

# Print-And-Go Sheet: Formaldehyde Post-Exposure Guidance



This information sheet identifies immediate first aid actions that should be taken following an exposure to Formaldehyde.

**Seek medical assistance immediately after an exposure to Formaldehyde, and take this document to the medical staff providing treatment. Be sure also to display your Weill Cornell Medicine employee ID card when visiting the medical provider.**

**Note:** This guidance document provides information that medical personnel can reference but does not give individualized medical care or treatment protocols.

## How to Seek Medical Assistance

- **For exposures Monday to Friday, 8:00 am – 4:00 pm:**
  - **WCM Upper East Side Employees:** Go to the Payson House basement Workforce Health and Safety (WHS) clinic at **1315 York Avenue** or call **212-746-4370**.
  - **Lower Manhattan Employees:** Go to the NewYork Presbyterian (NYP) Lower Manhattan G level WHS at **170 William Street, Rooms G73A and G73B** or call **212-312-5249**.
  - **Students:** Go to Student Health Services (SHS) at **230 E. 69<sup>th</sup> Street, Suite 2BB** (between 2<sup>nd</sup> and 3<sup>rd</sup> Avenue) or call **646-962-6942**.
- **For exposures after business hours:**
  - **WCM Upper East Side Employees and Students:** Go to the NYP Emergency Room at **525 East 68<sup>th</sup> Street** or call **212-472-2222**.
  - **Lower Manhattan Employees:** Go to the NYP Lower Manhattan Hospital Emergency Room at **170 William Street** or call **212-312-5070**.

**Give this sheet to the physician so they understand that you may have been exposed to Formaldehyde, and that this is a medical emergency.**

You can contact the NYP ER at 212-472-2222 or by dialing 2-2222 from any campus phone.

## Hazard Summary

Formaldehyde is a nearly colorless gas, typically found in solution and known as Formalin. It is often used as a preservative for biological tissues and can be found in autopsy or necropsy settings.

Formaldehyde has a characteristic irritating odor at very low concentrations, and its vapors are flammable and explosive. Formaldehyde is absorbed well by the lungs, gastrointestinal tract, and skin. Acute exposure to Formaldehyde can cause irritation in the eyes, nose, and upper respiratory tract. Ingestion of Formalin solution can cause severe injury to the gastrointestinal tract. It is classified as a probable human carcinogen. For information about exposure controls, please refer to the WCM Formaldehyde manual (<https://ehs.weill.cornell.edu/sites/default/files/4.4formaldehyde.pdf>).

## Signs and Symptoms of Exposure

- **Skin Exposure** – Skin contact with formaldehyde vapor or formalin solution can cause minor skin irritation and burns. Contact dermatitis can occur in sensitized individuals after exposure to very low levels.
- **Eye Contact** – Exposure to low concentrations of formaldehyde vapor can cause eye irritation, which typically subsides when the exposure is removed. Formalin splashed in the eyes can cause corneal ulceration or cloudiness of the eye surface, corneal cell death, perforation, and permanent vision loss, which can be delayed for upwards of 12 hours.
- **Inhalation** – Inhalations of low concentrations of formaldehyde can cause nose and throat irritation, cough, chest pain, shortness of breath, and wheezing. Inhalations of high concentrations of formaldehyde vapors can cause inflammation of the lower respiratory tract, throat swelling, inflammation of the windpipe and bronchi, narrowing of the bronchi, lung inflammation, and fluid accumulation in the lungs. Sensitized individuals can develop bronchi narrowing at very low concentrations.
- **Ingestion** – Ingestion can cause severe corrosive injury to the gastrointestinal tract. Nausea, vomiting, diarrhea, abdominal pain, stomach inflammation, ulceration, and perforation of gastrointestinal tissue may occur. Formaldehyde and methanol stabilizers found within formalin solution are easily absorbed and can cause systemic toxicity.



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TEL 646-962-7233 WEB [weill.cornell.edu/ehs](http://weill.cornell.edu/ehs) EMAIL [ehs@med.cornell.edu](mailto:ehs@med.cornell.edu)

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## Post-Exposure Medical Evaluation & Treatment

### 1. DETERMINE THE NATURE OF THE EXPOSURE

- Verify the specific chemical involved, the route of exposure, and its concentration.
- Determine the form that the chemical was in when the exposure occurred, whether it was in solution or gaseous vapor form. This will likely affect symptoms.

### 2. VERIFY THAT FIRST AID WAS PERFORMED

- Remove all contaminated clothing immediately.
- Ensure skin was thoroughly washed with copious amounts of soap and water for at least 5 minutes, and that mucous membranes or eyes were washed with copious amounts of saline or plain water for at least 15 minutes.
- Do not squeeze the area of injury or use chemicals like bleach, as they are not known to be beneficial, may break down the skin's barrier function, and may react with residual chemical.

### 3. IMMEDIATE MEDICAL CARE

- Evaluate and support airway, breathing, and circulation (ABC's).
- If the victim is respiratory compromised, conduct endotracheal intubation. If not possible, perform cricothyroidotomy if equipped and trained to do so.
- Administer supplemental oxygen by mask to patients who have respiratory symptoms. Treat patients who have bronchospasm with aerosolized bronchodilators.
- Treat acidosis with intravenous sodium bicarbonate, with an adult dose of 1 ampule. Conduct arterial blood gas measurements and conduct further bicarbonate therapy accordingly. Consider hemodialysis in patients with severe acid-base disturbances.
- Treat chemical burns the same as you would thermal burns.
- Examine eyes for corneal damage and treat appropriately. Consult an ophthalmologist immediately for patients with corneal injuries.
- Do not induce vomiting.** Immediately dilute with four to eight ounces of water or milk.
- Consider gastric lavage if it can be administered within one hour of ingestion. Following lavage, administer activated charcoal at 1 g/kg, with an adult dose usually adding up to 60-90 grams. Be careful to not further injure the esophagus or stomach during gastric lavage.

### 4. TESTING AND FOLLOW-UP

- Monitor for complete blood count, glucose, and electrolytes following a significant exposure.
- Observe patients who have inhalation exposure and experience chest pain, tightness, or cough for 6-12 hours to detect delayed onset-onset bronchitis.
- Admit patients who have experienced a substantial ingestion to an intensive care unit for observation.
- Follow patients with seizures, convulsions, headache, or confusion for permanent central nervous system damage.

## Next Steps for Exposed Individual

- If evaluated at the ER, follow up with your respective campus provider** (WHS or Student Health) the following business day and complete an accident report there. Continue follow-up as directed by WHS.
- Notify your supervisor of the incident.**
- EHS will likely contact you for follow-up investigation in order to prevent similar incidents from occurring in the future. Feel free to share any information with them in order to help keep the campus safe.

## Contact Information

- EHS: 646-962-7233, [ehs@med.cornell.edu](mailto:ehs@med.cornell.edu)
- Security: 212-746-0911
- Workforce Health and Safety: 212-746-4370 (NYP Weill Cornell), 212-312-5249 (NYP Lower Manhattan)
- Student Health Services: 646-962-6942

## References

- "Medical Management for Formaldehyde." ATSDR, CDC. <https://www.cdc.gov/TSP/MMG/MMGDetails.aspx?mmgid=216&toxid=39>.
- "Formaldehyde post-exposure guidance." Columbia University Environmental Health and Safety. <https://research.columbia.edu/sites/default/files/content/EHS/Homepage/FormaldehydePrintAndGo.pdf>.