



# Environmental Health & Safety

UNIVERSITY OF COLORADO **BOULDER**

## Post Exposure Plan for *Salmonella Typhimurium*

### Background Information:

*Salmonella Typhimurium* is a bacterial subspecies of *Salmonella enterica*. *S. Typhimurium* is the most common cause of a non-typhoidal salmonellosis, which usually presents as a self-limiting gastroenteritis.

The primary reservoir hosts of *S. Typhimurium* include a number of domestic and wild animals including birds, mammals, and reptiles.

The most common mode of transmission is by the ingestion of contaminated food and water. Laboratory-acquired infections are presumed to occur via the oral route, possibly via eating with hands contaminated with laboratory cultures.

Salmonellosis is a reportable illness. The State of Colorado requires reporting from both physicians and laboratories all instances of infection with *Salmonella* species.

### Primary hazards in the laboratory :

Ingestion, exposure to contaminated sharps, creation of splashes or aerosols, contact with naturally or experimentally infected animals, their feces or used bedding.

### Exposure controls and personal protection:

*S. Typhimurium* is a Risk Group 2 organism. BSL-2 practices, containment equipment, and facilities are required when working with materials known or suspected of containing this agent.

Personal protective equipment such as lab coats and gloves must be worn when handling infected or potentially infected materials. Eye protection must be used when there is a known or potential risk of generating splashed or aerosols.

Procedures that may generate aerosols or splashes should be conducted in a certified biosafety cabinet.

Personnel should wash their hands frequently while working in and before leaving the laboratory. Personal items including water bottles, cell phones, car keys, etc., should be stored in such a way as to avoid contamination and should be accessed only when the laboratory exercise is completed, lab coats and gloves are removed, and hands are washed.



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The Principal Investigator (PI), or their designee, must ensure that all personnel are adequately trained in safe laboratory practices, universal precautions, and proper surface and equipment disinfection before initiating any work with this agent. The PI must also ensure that all personnel are aware of the signs and symptoms of a potential infection with *S. Typhimurium*. Lab personnel with immunosuppressive conditions (including diabetes), who take immunosuppressive medications, who have had gastric surgeries, or who take medications to reduce their gastric acidity may be particularly at risk for severe gastroenteritis symptoms if infected with *S. Typhimurium*. Even non-compromised individuals may develop severe aspiration pneumonias if *Salmonella* bacteria are actually inhaled.

## At risk populations:

Persons with impaired immune systems, the elderly and infants are at highest risk. Others who are also at increased risk include people who have had gastric surgeries or who take medications to reduce their gastric acidity. Diarrhea and dehydration may be so severe that it is necessary to go to the hospital.

## Immediate Action by Route of Exposure:

**Needlestick, Animal Bite, Laceration:** Wash area thoroughly with soap and running water. Do not apply disinfectant to the skin.

**Mucous membranes (Eyes, nose, mouth):** Flush the eyes for 10-15 minutes if eyes have been exposed to splash or spray containing bacteria. Rinse out mouth without swallowing after any exposure.

**Inhalation:** If contaminated materials are aerosolized and potentially inhaled, rinse mouth twice and spit. Do not swallow.

## After First Aid:

Suspected infections related to research exposures must be reported to the University of Colorado, Boulder's Biosafety Officer at 303-492-2817. Please see below for complete instructions related to suspected research exposure. Treating medical providers should also be informed of the possibility of Salmonellosis, or aspiration pneumonia in the case of inhalation exposures. The incubation period for this disease ranges from 6 to 72 hours. Symptomatic individuals are recommended to be tested for Salmonellosis and if rapid test results are positive, are advised to have their samples cultures and further analyzed in order to compare with the laboratory strain of *Salmonella Typhimurium* used. Symptomatic individuals should be advised that antibiotic treatment for gastroenteritis may prolong asymptomatic carriage and, depending upon the advice of the treating health care provider, may not be advised.

## Post-exposure Prophylaxis:



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There is currently no post exposure, pre-symptom prophylaxis for salmonellosis. Your health care provider can recommend appropriate treatment.

## Symptoms of infection in adults:

- Fever
- Diarrhea
- Abdominal cramping

Less often:

- Vomiting
- Headache, due to dehydration
- Sepsis

Rare:

- Inhalation or aspiration pneumonias

The illness usually lasts 4-7 days and most people recover with treatment. Usually healthy individuals with mild to moderate gastroenteritis symptoms are not generally recommended to be treated with antibiotics, as the illness is typically self-limiting. The main risks of antibiotic treatment is the potential for prolonging asymptomatic carriage.

## After First Aid – Treatment and Reporting:

**University of Colorado Boulder: Procedures for Work-Related Injuries or Illness, Including Animal Bites, Severe Allergic Symptoms, and Sharps Exposures.**

It is the policy of the University of Colorado at Boulder (UCB) that all incidents that result in an injury or severe illness to faculty, staff or students be appropriately documented and reported. If a work-related incident, accident, injury or illness occurs:

### a) Medical Treatment

- a. **In case of life or limb-threatening emergency call 911** or go immediately to the nearest emergent or urgent care facility. Immediately administer appropriate first aid, including thoroughly washing any wounds or exposed areas with soap and water, if at all possible.
- b. **If you are an employee of the University and you need non-emergency care** for a work-related illness or injury that has occurred during regular weekday working hours, you must be treated at one of the UCB Designated Medical Providers (DMPs: shown below).  
**Boulder Community Hospital Emergency Department has the ability to rapidly test for work-related infectious disease or potential biological exposures; all other DMPs may not have this rapid capability.** Testing can be done on the exposed personnel; it may be difficult to test any source patient or sample at the DMP.



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- c. **After hours or while traveling**, go to the nearest urgent or emergent care facility.
- d. **Sharps injuries** that include exposure to human blood, body fluids, tissues, tissue culture cells are considered to be injuries with a potential for transmitting bloodborne pathogens. Prompt evaluation and treatment is necessary for these injuries. (go to Boulder Community Hospital Emergency Department)

## b) Reporting

- a. Report the work-related injury or illness to your supervisor immediately. You or your supervisor should notify the Biosafety Officer at 303-492-2817 or at [Cher.Masini@colorado.edu](mailto:Cher.Masini@colorado.edu) . (The BSO may confer with IACUC administrator, veterinarian, or Occupational Health RN.)
- b. You must file a worker's compensation injury report form **within 4 days of the work-related injury** / exposure or illness onset. Report the incident on the URM website and use the on-line reporting form.
- c. Sharps injuries must be reported on the URM's needle stick exposure report form.
- d. All injury reporting forms can be found at the URM's website at <https://www.cu.edu/risk/file-claim>

## c) Eligibility (who is eligible to be seen by UCB Designated Medical Providers?)

- a. All UCB employees, paid UCB staff, graduate students receiving a traineeship or stipend administered by UCB, undergraduate work-study students and paid undergraduate student assistants are eligible to be seen by UCB DMPs. If you are an UCB employee and you visit your regular primary care provider for a work-related injury and your visit is coded as a work-related injury, your primary insurance may not cover the cost of your visit or treatment with your primary care provider.

***Some individuals are not covered by UCB Worker's Compensation:*** All visiting or resident scholars who do not receive payment via UCB (e.g., Howard Hughes Medical Institute Fellows) must follow the work-related exposure / illness or injury protocol outlined by their parent institution or outside funding source. Contract or consulting employees are also not covered by UCB Worker's Compensation; they need to follow the work-related exposure / illness or injury protocols established by their parent institution or consult with their personal health care provider. Volunteers, contract employees and students not paid by UCB are **not** covered by UCB Worker's Compensation and should be seen by their personal health care provider. If you are a student with a Wardenburg Health care plan, post-exposure lab tests are available and covered.

## d) Payment and questions:

- a. All bills from medical providers must be sent to University Risk Management:  
University Risk Management ( <https://www.cu.edu/risk/file-claim> )  
1800 Grant Street, Ste 700  
Denver, CO 80203  
Fax: 303-860-5680



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b. For further questions, contact URM at: 303-860-5682 or 888-812-9601

## **UCB Designated Medical Providers**

This list changes frequently. For a current listing of DMPs, please refer to the University of Colorado's Risk Management website at: <https://www.cu.edu/risk/dmp>