

Aerosol Transmissible Disease (ATD) Program

Responsible Administrator: Biosafety Officer
Revised: January 2024

Summary: This section outlines the policy and procedures related to the Aerosol Transmissible Disease (ATD) Program that is administered through the Environmental Health and Safety (EHS) Department.

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1. Program Description

The Aerosol Transmissible Diseases (ATD) Program was developed in order to comply with the Aerosol Transmissible Diseases Standard as well as help provide a safe and healthy work environment at the University. It requires laboratories to adopt standard biosafety practices to protect laboratory workers when handling materials containing pathogens that could be spread through aerosols potentially leading to serious disease.

2. Scope

This policy applies to all UC IRVINE faculty, staff, hosted visitors, students, participating guests, and volunteers working at Irvine Campus locations where UC IRVINE EHS has management and control of specific biohazards. UC IRVINE School of Medicine (SOM) research locations are covered by this policy. SOM and UCIMC clinical locations are under UCIMC EHS requirements.

The following job classifications may have occupational exposure to ATD at the University of California, Irvine:

- A. Principal investigators and personnel with laboratory operations involving any of the agents specified in the ATD Standard.
- B. Physicians, nurses, or other licensed health care professionals working at the University Student Health Services Center involved in diagnosis, triage, direct patient care and treatment.
- C. University Police Officers.
- D. Facilities Management Custodial employees.
- E. Facilities Management building service engineers.
- F. UC IRVINE staff who provide emergency medical services, first receiver operations, work in jails, skilled nursing facilities, or homeless encampments.

3. Definitions

Aerosol transmissible disease (ATD) or aerosol transmissible pathogen (ATP): A disease or pathogen for which droplet or airborne precautions are required, as listed in the standard.

Aerosol transmissible pathogen -- laboratory (ATP-L): A pathogen that meets one of the following criteria: (1) the pathogen appears on the list in the standard, (2) the Biosafety in Microbiological and Biomedical Laboratories (BMBL) recommends biosafety level 3 or above for the pathogen, (3) the biological safety officer recommends biosafety level 3 or above for the pathogen, or (4) the pathogen is a novel or unknown pathogen.

Airborne infectious disease (AirID): Either: (1) an aerosol transmissible disease transmitted through dissemination of airborne droplet nuclei, small particle aerosols, or dust particles containing the disease agent for which All is recommended by the CDC or CDPH, as listed in the standard, or (2) the disease process caused by a novel or unknown pathogen for which there is no evidence to rule out with reasonable certainty the possibility that the pathogen is transmissible through dissemination of airborne droplet nuclei, small particle aerosols, or dust particles containing the novel or unknown pathogen.

Airborne infectious pathogen (AirIP): Either: (1) an aerosol transmissible pathogen transmitted through dissemination of airborne droplet nuclei, small particle aerosols, or dust particles containing the infectious agent, and for which the CDC or CDPH recommends All, as listed in the standard, or (2) a novel or unknown pathogen for which there is no evidence to rule out with reasonable certainty the possibility that it is transmissible through dissemination of airborne droplet nuclei, small particle aerosols, or dust particles containing the novel or unknown pathogen.

Biological safety officer(s): A person who is qualified by training and/or experience to evaluate hazards associated with laboratory procedures involving ATPs-L, who is knowledgeable about the facility Exposure Control Plan, and who is authorized by the employer to establish and implement effective control measures for laboratory biological hazards.

Biosafety level 3: Compliance with the criteria for laboratory practices, safety equipment, and facility design and construction recommended by the CDC in Biosafety in Microbiological and Biomedical Laboratories for laboratories in which work is done with indigenous or exotic agents with a potential for aerosol transmission and which may cause serious or potentially lethal infection.

Biosafety in Microbiological and Biomedical Laboratories (BMBL): Biosafety in Microbiological and Biomedical Laboratories, Fifth Edition, CDC, and National Institutes for Health, 2007, which is hereby incorporated by reference for the purpose of establishing biosafety requirements in laboratories.

Exposure Control Plan: A plan to protect employees from aerosol transmissible pathogens by reducing occupational exposure and providing appropriate treatment and counseling for employees potentially exposed to these pathogens.

Exposure incident: An event in which all of the following have occurred: (1) An employee has been exposed to an individual who is a case or suspected case of a reportable ATD, or to a work area or to equipment that is reasonably expected to contain ATPs associated with a reportable ATD; and (2) The exposure occurred without the benefit of applicable exposure controls required by this section, and (3) It reasonably appears from the circumstances of the exposure that transmission of disease is sufficiently likely to require medical evaluation.

Exposure incident (laboratory): A significant exposure to an aerosol containing an ATP- L, without the benefit of applicable exposure control measures required by this section.

Health care provider: A physician and surgeon, a veterinarian, a podiatrist, a nurse practitioner, a physician assistant, a registered nurse, a nurse midwife, a school nurse, an infection control practitioner, a medical examiner, a coroner, or a dentist.

Health care worker: A person who works in a health care facility, service, or operation, or who has occupational exposure in a public health service.

High hazard procedures: Procedures performed on a person who is a case or suspected case of an aerosol transmissible disease or on a specimen suspected of containing an ATP-L, in which the potential for being exposed to aerosol transmissible pathogens is increased due to the reasonably anticipated generation of aerosolized pathogens. Such procedures include, but are not limited to, sputum induction, bronchoscopy, aerosolized administration of pentamidine or other medications, and pulmonary function testing. High Hazard Procedures also include, but are not limited to, autopsy, clinical, surgical and laboratory procedures that may aerosolize pathogens.

Laboratory: A facility or operation in a facility where the manipulation of specimens or microorganisms is performed for the purpose of diagnosing disease or identifying disease agents, conducting research or experimentation on microorganisms, replicating microorganisms for distribution or related support activities for these processes.

Latent TB infection (LTBI): Infection with *M. tuberculosis* in which bacteria are present in the body but are inactive. Persons who have LTBI but who do not have TB disease are asymptomatic, do not feel sick and cannot spread TB to other persons. They typically react positively to TB tests.

Local health officer: The health officer for the local jurisdiction responsible for receiving and/or sending reports of communicable diseases, as defined in Title 17, CCR.

Note: Title 17, Section 2500 requires that reports be made to the local health officer for the jurisdiction where the patient resides.

M. tuberculosis: *Mycobacterium tuberculosis* complex, which includes *M. tuberculosis*, *M. bovis*, *M. africanum*, and *M. microti*. *M. tuberculosis* is the scientific name of the group of bacteria that cause tuberculosis.

Novel or unknown ATP: A pathogen capable of causing serious human disease meeting the following criteria:

- (1) There is credible evidence that the pathogen is transmissible to humans by aerosols; and
- (2) The disease agent is:
 - (a) A newly recognized pathogen, or
 - (b) A newly recognized variant of a known pathogen and there is reason to believe that the variant differs significantly from the known pathogen in virulence or transmissibility, or
 - (c) A recognized pathogen that has been recently introduced into the human population, or
 - (d) A not yet identified pathogen.

Note: Variants of the human influenza virus that typically occur from season to season are not considered novel or unknown ATPs if they do not differ significantly in virulence or transmissibility from existing seasonal variants. Pandemic influenza strains that have not been fully characterized are novel pathogens.

Occupational exposure: Exposure from work activity or working conditions that is reasonably anticipated to create an elevated risk of contracting any disease caused by ATPs or ATPs-L if protective measures are not in place. In this context, "elevated" means higher than what is considered ordinary for employees having direct contact with the general public outside of the facilities, service categories and operations listed in the standard. Whether a particular employee has

occupational exposure depends on the tasks, activities, and environment of the employee, and therefore, some employees of a covered employer may have no occupational exposure. For example, occupational exposure typically does not exist where a hospital employee works only in an office environment separated from patient care facilities or works only in other areas separate from those where the risk of ATD transmission, whether from patients or contaminated items, would be elevated without protective measures. It is the task of employers to identify those employees who have occupational exposure so that appropriate protective measures can be implemented to protect them as required. Employee activities that involve having contact with or being within exposure range of cases or suspected cases of ATD, are always considered to cause occupational exposure.

Employees working in laboratory areas in which ATPs-L are handled or reasonably anticipated to be present are also considered to have occupational exposure.

Physician or other licensed health care professional (PLHCP): Means an individual whose legally permitted scope or practice (i.e., license, registration, or certification) allows him or her to independently provide, or be delegated the responsibility to provide, some or all the health care services required by this section.

Referring employer: Any employer that operates a facility, service, or operation in which there is occupational exposure and which refers AirID cases and suspected cases to other facilities. Referring facilities, services and operations do not provide diagnosis, treatment, transport, housing, isolation, or management to persons requiring All. General acute care hospitals are not referring employers. Law enforcement, corrections, public health, and other operations that provide only non-medical transport for referred cases are considered referring employers if they do not provide diagnosis, treatment, housing, isolation, or management of referred cases.

Reportable aerosol transmissible disease (RATD): A disease or condition which a health care provider is required to report to the local health officer, in accordance with Title 17 CCR, Division 1, Chapter 4, and which meets the definition of an aerosol transmissible disease (ATD).

Respirator: A device which has met the requirements of 42 CFR Part 84, has been designed to protect the wearer from inhalation of harmful atmospheres, and has been approved by NIOSH for the purpose for which it is used.

Source control measures: The use of procedures, engineering controls, and other devices or materials to minimize the spread of airborne particles and droplets from an individual who has or exhibits signs or symptoms of having an ATD, such as persistent coughing. Susceptible person: A person who is at risk of acquiring an infection due to a lack of immunity as determined by a PLHCP in accordance with applicable public health guidelines.

Suspected case: Either of the following:

- (1) A person whom a health care provider believes, after weighing signs, symptoms, and/or laboratory evidence, to probably have a particular disease or condition listed in the standard.
- (2) A person who is considered a probable case, or an epidemiologically linked case, or who has supportive laboratory findings under the most recent communicable disease surveillance case definition established by CDC and published in the Morbidity and Mortality Weekly Report (MMWR) or its supplements as applied to a particular disease or condition listed in the standard.

TB conversion: A change from negative to positive as indicated by TB test results, based upon current CDC or CDPH guidelines for interpretation of the TB test

Test for tuberculosis infection (TB test): Any test, including the tuberculin skin test and blood assays for M. Tuberculosis (BAMT) such as interferon gamma release assays (IGRAs) which: (1) has been approved by the Food and Drug Administration for the purposes of detecting tuberculosis infection, and (2) is recommended by the CDC for testing for TB infection in the environment in which it is used, and (3) is administered, performed, analyzed and evaluated in accordance with those approvals and guidelines.

Note: Where surveillance for LTBI is required by Title 22, CCR, the TB test must be approved for this use by the CDPH.

Tuberculosis (TB): A disease caused by M. tuberculosis.

4. Responsibilities

The Institution

All University of California, Irvine employees have the right to a safe and healthful workplace. With the assistance of Environmental Health and Safety (EHS), the institution ensures that UC IRVINE complies with applicable health, safety and environmental laws, regulations, and requirements; and, that activities are conducted in a manner that protects students, faculty, staff, visitors, the public, property, and the environment. Achieving these goals is the responsibility of everyone at UC IRVINE and supervisors have responsibility for individuals reporting to them.

Environmental Health and Safety

- (1) Performs a risk assessment in accordance with the methodology included in Section II of the BMBL for each agent and procedure involving the handling of ATPs-L.
- (2) Conducts annual inspections of laboratories where ATPs-L are present to ensure compliance with established procedures.
- (3) Investigate laboratory accidents and report problems, violations, and injuries or illnesses as required.
- (4) Provides oversight and assurance that laboratory safety containment equipment is functioning properly.
- (5) Provides industrial hygiene and safety support for all laboratory operations.
- (6) Transports and disposes of all infectious waste in compliance with all applicable federal, state, and local ordinances.
- (7) Assists, as necessary, in the emergency response, cleanup, and decontamination of biological spills and accidents.
- (8) Provide all employees with occupational exposure a training program with material that is appropriate in content and vocabulary to the educational level, literacy, and language of the employee.

Maintain records of training, vaccination declination, exposure incidents, inspections, and respiratory protection program.

Principal Investigator (PI) or Non-Laboratory Supervisor

- (1) Complete and annually update the Exposure Control Plan based on the nature of the clinical, research or other activities being performed in their facilities. The plan will remain on file in a central location within the laboratory/workplace along with other relevant UC IRVINE safety documents for all personnel to access. Records of implementation of this plan must include the names of the person conducting the review, the dates the review was conducted and completed, the names and work areas of employees involved, and a summary of the conclusions. Records must be kept for three years.
- (2) Assure that these faculty, staff, and students are referred to <http://www.ehs.UC Irvine.edu/> to register for Aerosol Transmissible Diseases training through the UC learning center <http://www.uclc.UC Irvine.edu/> at the time of initial assignment where occupational exposure may take place and annually thereafter in addition to lab specific training.
- (3) Ensure adequate supplies of personal protective equipment and other necessary equipment to minimize exposure to ATPs during normal operations and emergency situations.
- (4) All eligible faculty, staff, or students will be offered medical services, including vaccinations for ATPs and/or ATPs-L as recommended by the Biosafety Officer and Occupational Health Physician on a case-by-case basis depending on the agents used and availability of the vaccines at no cost to the employee. If the employee declines to accept the vaccination, he/she will complete and sign the "Vaccination Declination Statement" at the end of the UC IRVINE Exposure Control Plan. This signed statement will be kept in the PI/Supervisor departmental files and EHS files.
- (5) The employee may choose to accept the applicable ATP/ATP-L vaccine offer(s) at any time. The vaccination must be offered to the employee at no cost.
- (6) If the vaccine is unavailable, supervisors (or their designate) must document efforts made to obtain vaccine and inform employees of vaccine availability status. Vaccine availability must be checked at least every 60 calendar days and employees will be notified when the vaccine is available. Records must be maintained for three years.

If an exposure to ATPs-L occurs, the PI/Non Laboratory Supervisor will immediately report the incident to Workers Compensation (www.hr.uci.edu, link Workers Compensation), review the exposure incident with EHS to determine and document which employees had significant exposures, names and employee identifiers for such individuals and, if applicable, the basis for determination that an employee did not have a significant exposure or because a PLHCP determined that the employee is immune. The PI/Non-Laboratory Supervisor will notify all employees who had significant exposures of the date, time, and nature of the incident within 96 hours of becoming aware of the potential exposure (or sooner if the disease has time restraints for administration of vaccine or prophylaxis, like varicella or meningococcal disease). Employees will be provided post-exposure medical evaluation at no cost to the employee as soon as feasible.

5. Program Components

The ATD standard requires employers to have feasible engineering and work practice controls in place to minimize employee exposure to aerosols. Employers must also provide personal protective equipment and respirators to control exposures to ATPs and/or ATPs-L. In addition, the employer is required to develop, implement, and annually review, a written Exposure Control Plan (ECP). EHS has developed an Exposure Control Plan Template to help employers and employees create an effective exposure control plan in accordance with California code of Regulations, Title 8, Section 5199. This plan must include the following:

- Identification of qualified individuals who will be responsible for implementing the ECP.
- A list of job classifications, tasks and procedures in which employees may be exposed to ATPs and/or ATPs-L.
- A list of the ATPs and/or ATPs-L that are known or reasonably anticipated to be present in the workplace.
- A stated requirement that all incoming materials containing ATPs-L are treated as containing the virulent or wild-type pathogens until there is laboratory verification that the pathogen has been deactivated or attenuated.
- Engineering controls to minimize exposure, including equipment such as biosafety cabinets.
- Safe handling procedures and a list of prohibited practices, such as sniffing in vitro cultures, which may increase employee exposure to infectious agents.
- Effective decontamination and disinfection procedures for surfaces and equipment.
- Description of personal protective equipment (PPE), including respirators.
- Identification of operations or conditions that require the use of respiratory protection.
- Emergency procedures for uncontrolled releases within the facility and untreated releases outside of the facility.
- A Medical surveillance program that includes CDC or California Department of Public Health vaccination recommendations, annual tests for latent TB infection (if applicable), and medical follow-up for employees with exposure to an ATP and/or ATP-L.
- Procedures for communication of hazards and initial and annual employee training showing active involvement.
- Procedures for annual inspections of laboratory facilities.

In addition, the ATD Standard also requires employers to keep records of training, medical services (including the unavailability of vaccines and respiratory protection), exposure incidents, inspections, and evaluation of engineering controls and other control measures.

ATD Training

All employees with occupational exposure to ATPs and/or ATPs-L must participate in a training program. All personnel must be informed of the hazards associated with the work performed and proper safety precautions. ATD training is required at the time of initial assignment to tasks where occupational exposure may occur and annually thereafter. In addition, training is required when changes occur, such as the introduction of new engineering or work practice controls or modification of tasks and procedures.

Medical Services

A. Respiratory Protection

The PI or Non-Laboratory Supervisor shall provide all employees with occupational exposure to ATPs and/or ATPs-L with a respirator that is at least as effective as an N95 filtering facepiece respirator; unless an evaluation of respiratory hazards determines that a more protective respirator is necessary. The following employees are required to participate in the university Respiratory Protection Program and receive medical evaluation in accordance with California code of Regulations, Title 8, Section 5144 prior to fit testing:

- Employees that enter an airborne infection isolation (AII) room or area in use for AII.

- Employees present during procedures or services for an AirID case or suspected case.
- Employees performing repairs, replacements, or maintenance on air systems or equipment that may contain or generate aerosolized pathogens.
- Employees working in an area where an AirID case or suspected case is present, or during decontamination after the person has left the area.
- Employees performing tasks which require use of respirators as indicated in the Exposure Control Plan.
- Employees transporting an AirID case or suspected case within the facility or in an enclosed vehicle when the patient is not masked.

B. Prevention and surveillance

Employees with occupational exposure will be provided with medical services for tuberculosis and other ATDs, and infection with ATPs and/or ATPs-L at no cost to the employee. All medical services will be kept confidential.

Vaccination

Principal Investigators or Non-Laboratory Supervisors are responsible for ensuring that all employees with potential occupational exposure to ATPs and/or ATPs-L are offered the applicable vaccinations (at no charge to them). Vaccinations shall be made available to all employees with occupational exposures unless the employee has already received the vaccine or it is determined the employee has immunity, or the vaccine is contraindicated for medical reasons. Supervisors (or their designate) must inform all new employees of the vaccination program within 10 working days of their employment start date. If an employee declines to be vaccinated, the Supervisor must ensure that the employee signs the Vaccination Declination Statement provided in the Exposure Control Plan Template and that a copy is on file in the department and EHS records. If the vaccine is unavailable, supervisors (or their designate) must document efforts made to obtain vaccine and inform employees of vaccine availability status. Vaccine availability must be checked at least every 60 calendar days and employees will be notified when the vaccine is available.

The University of California, Irvine encourages employees to be vaccinated. The employee may decline the vaccination. Accepting vaccination is not a condition of employment. This vaccine is available at no cost to the employee. If you decide not to be vaccinated but later change your mind, you may still receive the vaccination(s) at no cost.

Students should be referred to the UC IRVINE Student Health Services within the ten-day period. To obtain the vaccine(s), please contact the Occupational Health Coordinator by sending an e-mail to occhlth@uci.edu or by phone 949-824-3757 and request a referral.

For those who are affiliated through the University of California, Irvine Healthcare or the University of California, Irvine College of Health Sciences, or work at the Medical Center; contact the UCIMC Occupational Health office directly at (714) 456-8300, Pav III - Bldg 29 - Rt 33.

The following is a table for aerosol transmissible disease vaccination recommendations for susceptible health care workers from the Immunization Branch of the California Department of Public Health.

Vaccine	Schedule
Influenza	One dose annually
Measles	Two doses
Mumps	Two doses
Rubella	One dose
Tetanus, Diphtheria, and Acellular Pertussis (Tdap)	One dose, booster as recommended
Varicella-zoster (VZV)	Two doses
SARS-CoV-2	2 initial doses and boosters as recommended

TB Assessments and conversion follow-up/recording

Healthcare employees with occupational exposure will be offered assessment for latent tuberculosis infection (LTBI). Employees with TB positive baseline results are offered an annual symptom screen. If an employee experiences a TB conversion, they will be referred to a knowledgeable PLHCP for evaluation and treatment. If the employee is a TB case or suspected case, the supervisor will request the PLHCP do the following:

- Inform the employee and local health officer.
- Consult the local health officer regarding infection control recommendations.
- Provide a written recommendation for the employee to be removed from the workplace as a precaution until the employee is determined to be noninfectious (employee status will not be affected).

If an occupational TB conversion has occurred, the supervisor will work with EHS to investigate the circumstances of the conversion and correct any deficiencies found during the investigation.

C. Exposure Incidents/Post-Exposure

Any exposure (e.g., inhalation of ATPs or ATPs-L) resulting in direct, unprotected contact with ATPs or ATPs-L gives you the right to prompt medical evaluation and treatment with a qualified physician familiar with evaluations and treatment protocols as recommended by the Centers for Disease Control and Prevention. These services will be provided to you at no cost.

After any direct exposure to ATPs-L through a needlestick, immediately wash the affected area with soap and water and NOTIFY YOUR SUPERVISOR. For splashes with ATPs-L, remove contaminated clothing and dispose as biohazard waste, and rinse the affected area for 15 minutes. If necessary, seek medical attention. If ATP or ATPs-L inhalation has occurred, immediately seek medical attention.

If an exposure to ATP or ATPs-L occurs, the PI/Non Laboratory Supervisor will immediately report the incident to Workers Compensation (www.hr.uci.edu, link Workers Compensation), review the exposure incident with the Biosafety Division within EHS to determine and document which employees had significant exposures, names and employee identifiers for such individuals and, if applicable, the basis for determination that an employee did not have a significant exposure or because a PLHCP determined that the employee is immune. The PI/Non-Laboratory Supervisor will notify all employees who had significant exposures of the date, time, and nature of the incident within 96 hours of becoming aware of the potential exposure (or sooner if the disease has time restraints for administration of vaccine or prophylaxis, like varicella or meningococcal disease). Employees will be provided post-exposure medical evaluation at no cost to the employee as soon as feasible.

Questions? Contact the Occupational Health Coordinator at (949) 824-6200 or occhlth@uci.edu

For the latest update please go to: https://ehs.UC Irvine.edu/research-safety/occupational-health/_pdf/med-emergency-poster.pdf

Inspections and Evaluation of Controls within the Laboratory

The EHS will be kept informed of any renovations of a facility where ATPs-L are used to ensure construction and renovation are in accordance with Biosafety in Microbiological and Biomedical Laboratories (BMBL) 5th Edition and 8CCR Sec. 5199.

The PI/Non-Laboratory Supervisor is responsible for registering research involving materials that may contain airborne pathogens with the Institutional Biosafety Committee (IBC) prior to the start of research. Laboratory inspections will be conducted at least annually for laboratories working with ATPs-L. Laboratory inspection forms will be kept on file with EHS.

6. Reporting Requirements

In addition to laboratory and agent specific training received in the lab, training is provided to each employee with occupational exposure to ATPs or ATPs-L. All employees must complete all EHS required training identified by the Safety Training Self-Assessment at (www.uclci.uci.edu), UC Irvine's Training and Employee Development site. The Safety Training Self-Assessment identifies training based upon work activities and work environment. Depending on the work environment, employees will be directed towards ATD training for the laboratory or for the healthcare setting.

Training occurs:

- At the time of initial assignments to tasks that pose the employee to occupational exposure.
- At least annually after the initial training.
- When changes occur, such as the introduction of new engineering or work practice controls or modification of tasks and procedures.

Training records for EHS training courses can be found at (www.uclci.uci.edu).

7. References

- Cal/OSHA Aerosol Transmissible Diseases Regulation <http://www.dir.ca.gov/title8/5199.html>
- Cal/OSHA Aerosol Transmissible Diseases - Zoonotic Regulation <http://www.dir.ca.gov/title8/5199-1.html>
- Aerosol Transmissible Pathogens – Laboratory List <http://www.dir.ca.gov/title8/5199d.html>
- Cal/OSHA Respiratory Protection Program Regulation <http://www.dir.ca.gov/title8/5144.html>
- California's Local Health Officers <https://www.cdph.ca.gov/Programs/CCLHO/Pages/CCLHO-Health-Officer-Directory.aspx>
- CDC Biosafety in Microbiological and Biomedical Laboratories, 5th Edition <http://www.cdc.gov/biosafety/publications/bmb15/>
- Immunization Information from the California Department of Public Health <https://www.cdph.ca.gov/Programs/CID/DCDC/Pages/Immunization/providers.aspx>