldehyde exposure and describe the protective equipment you should wear and the procedures to follow to limit your exposure.

**What is Formaldehyde?**

Formaldehyde is used as a preservative in a liquid solution that is 37% formaldehyde by weight.  At this concentration the solution is called formalin. During the embalming process, the concentration of formalin is further reduced through arterial perfusion with a neutralizing agent. The final concentration of formalin in the embalming solution of the cadavers in the Gross Anatomy Lab at UBC is 1.8%.

Formaldehyde has a pungent odour, odour thresholds significantly vary. Do not rely on odour alone to determine potential hazardous exposure. Please contact the Gross Anatomy Lab Manager (Matthew Tinney via email: [matthew.tinney@ubc.ca](mailto:matthew.tinney@ubc.ca)) with questions.

**Health Hazards and First Aid Procedures**

Formaldehyde and solutions containing the chemicals are potential human carcinogens, irritants, and chemical sensitizers.

*Acute Exposure:*

Inhalation:Formalin is capable of causing irritation to the mouth, nose, and throat and may lead to pulmonary edema (fluid in lungs). Exposure to large amounts of formaldehyde is immediately dangerous to life and health.  Inhalation of formaldehyde at any concentration may cause allergic respiratory reactions such as asthma, bronchitis, wheezing, and chest tightness. In the event of a significant exposure, contact the first aid attendant and seek fresh air immediately. The first aid attendant will contact emergency services, a physician or BC Poison Control.

Oral:Ingestion can cause severe irritation of the mouth, throat, and stomach, nausea, and vomiting. An oral dose of 30 to 100 ml formalin can be fatal in humans. If ingested, rinse mouth with water and contact the first aid attendant. The first aid attendant will contact emergency services, a physician or BC Poison Control.

Skin:Formalin is a severe skin irritant and sensitizer. Repeated dermal contact may result in sensitization, resulting in allergic dermatitis at relatively low concentrations. Repeated contact may cause white discoloration, a burning sensation, drying and scaling of the skin. In the event of contact, remove contaminated clothing and flush the affected area with soap and water. Contact the first aid attendant. The first aid attendant will contact emergency services, a physician or BC Poison Control.

Eyes:Contact with eyes may result in severe eye irritation, always wear safety glasses in the lab. Direct contact with the eyes may cause severe burns, blurry vision, and/or loss of vision.  Burns to eyes may have a delayed effect, not appearing for hours after initial contact. In the event of direct contact, flush holding the eyelid(s) open for 15 minutes. **An eyewash is available in the Gross Anatomy Lab.** Contact the first aid attendant. The first aid attendant will contact emergency services, a physician or BC Poison Control.

*Chronic Exposure:*

Formaldehyde and its solutions are **potential human carcinogens** and long term exposures have been associated with cancers of the lung and nasal passageways.

**Exposure Limits**

The WorkSafeBC exposure limit is **0.3 ppm** as time-weighted average for an eight-hour shift.  The maximum concentration of formaldehyde in air which may not be exceeded at any time during the work period is **1.0 ppm.** Risk Management at UBC works with the Gross Anatomy Lab to monitor formaldehyde exposure and ensure they are below regulatory limits.

**How to Limit Your Usage of Formaldehyde**

The Gross Anatomy Lab’s ventilation system is designed to reduce your exposure to formaldehyde. The ventilation system acts as an engineering control and students are not required to wear a respirator in the Gross Anatomy Lab. As a precautionary measure, respirators are provided to students who are pregnant, nursing, or have a formaldehyde allergy.

*Other methods to limit your exposure to formaldehyde include*

*Prior to entering the Gross Anatomy Lab:*

* Store backpacks, purses in the Gross Anatomy Lab lockers provided.  Do not bring food or drink into the lab.
* Personal Protective Equipment (PPE) required at all times in the Gross Anatomy Lab:
  + Gloves
  + Safety glasses
  + Lab coat
  + Scrubs
  + Old running shoes solely for use in the Anatomy Lab.

*While working in the Gross Anatomy Lab:*

* To limit physical contact with the cadaver and released liquids, suction excess fluids from the chest cavity with the supplied suction units.
* Do not allow formaldehyde containing liquids to puddle on the floor.  Absorb small puddles with paper towels.  Dispose of paper towels in the garbage containers.  Report all spills to the Gross Anatomy Lab Manager.
* Properly cover the cadaver after you finish.  This will reduce the release of formaldehyde into the Gross Anatomy Lab.

*Exiting the Gross Anatomy Lab:*

* Ensure you wash your hands at the end of class to avoid contamination of personal items.

**Additional Precautionary Measures:**

*Pregnant or nursing students:*

If you are pregnant or nursing, please notify the Manager of the Gross Anatomy Lab. Pregnant or nursing students will be fitted for a respirator. Please contact the Gross Anatomy Lab Manager (Matthew Tinney via email: [matthew.tinney@ubc.ca](mailto:matthew.tinney@ubc.ca)) to schedule a fit testing for a respirator. Discussions about formaldehyde cartridge acquisition and replacement are to take place with the Gross Anatomy Lab Manager.

*Allergy to formaldehyde:*

If you have an allergy to formaldehyde, please notify the Manager of the Gross Anatomy Lab. Students with an allergy will be fitted for a respirator. Please contact the Gross Anatomy Lab Manager (Matthew Tinney via email: [matthew.tinney@ubc.ca](mailto:matthew.tinney@ubc.ca)) to schedule a fit testing for a respirator. Discussions about formaldehyde cartridge acquisition and replacement are to take place with the Gross Anatomy Lab Manager. During clinical clerkship years, students are encouraged to contact the Faculty of Medicine Health & Safety Advisor prior to commencing clerkships for discussions about mitigating the risk of exposure.

**Additional Information:**

Please contact your [Office of Student Affairs Assistant Dean](http://mdprogram.med.ubc.ca/student-resources/contact/) or the [Health & Safety Advisor (Education)](http://mdprogram.med.ubc.ca/student-resources/safety-and-emergency-management/).