Cal/OSHA's Aerosol Transmissible Disease Standards and Local Health Departments

Occupational Health Branch

California Department of Public Health

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Abbreviations Used in this Document

ABSL, Animal biosafety level
ACH, Air changes per hour
ACIP, Advisory Committee on Immunization Practices
AII, Airborne infection isolation
AIIR, Airborne infection isolation room
AirID, Airborne infectious disease
AirIP, Airborne infectious pathogen
ATD, Aerosol transmissible disease
ATP, Aerosol transmissible pathogen
ATP-L, Aerosol transmissible pathogen – laboratory
BMBL, Biosafety in Microbiological and Biomedical Laboratories
BSL, Biosafety level
Cal/OSHA, California Department of Industrial Relations, Division of Occupational Safety and Health
CCLHO, California Conference of Local Health Officers
CCR, California Code of Regulations
CDC, U.S. Centers for Disease Control and Prevention
CDFA, California Department of Food and Agriculture
CDFG, California Department of Fish and Game (now California Department of Fish and Wildlife)
CDPH, California Department of Public Health
CSF, Cerebrospinal fluid
CTCA, California Tuberculosis Controllers Association
LHD, Local health department
LHO, Local health officer
MERS, Middle East Respiratory Syndrome
MERS-CoV, Middle East Respiratory Syndrome – Coronavirus
NIOSH, National Institute for Occupational Safety and Health
OHB, Occupational Health Branch of CDPH
OTTSA, Order to Take Special Action
PAPR, Powered air-purifying respirator
PLHCP, Physician or other licensed health care professional
PPE, Personal protective equipment
RATD, Reportable aerosol transmissible disease
SARS, Severe Acute Respiratory Syndrome
TB, Tuberculosis
USDA, United States Department of Agriculture
USDOI, United States Department of the Interior

I. Introduction

In 2009, California adopted new regulations to protect employees against infectious diseases that are spread by aerosols, such as tuberculosis (TB), meningococcal meningitis, measles, varicella, and influenza. Two separate regulations were developed by the California Department of Industrial Relations, Division of Occupational Safety and Health (Cal/OSHA):

- Aerosol Transmissible Diseases[1] (ATD Standard), Title 8 California Code of Regulations (CCR) §5199, which protects employees in health care and other higher risk environments. This standard also has a subsection that addresses biological hazards in laboratories.
- Aerosol Transmissible Diseases – Zoonotic[2] (Zoonotic ATD Standard), 8 CCR §5199.1, which protects employees from diseases spread to humans by animals (zoonoses).

The regulations were a result of a series of 10 advisory meetings and dozens of informal consultations with experts in the field, prior to official rulemaking. Local health officers (LHOs) played a significant role in developing the standards, as did their organizations, the California Tuberculosis Controllers Association (CTCA) and the California Conference of Local Health Officers (CCLHO). The regulations were adopted by the California Occupational Safety and Health Standards Board, and became effective on August 5, 2009.

The purpose of this publication is to summarize key provisions of these standards that affect local health departments (LHDs). The emphasis will be on how the ATD standards address or reinforce the roles and responsibilities of LHOs in communicable disease prevention and control in the community, rather than the role of local agencies as employers who fall within the scope of these occupational standards. This document serves as guidance only; readers should refer to the actual regulatory language (see web links in footnote) and, if necessary, contact Cal/OSHA for any specific legal interpretations.

Section II defines ATDs. **Sections III** and **IV**, respectively, provide brief summaries of employer compliance requirements of the ATD Standard and Zoonotic ATD Standard. LHDs may also be employers of exposed employees. For example, some LHDs operate TB clinics, do contact tracing for ATD cases, or participate in outreach programs in high-risk environments, like homeless shelters, drug treatment programs, or correctional facilities.

[1] https://www.dir.ca.gov/title8/5199.html
[2] https://www.dir.ca.gov/title8/5199-1.html

LHDs thus may also have roles as employers who fall within the scope of these occupational standards. Some LHDs also serve as the employee health and safety resource for local government. As these sections are not comprehensive, LHDs should read the entire standards to understand all of the requirements.

Section V summarizes roles and authority of the LHO/LHD pertaining to ATDs and explains how the ATD Standards relate to existing regulations. LHDs and the California Department of Public Health (CDPH) have broad mandates and authority to control communicable diseases under the Health and Safety Code, and in Titles 15, 17, and 22 of the California Code of Regulations. Because reporting of aerosol transmitted communicable diseases to public health agencies is key to protecting employees, Cal/OSHA can now enforce certain reporting requirements. Similarly, the standards require employers to follow the direction of their LHD with regard to medical services for employees exposed to animal-borne diseases, or if the LHD directs that an employee be removed from contact with patients or otherwise quarantined due to exposure to a communicable disease. The ATD standards also provide some enforcement tools to LHDs, such as requirements that employers create, maintain, and make available to the LHD certain records. **Section V** also describes these tools.

Section VI contains information about working with Cal/OSHA. Cal/OSHA is the agency responsible for enforcing California's occupational safety and health standards/regulations, which must be at least as protective as those of federal OSHA. Currently there is no federal ATD standard, and no other state OSHA agency has a specific standard covering ATDs. In California, occupational safety and health standards are Title 8 regulations promulgated by the Occupational Safety and Health Standards Board. Cal/OSHA also has a Consultation Services Branch[3] which provides on-site consultation and assistance in occupational safety and health at the request of employers.

Section VII provides information about working with the CDPH Occupational Health Branch[4] (OHB). OHB is a non-regulatory program in CDPH that aims to reduce work-related injury and illness through surveillance, worksite investigations, public health recommendations, and outreach/education. OHB is mandated to provide technical assistance to Cal/OSHA, LHDs and other government agencies, employers, workers, and others.

[3] https://www.dir.ca.gov/dosh/consultation.html
[4] https://www.cdph.ca.gov/Programs/CCDPHP/DEODC/OHB/Pages/About-OHB.aspx

Section VIII contains links to the standards and to guidelines and other documents referenced in the standards.

This document was prepared by OHB of CDPH, at the request of CCLHO.

II. Aerosol Transmissible Disease Defined

An **aerosol** is a solid particle or liquid droplet suspended in air (or another gas), even temporarily. Examples include a droplet with influenza virus emitted through a cough or sneeze, or a dust particle with hantavirus aerosolized by sweeping debris soiled with infected deer mouse urine.

An **aerosol transmissible disease** (**ATD**) is a disease that can be transmitted by either 1) inhaling particles/droplets; or 2) direct contact between particles/droplets and mucous membranes in the respiratory tract or eyes.

Airborne droplets visible during sneezing (photo enhanced).

An **aerosol transmissible pathogen** (**ATP**), means a pathogen that, when present in an aerosol and with sufficient exposure, may result in **disease** transmission.

There are three categories of aerosol transmissible diseases and pathogens covered under the ATD standards: [5]

- Diseases and pathogens for which airborne infection isolation or droplet precautions are required (§5199 Appendix A[6]);

[5] The soil-borne fungus *Coccidiodes immitis* is transmitted to humans by aerosols, but is not transmitted between humans by aerosols. It is only covered as a ATD-L (laboratory pathogen), not as a disease requiring airborne isolation or droplet precautions.

[6] https://www.dir.ca.gov/title8/5199a.html Appendix A is based on existing public health guidance that empirically distinguishes between the two forms of aerosol transmission. For some diseases requiring droplet precautions, the risk of transmission from inhaling particles that are present in the room air and infectious in the short-term and at closer distances may not be well known. Newer public health guidance

    - Airborne infectious diseases (AirIDs) and airborne infectious pathogens (AirIPs) are diseases or pathogens for which public health guidelines recommend airborne infection isolation (AII) – a system of controls designed to protect people from inhalation of small infectious particles including small droplets and droplet nuclei. These particles may travel long distances, including through ventilation systems. This category includes diseases such as TB, measles, and varicella.
    - Droplet precautions are a system of controls recommended by public health guidelines for other ATDs. These precautions are intended to provide protection against droplets that may contain infectious agents and may spread disease through contact with the eyes or mucous membranes, including those of the upper respiratory tract. This category of diseases includes mumps, meningococcal meningitis, and pertussis.
- Laboratory pathogens capable of causing disease through laboratory generated aerosols, including those pathogens requiring handling at biosafety level (BSL) 3, and others listed in §5199 Appendix D;[7] and
- Zoonotic ATDs/ATPs (§5199.1), defined as diseases/disease agents that are transmissible from animals to humans by aerosol, and capable of causing human disease. Zoonotic ATPs include pathogens that are classified as transmissible either by droplets or by an airborne route.

Appendix A of the ATD Standard incorporates the disease classifications included in The Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings,[8] June 2007, Centers for Disease Control and Prevention (CDC). However, it adds the following pathogens/diseases: 1) novel or unknown pathogens,[9] such as Severe Acute Respiratory Syndrome (SARS) when it first emerged in 2003, which are to

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that calls for airborne precautions for specific diseases or pathogens, developed as the science on aerosol transmission continues to evolve, would be enforceable under the ATD Standard.

[7] https://www.dir.ca.gov/title8/5199d.html

[8] https://www.cdc.gov/hicpac/pdf/isolation/Isolation2007.pdf

[9] A "novel or unknown ATP" is 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.
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.

be treated as airborne, and 2) any other disease or pathogen for which either the CDPH or the LHO recommends airborne infection isolation or droplet precautions.

III. Overview of the ATD Standard

A. Scope (§5199 (a))

The ATD Standard applies to the following types of facilities, services, and operations:

- All health care operations, whether outpatient or inpatient, including medical transport and emergency medical services.
    - The ATD Standard does not apply to outpatient dental offices and outpatient medical specialty practices, such as most psychiatrists, that do not diagnose or treat ATDs. To meet these exceptions, these employers must a) screen patients for ATDs, b) train employees on the screening procedures, and c) not perform high hazard procedures on people who may have an ATD. These exceptions do not apply to medical specialty practices which provide treatment and care for patients with ATDs as part of their practice.
- Employers whose employees are designated to receive people from an off-site release of biological agents ("first receivers").
- Police services provided in conjunction with health care or public health operations, or during transport or detention of persons reasonably anticipated to be ATD cases or suspected cases.
- Public health services reasonably anticipated to be provided to ATD cases or suspected cases, such as contact tracing for TB or other ATDs, and public health services provided in conjunction with health care, or in health care facilities.
- Environments identified as being at increased risk for ATD transmission:
    - Correctional facilities and other facilities that house inmates or detainees.
    - Homeless shelters.
    - Drug treatment programs (certain programs that are licensed or certified).
- Coroners, pathology labs, medical examiners, mortuaries, and other facilities, services, or operations that perform aerosol-generating procedures on cadavers.
- Laboratories that perform procedures with materials that contain or are reasonably anticipated to contain aerosol transmissible pathogens – laboratory (ATPs-L) or zoonotic ATPs.
- Maintenance, renovation, service, or repair operations involving air handling systems or equipment or building areas that may reasonably be anticipated to be contaminated with ATPs or ATPs-L, including:
    - Areas in which AirID cases and suspected cases are treated or housed.
    - Air handling systems that serve airborne infection isolation rooms (AIIRs) or areas.

- Equipment such as laboratory hoods, biosafety cabinets, and ventilation systems that are used to contain infectious aerosols.

B. Categories of Employers Covered by the ATD Standard

Employers covered by the ATD Standard are further divided into three categories:

- **Referring employers** are employers such as primary care clinics, many skilled nursing facilities, and some jails that do not provide ongoing treatment, housing, or other services to patients who are cases or suspected cases of TB, measles, varicella or disseminated herpes zoster, or other airborne infectious diseases. These employers do not have facilities for AII, and are therefore required to refer those patients to hospitals, TB clinics, or other facilities equipped to contain these diseases. Referring employers must comply with subsection (c) of the ATD Standard and the recordkeeping requirements, as well as provide required medical services and training, and comply with respirator requirements unless they meet certain criteria.

- **Laboratories,** including clinical, public health, research, production, and academic laboratories, that handle materials that contain or are reasonably anticipated to contain ATPs-L. ATPs-L include the pathogens listed in §5199 Appendix D,[10] any pathogen for which Biosafety in Microbiological and Biomedical Laboratories[11] (BMBL) recommends biosafety level 3 or above, any pathogen for which the employer's biological safety officer recommends biosafety level 3 or above, and any "novel or unknown pathogen." Laboratory employers must comply with subsection (f) of the ATD Standard and the recordkeeping requirements, as well as providing medical services, training, and, as necessary, respirators.

- **Full-standard employers** is the term used in this publication to identify all other employers covered by the ATD Standard which may provide diagnosis, treatment, and other services to people requiring airborne infection isolation. These employers include general acute care hospitals, TB clinics, coroners, emergency medical services, first receiver operations, and some jails and skilled nursing facilities. These employers are required to have a full ATD Exposure Control Plan (Plan) (subsection (d)), implement engineering and work practice controls, personal protective equipment (subsection (e)), and respirators (subsection (f)),

[10] https://www.dir.ca.gov/title8/5199d.html
[11] https://www.cdc.gov/biosafety/publications/bmbl5/

provide medical services (subsection (h)) and training (subsection (i)), and maintain required records (subsection (j)).

C. Occupational Exposure

The ATD Standard applies to all employees who have occupational exposure, which is defined as:

> *"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 subsection (a)(1) of this standard."*
>
> The definition further states that occupational exposure is *"presumed to exist to some extent in each of the facilities, services, and operations listed in subsection (a)(1)(A) through (a)(1)(I)."* Therefore all employers within the scope of §5199 must perform an exposure assessment to determine which employees are covered by the standard.

D. Requirements Applicable to all Covered Employers

The ATD Standard contains specific requirements for each type of employer, which are briefly summarized in Sections E-G below. **The employer must provide all required safeguards, including personal protective equipment, respirators, training, and medical services, at no cost to the employee, at a reasonable time and place for the employee, and during the employee's working hours.**

All employers covered by the standard are required to:

- Have a knowledgeable person(s) who will administer the programs or procedures required by the standard;
- Have written procedures or plans;
- Have a system for screening patients for airborne infectious diseases (AirIDs) and referring patients requiring AII to an appropriate facility or area of the facility;
- Have a system of controls that will reduce employee exposures, appropriate for the type of operation, including a system for ensuring that patients requiring AII are referred or transferred to an appropriate facility or area of the facility;
- Provide personal protective equipment (PPE) and, where necessary, respiratory protection (for more information on respiratory protection see Section III.G.3 below);

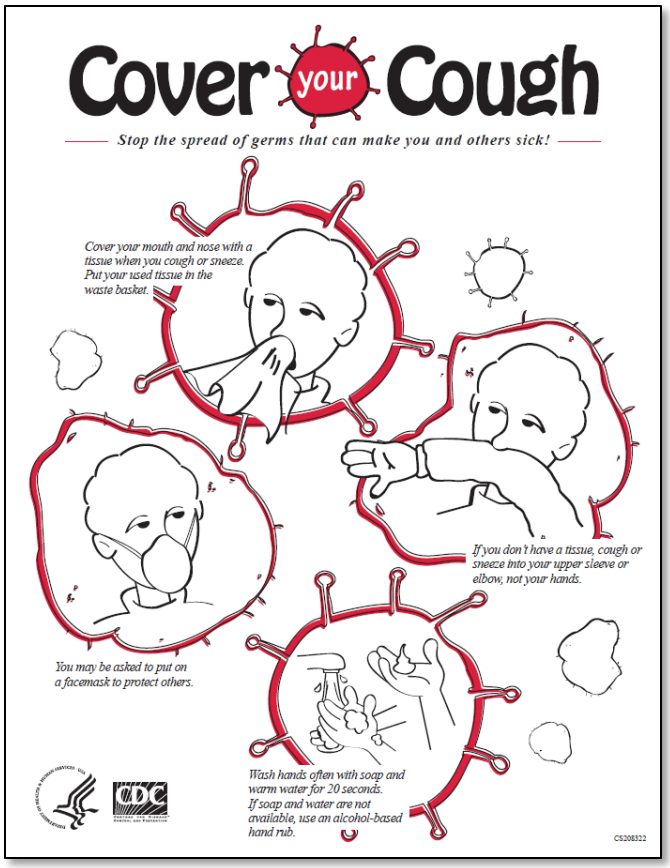
- Provide medical services, including vaccinations, TB surveillance, and investigation and follow-up for exposure incidents;
- Provide employee training;
- Have a system for periodically reviewing their procedures with the involvement of employees; and
- Create and maintain certain records, and make records available to employees and their designated representatives, and to the LHD and Cal/OSHA, while maintaining legal requirements for medical confidentiality.

E. Specific Requirements for Referring Employers

Referring employers do not provide diagnosis, treatment, or housing to patients with known or suspected airborne infectious diseases (AirIDs). These employers must have and utilize effective procedures to screen patients for AirIDs and refer or transfer them to appropriate facilities for care. Most primary care offices or clinics and long-term care facilities, homeless shelters, and many correctional and detention facilities that transfer AirID patients to other facilities are referring employers. Referring employers do not have to meet certain requirements in the Standard, such as providing AIIRs.

Referring employers are required to designate an ATD administrator who will be responsible for the establishment, implementation, and maintenance of written infection control procedures. The administrator, or someone authorized to act on the administrator's behalf, must be on-site at all times when employees are present. The employer must establish, implement, and maintain written procedures for:

- Source control such as posting information about cough etiquette, offering face masks and promptly rooming or isolating coughing patients. "Cover your cough" posters (see graphic at right) and pamphlets are available in several languages for



Signage can help reduce spread of germs from patients.
Credit: Centers for Disease Control and Prevention

download at the CDC website.[12]

- Screening and referral of cases and suspected cases of AirIDs. Unless the exceptions described in the ATD Standard are met, transfers must occur within 5 hours of the identification of the case or suspected case. Employers must provide criteria and procedures for referral when screening is performed by persons who are not health care providers. Appendix F[13] of the ATD Standard contains sample screening criteria for use by non-medical employees.
- Communicating with employees, other employers, and the LHD regarding the suspected or confirmed RATD status of referred patients.
- Reducing the risk of transmission of ATDs while a person requiring referral is in the facility or is in contact with employees, such as placing the patient in a separate room or area and, if necessary, employee use of respiratory protection for entering an area in which a person awaiting referral is not using source control measures (for more information on respiratory protection see Section III.4.C).
- Providing required medical services.

Referring employers also must provide employees with initial and annual training, and must review their procedures at least annually, and include employees in that review.

F. Specific Requirements for Laboratory Employers

Laboratory worker wearing a powered air-purifying respirator while working in a biosafety cabinet.

The ATD Standard covers laboratories that perform procedures that are capable of generating aerosols containing "aerosol transmissible pathogens - laboratory (ATPs-L)," or zoonotic ATPs as defined in §5199.1. Covered laboratories include clinical, public health, research, production, and academic laboratories. Many hospitals have laboratories that are within the scope of this subsection, for example if they culture samples from suspected or confirmed TB patients. If laboratory employees have contact with suspected or confirmed ATD patients, then they must also be covered by an ATD Exposure Control Plan.

Laboratories are required to identify a qualified biosafety officer(s) who must perform a risk

[12] https://www.cdc.gov/flu/protect/covercough.htm
[13] https://www.dir.ca.gov/title8/5199f.html

assessment for each agent and procedure that may expose employees to ATPs-L during laboratory operations. In accordance with the risk assessment and to the extent feasible, the employer must implement engineering and work practice controls, and ensure the use of PPE and respirators when further controls are necessary. The employer must establish, implement, and maintain a written Biosafety Plan to minimize exposure to ATPs-L. This plan may be incorporated into an existing Exposure Control Plan and must:

- Identify a biological safety officer(s);
- Include a list of job classifications, tasks, and procedures that may result in occupational exposure;
- Include a list of ATPs-L known or reasonably expected to be present and the applicable biosafety measures;
- Describe the use of engineering controls, such as biosafety cabinets;
- Establish safe handling procedures and prohibited practices;
- Establish decontamination and disinfection procedures;
- Describe the appropriate use of PPE and respirators;
- Establish procedures for responding to uncontrolled releases, including reporting releases to the LHD;
- Include a medical services program (laboratories must provide vaccinations recommended by the BMBL, which refers to the recommendation of the CDC Advisory Committee on Immunization Practices (ACIP) for specific pathogens);
- Include procedures for training and communicating hazards to employees;
- Include procedures for involving employees in reviewing and updating the Biosafety Plan annually or more frequently;
- Include procedures for inspecting laboratory facilities and auditing biosafety procedures annually or more frequently; and
- Include procedures for the biological safety officer(s) to review plans for facility design and construction that will affect the control measures for ATPs-L.

G. Specific Requirements for Full-Standard Employers

All employers within the scope of the ATD Standard that are not referring employers or laboratory employers are considered "full-standard" employers. Full-standard employers must comply with requirements for an ATD Exposure Control Plan, must provide work practice and engineering controls, personal and respiratory protection, medical services, and training addressed in §5199 subsections (d) through (i), and must comply with recordkeeping requirements in subsection (j).

1. ATD Exposure Control Plan (§5199 (d))

The Plan must be made available to employees and their representatives. The Plan must be reviewed by the administrator and employees annually and updated to correct deficiencies. The ATD Exposure Control Plan must contain the following elements:

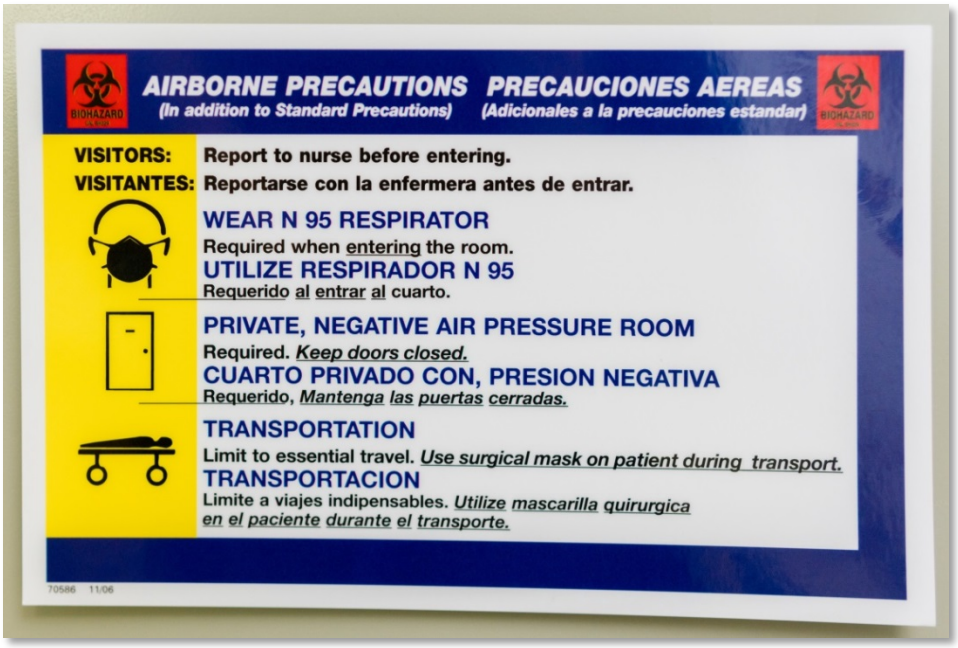
- The name(s) or title(s) of the persons responsible for administering the Plan;
- A list of job classifications covered by the Plan (i.e., classifications with "occupational exposure" as defined above);
- A list of high hazard or aerosol-generating procedures performed and the job classifications and operations with which they are associated;
- A list of all assignments or tasks requiring PPE or respiratory protection;
- The methods of control, including engineering and work practice controls, cleaning and decontamination, PPE, and respiratory protection;
- A description of source control measures and the method of informing people entering the work setting of the measures;
- Procedures to identify, temporarily isolate, and refer or transfer AirID cases or suspected cases to AII rooms, areas, or facilities;
- Procedures to provide required medical services as mentioned in Section III.D above and delineated in §5199 subsection (h);
- Procedures to provide PPE and other equipment to minimize employee exposure to ATPs, and to ensure that there is an adequate supply of equipment under normal circumstances and in foreseeable emergencies;
- Procedures to provide initial and annual training;
- Recordkeeping procedures;
- Procedures to involve employees covered under the ATD Standard in updating the Exposure Control Plan at least annually; and
- Procedures to follow in disasters, epidemics, and public health emergencies ("surge"[14]), including first receivers, if the employer's employees are designated to provide those services. The procedures must include how respiratory protection and other PPE will be stockpiled, accessed, or procured, and how the facility or operation will interact with the local and regional emergency plan.

[14] Surge is defined as a rapid expansion beyond normal services to meet the increased demand for qualified personnel, medical care, equipment, and public health services in the event of an epidemic, public health emergency, or disaster.

2. Engineering and Work Practice Controls, and Personal Protective Equipment (§5199 (e))

Airborne infection isolation rooms (AIIRs) and special ventilation systems are examples of engineering controls, a term used to identify measures that remove, reduce, or isolate infectious aerosols. Work practice controls also reduce the risk of exposure through procedures such as early identification of potential TB cases, and moving them into isolation. The ATD Standard requires that employers use feasible engineering and work practice controls to minimize employee exposures to ATPs. When engineering and work practice controls are not feasible or sufficiently protective, the employer must ensure that employees use the appropriate PPE, including respirators, to control exposures to AirIDs.

- The employer must develop and implement decontamination procedures for work areas and equipment.
- The employer must provide information about infectious diseases to contractors who may be reasonably anticipated to have occupational exposure.
- Engineering controls must be used in workplaces that admit, house, or provide medical services to patients known or suspected to have AirIDs.
- Patients with known or suspected AirIDs must be identified, and their contact with employees who are not wearing respiratory protection must be minimized until they can be transferred or placed in an AII room. These patients must be transferred or placed in an AIIR meeting the requirements of the ATD Standard within 5 hours of identification unless the exceptions to subsection (e)(5)(B) apply.



Warning sign at entrance to AIIR.
Photo: Centers for Disease Control and Prevention

- AIIRs are required to meet certain conditions, including:
  - A ventilation rate of 12 or more air changes per hour (ACH). Air cleaning technologies, such as HEPA filters, may be used to supplement the ventilation rate, but in no case shall less than six ACH be exhausted from the room.
  - Negative pressure to be maintained at all times when the room is in use for AII. At least daily, negative pressure must be visually demonstrated through use of smoke tubes or equally effective means. This requirement is in addition to any installed monitor. Ducts carrying air from the AIIR must be maintained at negative pressure until discharge.
  - Assessment and inspection of the system at least annually, and whenever maintenance is performed. This includes an annual measurement of the ventilation rate. Measurements must also be made after installation, maintenance, or alterations to the ventilation system.
  - Use of respirators after an AirID patient has left the AIIR, until the ventilation system has been operated for the period specified in subsection (e)(5)(D)9.

3. Respiratory Protection and Other PPE (§5199 (g) and (e))

To prevent inhalation exposures, the ATD Standard requires employers to provide, and ensure that employees use, respiratory protection (respirators) approved by the National Institute for Occupational Safety and Health (NIOSH). Respirators must be used in accordance with Cal/OSHA's Respiratory Protection Standard (8 CCR §5144[15]), which includes appropriate respirator selection, and provision of medical evaluations, fit testing, and training to employees. Because wearing a respirator can make breathing more difficult, employees must complete medical evaluations before they can undergo fit testing or use respirators for work. The ATD Standard provides minimum selection criteria, but the employer is responsible to ensure that higher levels of respiratory protection or different types of respirators are not required in the specific setting. The minimum level of respiratory protection is the N95 filtering facepiece respirator. With some exceptions, a powered air-purifying respirator (PAPR) is required for high hazard procedures (aerosol-generating procedures) on suspected or confirmed AirID cases, and on cadavers known or suspected to be infected with ATPs. Additional selection criteria apply to first receiver operations, laboratories, and when there are concurrent chemical or radiological exposures.

[15] https://www.dir.ca.gov/title8/5144.html

Nurse wearing a filtering facepiece N95 respirator.

Nurse caring for patient while wearing a powered air-purifying respirator.

The ATD Standard requires employers to provide and ensure that employees use respiratory protection (respirators) whenever an employee:

- Enters an AIIR or area in use for AII;
- Is in an area or residence where patients known or suspected of having an AirID are or have been recently;
- Repairs, replaces, or maintains air systems or equipment that may contain or generate aerosolized pathogens;
- Is present during the performance of aerosol-generating procedures on cadavers that are known or suspected to be infected with ATPs;
- Is performing a task for which the Biosafety Plan or Exposure Control Plan requires the use of a respirator; or
- Transports a patient who is not masked and is known or suspected of having an AirID within the facility or an enclosed vehicle. Employers must not permit a person operating a vehicle to use a respirator if that use would interfere with the safe operation of the vehicle. In that case, where feasible, other means of reducing exposure, such as barriers or source control, must be used. There is also an exception for law enforcement or corrections personnel who transfer AirID cases or suspected cases in a vehicle, if there is a solid barrier between the passenger and the employee area and if a knowledgeable person has tested the air flow in the vehicle and determined, under the conditions described in written operating procedures, that there is no detectable airflow between the passenger and employee areas.

The ATD Standard also requires employers to provide the personal protective equipment necessary to prevent or minimize employee exposures to airborne,

droplet, and contact transmission of aerosol transmissible pathogens. These requirements are in addition to the requirements for universal precautions under the Bloodborne Pathogens Standard.[16] Depending on the disease, procedures, and patient's condition these may include gloves, gowns, eye and face protection, and full body coverings.

[16] https://www.dir.ca.gov/title8/5193.html

IV. Overview of the ATD-Zoonotic Standard

The Aerosol Transmissible Diseases – Zoonotic Standard (Zoonotic Standard) applies to most work settings, regardless of size, in which employees are exposed to animals or their wastes, or to animal products that have not been treated or inspected. This includes the following types of workplaces and operations: [17]

- Operations involving the management, capture, sampling, transportation, or disposal of wild birds or other wildlife;
- Farms producing animals or animal byproducts, including the transport of animals and untreated animal products, byproducts, or wastes to and from farms;
- Slaughterhouses and initial processing facilities for untreated animal products, byproducts, or wastes;
- Veterinary, animal inspection, and other animal health operations;
- Importers of live animals and untreated animal products;
- Zoos, animal parks, pet stores, and other operations in which animals are displayed, transported, or housed;[18]
- Laboratory operations involving samples, cultures, or other materials potentially containing zoonotic ATPs; and
- Zoonotic ATP incident response operations.[19]

The Zoonotic Standard does not apply to restaurants or to facilities or portions of facilities in which the sole exposure to animal products, byproducts, or wastes comes from carcasses or portions thereof that have passed an inspection conducted in accordance with regulations of the U.S. Department of Agriculture (USDA) or California Department of Food and Agriculture (CDFA) and have been determined to be fit for human consumption.

Note: Laboratory operations involving samples, cultures, or other materials potentially containing zoonotic ATPs are required to comply with the laboratory portion of §5199 subsection (f).

[17] Animal control operations may fall into one or more of the listed categories.
[18] Vertebrate animal research facilities are covered by the standard, and must comply with BMBL requirements.
[19] "Zoonotic ATP incident response" is defined as operations "conducted to control an outbreak of an animal disease involving the destruction and/or disposal of animals infected with zoonotic ATPs and the clean up, decontamination and disinfection of areas and equipment associated with the infected animals or their remains."

A. General Requirements of the Zoonotic Standard (8 CCR §5199.1)

The Zoonotic Standard requires all covered employers to address zoonotic ATD hazards through their written safety program, the Injury and Illness Prevention Program[20] (IIPP), which must include:

- An identified program administrator (name and/or title);
- Procedures to ensure that employees comply with safe and healthful work practices;
- A system of communication with employees about health and safety matters;
- Periodic inspections and other means to identify and evaluate hazards;
- Investigation of occupational injuries and illnesses;
- Procedures to correct hazards in a timely manner; and
- Training for employees and supervisors.

Employers are also required to provide sanitation facilities and necessary PPE, and to follow appropriate biosafety practices. These general precautions, including those listed above, apply to all contact with animals. Employers also should have procedures for situations in which a disease has become apparent among animals, even if it is not yet known if the disease is zoonotic.

The employer must provide all safeguards required by this section, including personal protective equipment, respirators, training, and medical services, at no cost to the employee, at a reasonable time and place for the employee, and during the employee's working hours.

The Zoonotic Standard requires additional protection when higher risk situations (i.e., in which there is a suspected zoonotic disease risk to employees or the public) are identified by any of the state or federal agencies that are responsible for monitoring animal health and/or zoonotic diseases. These agencies are the:

- CDC;
- CDFA;
- California Department of Fish and Game (CDFG); [21]
- CDPH;
- USDA; and
- U.S. Department of the Interior (USDOI), which includes the U.S. Fish and Wildlife Service.

[20] Program required by Cal/OSHA for all California workplaces: https://www.dir.ca.gov/title8/3203.html
[21] Now identified as the California Department of Fish and Wildlife.

Employers are required to keep records, which are described in §5199.1 subsection (e). For the higher risk operations described in subsections (b) through (d), these records include written work plans, exposure assessments, and records of entry into restricted areas. [22] Records must be made available to employees, their designated representatives, the LHD, and Cal/OSHA, while maintaining legal and medical confidentiality.

B. Exposure to Potentially Infectious Wildlife (§5199.1 (b))

When one of the agencies listed above issues an alert regarding the potential of zoonotic ATP infection in wildlife, additional protections are required for employees who are exposed to the specific species/conditions identified in the alert, such as avian influenza, chlamydiosis (psittacosis), or hantavirus.

When employees capture or sample wildlife to detect the presence of infection with zoonotic ATPs, or collect or dispose of wildlife for which an alert has been issued, employers must adopt work practices that minimize the production of aerosols and address the use of PPE, procedures for cleaning and decontamination, medical services, and employee training. The procedures must specify the use of a respirator at least as effective as an N95 filtering facepiece respirator whenever there is an increased potential for exposure to infectious aerosols which includes:

- Handling animals in an enclosed area;
- Working near a significant number of dead animals; and
- Working in areas where there are potentially infectious animal related aerosols.

C. Establishments under CDFA or USDA Infection Control Orders (§5199.1 (c))

CDFA and USDA are responsible for monitoring animal agricultural facilities involved in raising or processing animals, such as farms, ranches, dairies, feedlots, egg production facilities, broiler facilities, poultry hatcheries, and slaughterhouses. One or both of these agencies may issue a quarantine order, movement restriction, or other infection control order due to an increased risk of disease. When that order relates to a risk of zoonotic

[22] Restricted areas are areas in an establishment in which infected or potentially infected animals are located, and therefore there are special requirements for posting, controlling access, and reducing exposure risks.

ATP infection, such as avian influenza, the employer is required to adopt written procedures to protect employees, which include:

- Identifying and posting areas where exposure to infectious animals (including wastes) may occur;
- Ensuring that employees who enter restricted areas are supervised by a person who is knowledgeable in the zoonotic disease control procedures, and have and use the appropriate PPE;
- Ensuring that employees use respirators when entering into an enclosed area where aerosols from potentially infectious animals are present;
- Providing sanitary facilities, change rooms and shower rooms where feasible, and drinking water;
- Providing recommended medical services including surveillance, monitoring, vaccinations, and prophylaxis for exposed employees;
- Providing employee training; and
- Recording all persons entering into restricted areas, which serves to enhance the ability of the LHD to oversee monitoring for illness or subsequent contact tracing.

These additional measures may be discontinued if the agency that placed the infection control order determines that the premises are free from infection, although a movement restriction may remain in place.

D. Operations Involving Infected Animals (§5199.1 (d))

Employers must implement additional written procedures for operations that involve handling, culling, transporting, killing, eradicating, or disposing of "animals infected with zoonotic ATPs," or cleaning or disinfecting areas used to contain such animals or their wastes. The term "animals infected with zoonotic ATPs" includes animals "that (1) have been diagnosed with a zoonotic ATP through recognized testing methods, or (2) meet the clinical definition of a suspect case of infection with a zoonotic ATP, or (3) have been identified by the CDFA, CDFG, USDA, or USDOI as requiring isolation, quarantine, or destruction due to suspected or confirmed infection." Animal research facilities which involve pathogens requiring animal biosafety level (ABSL) 3[23] or above must also comply with these requirements, to the extent they are applicable:

[23] "Animal Biosafety Level 3 involves practices suitable for work with laboratory animals infected with indigenous or exotic agents, agents that present a potential for aerosol transmission, and agents causing serious or potentially lethal disease. ABSL-3 builds upon the standard practices, procedures, containment equipment, and facility requirements of ABSL-2." BMBL. Biosafety in Microbiological and Biomedical Laboratories, Fifth Edition, CDC and National Institutes for Health, 2007, available at: http://www.cdc.gov/biosafety/publications/bmbl5/bmbl.pdf

- A detailed work plan including a list of all jobs, tasks, or procedures that may have occupational exposure, and an assessment of risks;
- Designation of a restricted area including a contaminated zone and a contaminant reduction zone, with operations in the restricted area requiring supervision by a knowledgeable person at all times;
- Documentation of all persons entering the restricted area, including ensuring that all persons entering the area have been trained, use all required PPE, including respirators, and utilize all other specified control measures;
- Measures to control employee exposures, which include engineering and work practice controls, methods for handling hazardous substances including disinfectants, respirator use, other PPE and protective clothing, decontamination, and disposal procedures (under most circumstances an elastomeric facepiece respirator or powered air-purifying respirator is the minimum level of respiratory protection);

Avian influenza responder wears PPE while decontaminating equipment before it leaves the site.

- Special procedures for areas in which toxic or asphyxiant gases are to be applied (such as the application of carbon dioxide or foam for killing of all animals in a barn), including procedures for areas immediately dangerous to life or health (IDLH);
- Procedures for access to drinking water and heat illness prevention;

- Employee training; and
- Medical services including an initial medical evaluation prior to an employee entering a restricted area, surveillance for signs and symptoms of disease or overexposure to hazardous substances, vaccinations, and prophylaxis.

V. Local Health Officer Roles: How the ATD Standards Relate to Communicable Disease Statutes and Regulations

A. Introduction

LHDs and CDPH have broad authorities for the investigation and control of communicable disease that derive from state statute (Health and Safety Code). Title 17 of the CCR contains the regulations of CDPH applicable to LHOs, including the 17 CCR §§2500[24] and 2505[25] lists of reportable diseases and conditions established by CDPH and requirements to report unusual disease or outbreaks of any disease. Mandated persons must report conditions to the LHD, and the LHD must provide these reports to CDPH per 17 CCR §2502.

The primary purpose of required reporting is to alert LHOs to the presence of disease within their jurisdiction. Upon receiving a report of a communicable disease, the LHD is authorized to investigate and take whatever steps may be necessary to prevent or control the spread of the reported disease, condition, or outbreak. Although most reporting requirements apply to human diseases, veterinarians are mandated reporters under law, and several diseases listed in Title 17 are reportable when occurring as cases in animals.[26]

Several other California regulations refer to the role of LHDs in controlling communicable diseases, such as requirements in Title 15 for correctional facilities to consult with the "county health officer" on their communicable disease control program, and requirements in Title 22 applicable to licensed facilities. Requirements in the ATD and Zoonotic ATD Standards are in addition to these requirements, and do not replace or modify them.

Section V of this document provides guidance on how the ATD standards relate to or reinforce the roles and responsibilities of LHOs and LHDs; it provides more details on subsections where they are mentioned and/or provided specific authority.

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[24] https://www.cdph.ca.gov/Programs/CID/DCDC/CDPH%20Document%20Library/ReportableDiseases.pdf

[25] https://www.cdph.ca.gov/Programs/CID/DCDC/CDPH%20Document%20Library/LabReportableDiseases.pdf

[26] As of the 2016 revision, there are six reportable animal diseases: anthrax, rabies, plague, viral hemorrhagic fevers, brucellosis (except infections due to *Brucella canis*), and tularemia. https://cvma.net/resources/animals-medicine-diseases/list-of-animal-diseases-reportable-in-california/

B. Local Health Officer/Local Health Department Role in the ATD Standard

The ATD Standard contains a number of specific references to the role of the LHO and/or CDPH. These are:

1. The LHO may recommend droplet precautions or AII for a disease not already listed in Appendix A as requiring those protections. This recommendation would be enforceable by Cal/OSHA to protect employees within that jurisdiction.
2. The LHO may specify medical criteria and services for diseases not addressed in other referenced guidelines.
3. Employers must report suspected or confirmed ATD cases designated as reportable by Title 17 to the LHD.
4. Laboratories must report uncontrolled releases of ATPs-L to the LHD.
5. Employers must have effective procedures to send and receive communications with the LHD about suspected and confirmed RATD cases.
6. Employers must contact the LHD if the employer cannot find a facility to accept a patient requiring AII, and follow any LHO recommendations for interim infection control procedures.
7. Employers must follow LHO recommendations for excluding potentially infectious employees from the workplace after an exposure incident or TB test conversion.
8. Employers must provide more frequent TB assessment if recommended by the LHO.
9. Employers must provide information to the LHO upon request.
10. The LHO may recommend to Cal/OSHA that an employer not specifically identified in the scope of the ATD Standard be required to comply with all or part of the ATD Standard.

1. Adding Diseases for Coverage by the ATD Standard (§5199 Appendix A)

Appendix A includes two lists of diseases, which are based on CDC recommendations for either airborne infection isolation (AII) or droplet precautions. The ATD Standard also requires AII for "novel or unknown pathogens" as defined in subsection (b). When either CDPH or the LHO determines that AII should be utilized for a disease listed in Appendix A as not requiring AII, then that recommendation becomes enforceable by Cal/OSHA. Similarly, a recommendation for droplet precautions can be added. (Neither the LHO nor the CDPH can

downgrade precautions required for diseases listed in Appendix A.) The example below illustrates this authority.[27]

Infection Control Recommendations for a New Disease

In 2012, the first human case of Middle East Respiratory Syndrome (MERS) was reported in Saudi Arabia. As of December 2016, there have been over 1800 cases confirmed worldwide. The disease is caused by MERS-CoV, a coronavirus newly identified in humans, and symptoms include fever, chills, cough, and dyspnea. Pneumonia is common. According to the World Health Organization, approximately 35% of confirmed cases worldwide have died. This disease is not listed in Appendix A, however, CDPH has recommended the use of AII and contact precautions, as well as standard precautions, for hospitalized patients. Therefore, under the ATD Standard, this disease requires AII.

2. Issuing Enforceable Public Health Guidelines for Employee Medical Services (§5199 (b))

The ATD Standard includes a list of public health guidelines that describe the medical services employers must make available to employees for specific diseases. In regards to TB, the ATD Standard references the guidelines issued by CTCA and CDPH.[28] In regards to vaccine preventable diseases, the ATD Standard references the CDC publication, Epidemiology and Prevention of Vaccine-Preventable Diseases.[29] For diseases that are not covered by these publications, health care providers must follow advice from CDPH or the LHO in regards to employee medical services.

For example, when the H1N1 influenza vaccine first became available, CDPH issued recommendations for its administration.

3. Receiving Reports of Suspected or Confirmed RATD Cases (§5199 (h)(3)(B)3 (TB) and (h)(6)(A) (all reportable ATDs))

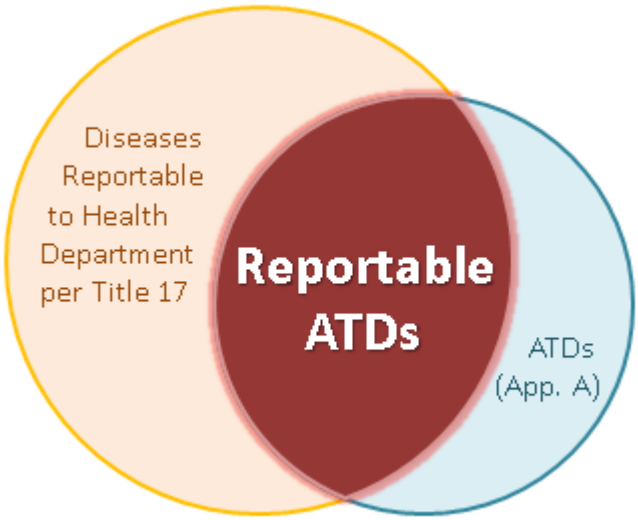
ATDs and pathogens covered under the ATD standard are listed in Appendix A (diseases requiring AII or droplet precautions). Diseases reportable to the LHD are listed in Title 17, §2500. A reportable aerosol transmissible disease (RATD) is a "disease or condition which a health care provider is required to report to the local health officer, in accordance with Title 17 CCR, Division 1, Chapter 4, and which

[27] Reference for CDPH MERS recommendations (in box): https://www.cdph.ca.gov/Programs/CID/DCDC/CDPH%20Document%20Library/Immunization/MERS-Quicksheet.pdf

[28] http://www.ctca.org/menus/cdph-ctca-joint-guidelines.html

[29] https://www.cdc.gov/vaccines/pubs/pinkbook/index.html

meets the definition of an aerosol transmissible disease (ATD)." Thus, a key LHD role related to the ATD Standard is as **the recipient of reports of suspected or confirmed ATD cases among residents**. A LHD may also receive reports related to suspected or confirmed ATD cases detected at a workplace in that jurisdiction. Title 17, not the ATD standard, requires the LHD to forward reported ATD cases to CDPH. Some examples of RATDs are tuberculosis, meningitis, Ebola Virus Disease, and measles. Seasonal influenza is an example of an ATD that is not reportable.



Title 17 requires that healthcare providers report cases of suspected or confirmed RATDs to the LHD; RATDs are a subset of all reportable diseases or conditions.

In order to limit the potential spread of an ATD within his/her jurisdiction, as authorized under Title 17 on behalf of CDPH, a LHO may investigate a reported ATD case, outbreak, or laboratory pathogen release. A LHO may request assistance or consultation from CDPH in order to conduct an investigation. CDPH personnel from the Division of Communicable Disease Control, the Occupational Health Branch, and the Healthcare-Associated Infections programs have collaborated with LHDs on investigations and provided assistance and consultation as needed. CDPH may also initiate an investigation in collaboration with one or more LHDs; this particularly may be the case for situations involving multiple jurisdictions.

A health care provider reporting an ATD case may be a workplace-affiliated provider such as an occupational medicine clinic contracted by an employer, a primary care provider, hospital, or laboratory. Under the ATD Standard, the employer of the diagnosing health care provider must ensure that reporting takes place.

In addition to any enforcement actions taken by local government, Cal/OSHA can issue citations to employers for failure to report RATD cases or suspected cases in a timely manner. The case example described below illustrates this authority, as well as the importance of prompt reporting of reportable conditions to the LHD.[30]

Secondary Meningitis Cases after Delayed Report to Local Health Department

On day 1, two police officers conducting a welfare check found a man unconscious in his home. Firefighters and emergency medical personnel responded and provided emergency treatment and transported him to a hospital, where a team of people provided care for him in the emergency department, including performing intubation. On day 2, gram-negative diplococci were identified in the patient's cerebral spinal fluid (CSF) at 9:30 a.m. and in his blood at 3:30 p.m. (This patient should have been reported under Title 17 and the ATD Standard as a suspected case.) On day 4, *N. meningitidis* was isolated from blood, and on day 5, *N. meningitidis* was also isolated from CSF. Although Title 17 requires an immediate report of suspected meningococcal disease to the LHD, the report was not made until day 5 and, even at that time, the hospital did not conduct an exposure investigation. On day 3, one of the officers who found the patient unconscious became sick, and on day 7, he sought care at his primary physician. It was after his initial visit to the physician that the officer received a phone call from the other exposed officer that they had just been notified of their exposure. He returned to the physician, was instructed to go to the emergency room and was hospitalized with meningococcal disease. On day 6, a hospital respiratory therapist who had performed suctioning on the patient and assisted with endotracheal intubation in the emergency room became ill, and on day 8 he was transported to another hospital by ambulance, with positive lab results the following day. These two secondary cases illustrate the importance of prompt reporting to the LHD. A joint investigation by CDPH and Cal/OSHA resulted in citations being issued to the hospital, which was found to have other reporting deficiencies, and to other employers involved in the case.

Source: CDC. 2010. Occupational transmission of *Neisseria meningitidis* --- California, 2009. *MMWR Morb Mortal Wkly Rep* November 19, 2010, 59(45): 1480-1483.

[30] Reference for MMWR article (in box): https://www.cdc.gov/mmwr/preview/mmwrhtml/mm5945a2.htm

4. Laboratory Reports of Uncontrolled Releases (§5199(f)(4)(J))

Subsection (f) of the ATD Standard establishes a biosafety standard for laboratories. The required Biosafety Plan must contain procedures for reporting uncontrolled releases of ATPs-L to the LHO. (This report is in addition to any required reporting of "select agents" [31] to federal agencies.) The purpose of this requirement in the ATD Standard is to provide an opportunity for LHDs to provide advice and assistance regarding mitigating the effects of the release, including protecting employee health, such as by providing prophylactic medication or vaccination.

5. Employers Required to have Effective Procedures to Communicate with the LHO (§5199(c)(4) and 5199(d)(2)(E))

Employers of health care providers are required by the ATD Standard to report RATD cases and suspected cases as required by Title 17. Typically, the LHD that receives a report, particularly of an acutely hazardous exposure such as meningococcal disease, will notify emergency responders and initiate a contact investigation. The ATD Standard requires employers to notify other employers of employees who may have been exposed to a suspected or confirmed ATD case within an appropriate time frame for the disease, and no later than 72 hours after the report to the LHD, if that information is available in the employer's records. (Meningococcal disease, for example, requires a shorter time frame.) Such employers might include paramedic/emergency medicine technician services; police, fire, or other first responder agencies; laboratories; homeless shelters; and jails. The purpose of this requirement is to enable prompt post-exposure follow-up including exposure assessment, medical evaluation, and post-exposure prophylaxis if needed. LHDs following up on such a report can access the records of the employer's exposure investigation, which should assist the LHD in contact tracing and notification. Employers covered by the ATD Standard are also required to have effective procedures to respond once they receive notifications from the LHD.

6. Interim Recommendations for Infection Control for Persons Requiring Airborne Infection Isolation who Cannot be Transferred (§5199 (c)(3)(A)2 and (e)(5)(B)2))

The ATD Standard generally requires employers to refer or transfer a person requiring AII (e.g., an active TB case or suspected case) to an AII room, within five hours of recognition (this can be extended until 11 a.m. the following morning if the initial encounter with the patient occurred between 3:30 p.m. and 7 a.m.). Transfer

[31] Select agents are pathogens or toxins identified by either CDC or USDA as either having the potential to pose a severe threat to public health and safety, or that have the potential to pose a severe threat to animal health and safety, plant health and safety, or to the safety of animal or plant products.

is also not required if the physician treating the patient determines transfer would be detrimental to the patient's condition. Where a patient cannot be moved or transferred due to a lack of appropriate facilities, employers are required to contact the LHD to request both help in finding an appropriate facility and recommendations for interim infection control measures. Those recommendations must be followed, and the employer must continue to attempt to find an appropriate facility.

7. Local Health Officer Medical Recommendations in Exposure Investigations (§5199(h)(8))

The ATD Standard requires employers to investigate employee exposures to RATD cases, as described above. Once the employer identifies employees who may have been exposed, it must refer the employee to an appropriate health care provider for medical evaluation and follow-up, which may include vaccination, chemoprophylaxis, and/or the provider's recommendation to exclude the employee from the workplace during a period in which the employee may be infectious but is not sick. A recommendation for removal may also be made by the LHO. (During this period, the employer must provide the employee with "precautionary removal protection," which includes maintaining the employee's wages and other job rights.)

8. Increased Frequency of TB Assessments (§5199(h)(3))

The ATD Standard, with some exceptions, requires the employer to provide annual TB assessments to covered employees. Local conditions or conditions at the facility may cause the LHO to recommend more frequent assessments. Employers must follow those recommendations.

9. Local Health Officer Access to Information (§5199(j)(4))

The ATD Standard requires employers to create and maintain certain records, including records of training, vaccination, exposures, TB assessments, assessments of ventilation systems and other engineering controls, and PPE use. All records required by this standard are to be provided to the LHO upon request.

10. Recommendation to Cal/OSHA that an Employer be Covered by All or Part of the ATD Standard (§5199(a)(1)(H) and 8 CCR §332.3)

Sometimes health departments determine that there is a possible ATD hazard at a place of employment that is not specifically identified in the scope of the ATD standard. For example, a TB investigation may lead to potential contacts at a retail workplace. In that case, Cal/OSHA, upon investigation, may require the retail employer to provide TB testing and follow-up by issuing an "order to take special action" or OTTSA. Cal/OSHA would use information provided by the LHD as the

basis for determining that the situation requires application of part or all of the ATD Standard to the establishment.

C. Local Health Officer/Local Health Department Role in the Zoonotic Standard

The case example described below highlights the importance of adherence to requirements of the ATD Zoonotic Standard, which protects employees from zoonotic diseases in occupational settings.[32]

Eighty-nine H7N7 Human Cases in the Netherlands, 2003

In February 2003, commercial poultry farms in the Netherlands experienced a large outbreak in birds of avian influenza caused by the highly pathogenic H7N7 virus. The infection spread to approximately 255 farms and resulted in the culling of all infected flocks (about 30 million chickens).

At the time of the outbreak, local authorities believed the risk to humans was low. However, one human fatality occurred in a veterinarian who had not received antiviral medication but had spent a few hours screening flocks that were later confirmed to be infected with the H7N7 virus. By the end of the outbreak, 89 human infections were identified, with health complaints primarily consisting of conjunctivitis and a few cases also experiencing mild, influenza-like illness. The highest risk of infection was in veterinarians and workers who culled infected poultry. The outbreak was brought under control in about 2 months by culling infected flocks.

The outbreak management team recommended the following actions to protect workers:

- Use of goggles and respirators by all workers who screened or culled poultry
- Seasonal influenza vaccine for all poultry workers in the area and their families
- Immediate treatment with oseltamivir for new conjunctivitis cases
- 75 mg daily preventive dose of oseltamivir for all persons handling potentially infected poultry, continued for two days after the last exposure.

Source: National Institute for Occupational Safety and Health. Protecting Poultry Workers from Avian Influenza (Bird Flu). DHHS (NIOSH) Publication Number 2008–113, February 2008.

[32] Reference for NIOSH publication (in box): https://www.cdc.gov/niosh/docs/2008-128/pdfs/2008-128.pdf

The Zoonotic Standard also contains specific references to the role of the LHO and/or CDPH. These are:

1. **Issuing an Alert Regarding a Potential Zoonotic ATP Infection in Wildlife** (§5199.1(b)(2)(D))
   CDPH is one of the six agencies that may issue an alert regarding the presence of a zoonotic infection hazard in wildlife. This would then trigger the requirements discussed under subsection (b) of the Zoonotic Standard.

2. **Specifying Required Medical Services for Employees in Higher Risk Work Operations** (§5199.1(c)(2)(E) and (d)(8)(D) and (d)(8)(E))
   Employers are required to provide medical services as recommended by CDPH or the LHO to employees in work operations identified in subsections (b) through (d) as being at increased risk of exposure to zoonotic ATPs. The medical services recommended may include surveillance for early signs of disease, medical evaluations, vaccinations, and/or prophylactic use of antiviral or other medications.

3. **Local Health Officer Access to Information** (§5199.1(e)(5))
   The Zoonotic Standard requires employers to create and maintain certain records, including records of training, atmospheric testing, hazardous substances used, entry into restricted areas, PPE use, and medical services. All records required by this standard are to be provided to the LHO upon request.

VI. Working With Cal/OSHA

Cal/OSHA has jurisdiction over most private and public employers in California and has often worked with LHDs. When a LHD or CDPH contacts Cal/OSHA to request an investigation of hazards or exposures in a workplace, an onsite inspection will usually be conducted by staff from a Cal/OSHA district office.[33] Cal/OSHA has investigated infectious disease complaints from LHDs or CDPH such as ineffective ventilation in AII rooms, failure to provide or fit test respirators for employees exposed to active TB patients, failure to properly isolate measles cases, failure to follow up on employee exposures to meningococcal disease, and an increased incidence of TB at a card club.

Cal/OSHA has industrial hygienists on staff who can assess AII rooms and other engineering controls, and evaluate respiratory protection programs. Cal/OSHA also has a medical unit that can work with health departments to evaluate medical records and assess infectious disease hazards. Cal/OSHA cooperates with the CDPH Occupational Health Branch and other programs at CDPH for additional medical expertise.

Cal/OSHA enforces the standards adopted by the Occupational Safety and Health Standards Board and is authorized to issue citations to an employer for violating the ATD standards and to require the employer to correct the violations. The agency also has the authority to issue a "Special Order" requiring an employer to correct unsafe or unhealthful conditions not covered under existing Title 8 standards. Cal/OSHA has used this authority to protect employees from infectious diseases; for example, Cal/OSHA has required sharps disposal boxes and hepatitis B vaccine prior to the promulgation of the Bloodborne Pathogens Standard, and medical surveillance and other control measures for employees exposed to Q Fever in research animals. Cal/OSHA may also issue an "Order to Take Special Action" requiring an employer not covered by the ATD Standard to comply with all or part of the standard. **Health departments should, therefore, inform Cal/OSHA when they believe that the health or safety of employees requires Cal/OSHA's involvement.**

Cal/OSHA may need to request information from a LHD during the course of an investigation. For example, Cal/OSHA might request the date and time that a hospital reported a suspected case of meningococcal disease. OSHA,[34] and authorized state plans such as Cal/OSHA, are considered public health authorities and public health oversight agencies under HIPAA (Health Insurance Portability and Accountability Act). As such,

[33] http://www.dir.ca.gov/dosh/districtoffices.htm
[34] https://www.osha.gov/Publications/HIPAA-whistleblowerfactsheet.pdf

Cal/OSHA is permitted to receive confidential medical information and is required to protect that information as would CDPH or a LHD.[35]

Cal/OSHA maintains enforcement offices[36] across the state, and complaints may be filed with the office that covers the specific establishment. To ensure that complaints from LHDs receive prompt and consistent responses, LHDs should also contact Cal/OSHA's Deputy Chief for Research and Standards by calling **510-286-7000.** The Deputy Chief will ensure that appropriate personnel from the Enforcement Branch and the Medical Unit follow up with representatives of the LHD.

[35] Cal/OSHA is not considered a health department for the purpose of HIV confidentiality under H&S Code §121022.
[36] http://www.dir.ca.gov/dosh/districtoffices.htm

VII. Working with the CDPH Occupational Health Branch

The CDPH OHB[37] is a non-regulatory, prevention-oriented program that promotes safe and healthy workplaces statewide by identifying and evaluating workplace hazards; tracking patterns and investigating cases of work-related injury and illness; developing training and informational materials; providing technical assistance to others to prevent work-related injury and illness; mobilizing partners to develop and implement safer ways to work; and recommending protective occupational health standards. Although non-regulatory, OHB has authority (Health & Safety Code §105175) to access California worksites for the purpose of investigating morbidity or mortality, and may review employers' occupational health records and collect information confidentially from employees.

Both OHB and the CDPH Division of Communicable Disease Control are located in Richmond, CA, which facilitates regular interaction between the programs. These established relationships have resulted in many joint occupational infectious disease efforts, including investigation of coccidioidomycosis among solar power facility construction workers, hantavirus at a national park, hepatitis B transmission at a major retail store linked to shared tagging guns, laboratory-acquired brucellosis, and HIV transmission in the adult film industry.

OHB has assisted LHDs in investigating and addressing a wide range of infectious diseases including ATDs and zoonotic ATDs, and has participated in statewide emergency responses such as those addressing the H1N1 influenza pandemic and Ebola virus disease. OHB has also collaborated with Cal/OSHA on joint investigations. For example, the investigation of meningococcal bacteria transmissions from a patient to a police officer and respiratory therapist described above (see page 28) involved two LHDs, Cal/OSHA, as well as staff from OHB and the CDPH Immunization Branch.

OHB's expert advice and consultation is available from staff in the fields of occupational medicine, industrial hygiene, toxicology, epidemiology, health education, and safety. OHB also provides information and technical consultation to LHDs on many other workplace health and safety topics, such as chemical exposures, mold, and appropriate control measures including personal protective equipment. OHB has expertise in workers' compensation issues, Cal/OSHA and other regulations, and employer-employee relations that can be critical when addressing illness in the workplace.

[37] http://www.cdph.ca.gov/OHB

LHOs can request assistance from OHB through the Workplace Hazard Helpline at (866) 282-5516; by contacting the OHB Chief, Barbara Materna, PhD, CIH, at barbara.materna@cdph.ca.gov **or (510) 620-5730; or, in emergencies, through the CDPH Duty Officer.** Assistance can take many forms such as answers to technical questions, participation in LHD follow-up with an employer on an identified illness, a worksite investigation, or development of educational materials for employer or worker audiences. OHB can facilitate a referral of a worksite to Cal/OSHA for an enforcement inspection. LHDs may also choose to go directly to Cal/OSHA for assistance if they receive a complaint from an employee or identify a serious disease or exposure risk linked to a worksite, as described above.

OHB has developed educational resources that may be useful to employers, particularly hospitals, in meeting the respiratory protection requirements of the ATD Standard; they are available on a "Respirator Toolkit"[38] website topic page.

[38] https://www.cdph.ca.gov/Programs/CCDPHP/DEODC/OHB/Pages/RespToolkit.aspx

VIII. References

A. ATD Standards

§5199. Aerosol Transmissible Diseases.
http://www.dir.ca.gov/Title8/5199.html

Appendix A: Aerosol Transmissible Diseases/Pathogens
http://www.dir.ca.gov/Title8/5199a.html

Appendix B: Alternate Respirator Medical Evaluation Questionnaire
http://www.dir.ca.gov/Title8/5199b.html

Appendix C1: Vaccination Declination Statement
http://www.dir.ca.gov/Title8/5199c1.html

Appendix C2: Seasonal Influenza Vaccination Declination Statement
http://www.dir.ca.gov/Title8/5199c2.html

Appendix D: Aerosol Transmissible Pathogens – Laboratory
http://www.dir.ca.gov/Title8/5199d.html

Appendix E: Aerosol Transmissible Disease Vaccination Recommendations for Susceptible Health Care Workers
http://www.dir.ca.gov/Title8/5199e.html

Appendix F: Sample Screening Criteria for Work Settings Where No Health Care Providers Are Available
http://www.dir.ca.gov/Title8/5199f.html

Appendix G: (Note: Appendix G was a screening tool required to be provided to employees if an employer chose to utilize the exception to subsection (g)(6)(B)3, which permitted biennial fit testing until January 1, 2014. This exception has since expired and, as of January 1, 2015, all employees utilizing respirators must have been fit tested within the previous 12-month period.)
http://www.dir.ca.gov/Title8/5199g.html

§5199.1. Aerosol Transmissible Diseases - Zoonotic.
http://www.dir.ca.gov/title8/5199-1.HTML

Appendix A: (Required posting for areas in which poison gases are to be applied)
http://www.dir.ca.gov/title8/5199-1a.html

B. Cal/OSHA Policy and Procedure C-47: Aerosol Transmissible Diseases Including TB

A new Cal/OSHA Policy and Procedure for enforcement of the ATD Standard, which will replace the 1997 Interim Tuberculosis Control Enforcement Guidelines, is anticipated in 2018. It will be included in Cal/OSHA's online Policy and Procedures Manual; search for C-47 at: http://www.dir.ca.gov/samples/search/querypnp.htm.

C. Documents Incorporated by Reference

Note: The ATD standards incorporate by reference, for specific purposes, many public health guidelines prepared by the CDC, CDPH, and CTCA. California administrative regulations require that those documents be specifically identified by title and date of publication or issuance. Due to periodic review by issuing agencies, a referenced document may have been updated. Cal/OSHA must enforce the specific referenced document until the regulation is amended to incorporate the later document.

1. Certain CTCA/CDPH Guidelines[39]

a. Guidelines for Tuberculosis (TB) Screening and Treatment of Patients with Chronic Kidney Disease (CKD), Patients Receiving Hemodialysis (HD), Patients Receiving Peritoneal Dialysis (PD), Patients Undergoing Renal Transplantation and Employees of Dialysis Facilities, May 18, 2007. http://www.ctca.org/filelibrary/file_40.pdf

b. Guidelines for the Treatment of Active Tuberculosis Disease, April 15, 2003 http://www.ctca.org/filelibrary/file_65.pdf; including related material:
Summary of Differences Between 2003 California and National Tuberculosis Treatment Guidelines, 2004, http://www.pneumonologia.gr/articlefiles/differences-1.pdf
Amendment to Joint CDHS/CTCA Guidelines for the Treatment of Active Tuberculosis Disease, May 12, 2006, http://ctca.org/filelibrary/amendment_to_Treatment_of_ActiveTB_Disease_2006.pdf
Appendix 3 - Algorithm for MDR-TB Cases and Hospital Discharge, May 12, 2006. http://www.ctca.org/fileLibrary/file_62.pdf

c. Targeted Testing and Treatment of Latent Tuberculosis Infection in Adults and Children, May 12, 2006. http://www.ctca.org/fileLibrary/file_61.pdf

[39] Some of these documents have been revised and are no longer available online. The provided URL links to the posted version of the document. The referenced document is on file at the Occupational Safety and Health Standards Board, http://www.dir.ca.gov/oshsb/oshsb.html.

d. California Tuberculosis Controllers Association Position Statement: The Utilization of QuantiFERON - TB Gold in California, May 18, 2007. Updated version: http://www.ctca.org/fileLibrary/file_481.pdf
e. Guidelines for Mycobacteriology Services in California, April 11, 1997. Updated version: http://www.ctca.org/fileLibrary/file_376.pdf
f. Guidelines for the Placement or Return of Tuberculosis Patients into High Risk Housing, Work, Correctional, or In-Patient Settings, April 11, 1997. Updated version: http://www.ctca.org/fileLibrary/file_723.pdf
g. Contact Investigation Guidelines, November 12, 1998. Updated version: http://www.ctca.org/filelibrary/file_363.pdf
h. Source Case Investigation Guidelines, April 27, 2001. Updated version: http://www.ctca.org/filelibrary/IID2ctcasourcecaseREV9_11_.pdf (March 2011)
i. Guidelines on Prevention and Control of Tuberculosis in California Long-Term Health Care Facilities, October 2005. Updated version: http://www.ctca.org/filelibrary/file_490.pdf
j. Guidelines for Reporting Tuberculosis Suspects and Cases in California, October 1997. Updated version: http://www.ctca.org/filelibrary/file_216.pdf
k. CTCA recommendations for serial TB testing of Health Care Workers (CA Licensing and Certification), September 23, 2008.

2. CDC Guidelines

Guidelines for Preventing the Transmission of Mycobacterium tuberculosis in Health-Care Settings, December 2005, CDC, is incorporated by reference for the sole purpose of establishing requirements for airborne infection isolation. http://www.cdc.gov/mmwr/pdf/rr/rr5417.pdf

Biosafety in Microbiological and Biomedical Laboratories, 5th Edition, CDC and National Institutes for Health, 2007, is incorporated by reference into the ATD Standard for the purpose of establishing biosafety requirements in laboratories. The BMBL is also incorporated by reference into the Zoonotic Standard for the purpose of establishing requirements for risk assessments and control measures in vertebrate animal research facilities.http://www.cdc.gov/biosafety/publications/bmbl5/

Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings, June 2007, CDC, is incorporated by reference for the sole purpose of establishing requirements for droplet and contact precautions. http://www.cdc.gov/hicpac/pdf/isolation/Isolation2007.pdf

Respiratory Hygiene/Cough Etiquette in Health Care Settings, CDC, November 4, 2004, is incorporated by reference for the sole purpose of establishing requirements for source control procedures.
http://www.cdc.gov/flu/professionals/infectioncontrol/resphygiene.htm

Epidemiology and Prevention of Vaccine-Preventable Diseases. Centers for Disease Control and Prevention, 10th ed., is incorporated by reference as a public health guideline to be followed in providing medical services. This publication is updated annually. The current edition can be found at:
http://www.cdc.gov/vaccines/pubs/pinkbook/index.html

Note: Vaccination recommendations published by the Advisory Committee on Immunization Practices (ACIP) are referenced in *Biosafety in Microbiological and Biomedical Laboratories* and *Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings*. As of October 2016, the current version of those recommendations can be found in: *Immunization of Health-Care Personnel: Recommendations of the Advisory Committee on Immunization Practices (ACIP)*. http://www.cdc.gov/mmwr/pdf/rr/rr6007.pdf

D. California Mechanical Code Requirements for AIIR

The ATD Standard references requirements in the California Mechanical Code (Title 24, Part 4) for ventilation in AIIRs. AIIRs that were constructed in accordance with the specific code sections, and are maintained to meet the requirements, are considered to meet the requirements of §5199(d)(5)(D)2 for maintaining negative pressure and a ventilation rate of 12 air changes per hour. The specific edition of the code is determined by the year the permit application was submitted. The 2013 edition can be found at:
https://archive.org/details/gov.ca.bsc.2013.04