AEROSOL TRANSMISSIBLE DISEASE TRAINING FOR STUDENT HEALTH SERVICES

(CA Code of Regulations, Title 8, Sec. 5199)

San Diego State University
AEROSOL TRANSMISSIBLE DISEASE STANDARD (ATD STANDARD)
AEROSOL TRANSMISSIBLE DISEASE STANDARD

The California Code of Regulations, Title 8 (8 CCR), Section 5199 (ATD Standard) was enacted into law to create a standard for employers to reduce exposure of employees to aerosolizable pathogens found in human blood or other potentially infectious materials.

- The standard is written to be applied to the health care industry as well as research facilities and other industries where contact with human source material that may contain an aerosolizable pathogen is a job task.
- The standard is enforced by California Occupation Safety and Health Administration (CalOSHA).
ELEMENTS OF THE ATD STANDARD

- Administrator
- Written procedures/plans
- Source control
- Engineering, work practice, administrative controls and PPE
- Respirators
- Communication
- Training
- Recordkeeping
- Medical services
  - Vaccinations (flu for everyone, others HCW only)
  - Annual TB testing
  - Post exposure follow up
  - Precautionary Removal
  - Respirator medical evaluations
APPLICATION OF ATD STANDARD

This standard applies to:

- Facilities that treat patients with possible aerosol transmissible pathogens (ATP’s)
- Laboratories that perform procedures with materials that contain or are reasonably anticipated to contain ATP’s
- Transportation of possible or confirmed cases of ATD
NOT COVERED UNDER THE ATD STANDARD

Outpatient dental clinics or offices are not required to comply with this standard if they meet all of the following conditions:

- Dental procedures are not performed on patients identified to them as ATD cases or suspected ATD cases
- Written procedure and training of staff for screening patients for ATDs
- Aerosol generating dental procedures are not performed on a patient identified through the screening procedure as presenting a possible ATD exposure risk
FOUR TYPES OF EMPLOYERS DEFINED BY THE CAL-OSHA ATD STANDARD

- Referring: do not provide care beyond initial to cases and suspected cases of ATD, and do not do high hazard procedures on them
- Full standard: hospitals and others that are not referring
- Laboratories
- Conditionally exempt – dentists and outpatient medical specialty practices that do not treat ATDs and have screening procedures

Note: All SHS employees will be offered the ATD standard elements with the exception of vaccinations. Full standard employees will be offered additional vaccines based on their job tasks.
STUDENT HEALTH SERVICES AND THE ATD STANDARD

The following areas are covered under the standard

- Primary Care
- Immunizations
- Radiology
- Pharmacy
- Laboratory
- Physical Therapy
- Counseling Services
- Health Promotion

The following areas are not covered under the standard as defined in the previous slides

- Dental
- Optometry
ATD Exposure Control Program

- Identifies occupational exposure to aerosol transmissible disease based on facility or operations
- Describes how the employer will:
  - Implement universal precautions
  - Ensure use of engineering and work practice controls
  - Ensure use of personal protective equipment including N95 respirators
  - Provide vaccinations and TB screening
  - Provide post-exposure evaluation and follow-up
  - Use signs and labels
  - Provide training
- Plan must be reviewed annually
- Plan must be accessible to employees.
EXPOSURE CONTROL PROGRAM

- **Employer Exposure Control Plan**
  - The SDSU Aerosol Transmissible Disease Program is resident in EHS and covers all employees working at SDSU who, as a function of their job, come into contact with human blood or other potentially infectious materials.

- **Site Specific Exposure Control Plan**
  - The Site-Specific ECP is managed by the Hospital, Health Care Facility or Clinic and should cover specific work practices and tasks to protect employees and interns for the specific materials and job task.
  - SHS ECP is located with the Safety Officer and will be put on desktops of SHS computers for reference.
A disease that is transmitted by aerosols

(A gaseous suspension of fine solid or liquid particles)
INFECTIOUS AEROSOLS
RESPIRATORY AEROSOLS

- **Droplets**: land directly on mucosal lining of nose, mouth, eyes of nearby persons or can be inhaled.
  - Highest exposures within 3-6 feet.

- **Airborne**: aerosols become smaller by evaporation; small aerosols (≤ 10 microns) remain suspended for longer periods, if inhaled travel deep into the lungs.

- **Contact**: Aerosols/ secretions contaminate nearby surface. Touch surfaces can infect self or others.

Relative contribution of three routes varies with agent.
Common Agents Spread by Respiratory Aerosols

- **Airborne:** tuberculosis, measles, varicella, smallpox, SARS, avian influenza
- **Droplet:** meningococcal meningitis, rubella, pertussis, common cold, SARS, influenza*
- **Indirect contact:** (fomite) RSV, SARS

*Influenza traditionally droplet, increasing evidence for airborne component
Infection control
INFECTION CONTROL AT STUDENT HEALTH SERVICES

- Basic principles
- Standard precautions
- Transmission-based precautions
- Seasonal influenza in health care settings
- Vaccination of HCWs
- TB screening of HCWs
- Personal Protective Equipment
- Respiratory Protection Equipment
OSHA risk pyramid for healthcare workers (HCW)

HCW – Aerosol Generating Procedures

HCW

High Frequency Contact with General Population

Minimal contact with general public and other co-workers
Basic Principals

- All body fluids are potentially infectious (except sweat)
  - blood and blood-tinged fluids including open-wounds
  - stool, urine, vomit, respiratory secretions, saliva, semen, vaginal secretions, breast milk, other body fluids such as pericardial and synovial fluids

- Minimize exposure to potentially infectious body fluids

- Infection control measures designed to “break the chain” of transmission
**STANDARD PRECAUTIONS**

1. Appropriate hand hygiene
2. Barrier protective equipment:
   - if splash, splatter, or sprays can be reasonably anticipated
   - choose appropriate PPE as needed: gloves, gown, mask, eye protection (face shield, goggles)
3. Proper use and handling of patient care equipment
4. Proper environmental cleaning and disinfection
5. Proper Handling of Linen
6. Adherence to Bloodborne Pathogens Standards
7. Proper patient placement
8. Respiratory Hygiene/Cough Etiquette
9. Safe injection practices
Transmission Based Precautions - Contact

- Personal Protective Equipment
  - Gown & Gloves for all patient interactions
  - Don PPE on entry, discard before exiting room. (in addition to Standard Precautions)

- Examples: MRSA, *C difficile*, Norovirus, other GI pathogens, RSV, antibiotic-resistant pathogens
TRANSMISSION BASED PRECAUTIONS - DROPLET

- Single room preferred, no special ventilation
- Patient: Mask if transport necessary. Instruct on respiratory hygiene/cough etiquette
- HCWs wear N95 mask within 6 feet of patient.
- Eye protection if splash, spray anticipated
TRANSMISSION BASED PRECAUTIONS - AEROSOLS

- Airborne Infection Isolation Room (AIIR) if available

- Patient: Mask if transport necessary (as tolerated).

- Health care workers (HCWs):
  - N95 respirator prior to entry into room, discarded after exit.
  - Hand hygiene before & after don/doff.
  - Alert others if need to transfer.
VACCINATIONS

All vaccinations are provided to employees free of charge. Employer must maintain on file: records of immunity, vaccine, or declinations

- **SHS full program**
  - Measles, mumps, rubella (MMR): vaccinate unless documentation of immunity or previous vaccination
  - Varicella: vaccinate unless documentation of immunity or previous vaccination
  - Tdap
  - Yearly influenza vaccination
  - Hepatitis B: vaccinate unless documentation of previous vaccination
  - Employees can decline vaccinations
  - Employees can request a titer check for immunity

- **SHS Referring or Exempt**
  - Yearly influenza vaccination
  - Hepatitis B: vaccinate unless documentation of previous vaccination/Immunity
TB SCREENING PROGRAM

- TB screening at hire and then annually for all licensed healthcare facilities in CA (e.g., acute care hospitals, skilled nursing facilities, primary care clinics)
- Mandatory
PERSONAL PROTECTIVE EQUIPMENT

Donning PPE

1. Gown
2. Mask or Respirator
3. Goggles/Face Shield
4. Gloves
PERSONAL PROTECTIVE EQUIPMENT

Doffing PPE

1. Gloves
2. Goggles/Face Shield
3. Gown
4. Respirator
 RESPIRATORY PROTECTION EQUIPMENT

Employees who are issued an N95 respirator must:
- Complete a Respirator Medical Questionnaire and submit to supervisor
- Complete an N95 fit test and training provided by Environmental Health & Safety

Respirators are disposable and should not be re-worn
Only wear the respirator you were fitted for
EXPOSURE INCIDENTS
EXPOSURE INCIDENT

A spill of human blood, body fluids or contact with tissue on unprotected skin or mucous membranes, contact with a patient with a known ATD in considered an exposure incident by OSHA

- A specific incident with contact with blood or OPIM
- If there are no infiltration of mucous membranes or open skin surfaces, it is not considered an exposure incident
- If you are wearing your PPE or using appropriate control measures when working with a patient with a possible ATD, it is not considered an exposure incident

- Report all incidents involving blood or bodily fluids to your supervisor.
- Complete and submit to EH&S and Supervisor the Incident/Accident Report Form, Supervisor Injury Report and, if applicable, Sharps Injury Log
WHAT TO DO IF AN EXPOSURE OCCURS?

Employee must:

- Contact exposure:
  - Wash exposed area with soap and water
  - Flush splashes to nose, mouth, or skin with water
  - Irrigate eyes with water or saline
- Report the exposure incident to supervisor
- Seek medical evaluation and treatment

Note: Medical evaluation and treatment should begin as soon as possible after exposure, preferably within 24 hours, and no later than 7 days.

Exposures including needlestick is referred to Sharp Rees-Stealy Occupational Medicine or Urgent Care (619) 644-6600
POST-EXPOSURE FOLLOW-UP

Employer must:
- Direct the worker to a healthcare professional (Sharp Rees-Stealy Occupational Medicine or Urgent Care) (619) 644-6600. Complete and submit to HR the Supervisor’s Report of Work-Related Accident/Illness Form.
- Document routes of exposure and how exposure occurred in the Exposure Incident Form.
- Identify and obtain consent from the source individual if legally required.
- Record sharps injuries and type of sharps involved in the sharps injury log.

Health Provider must:
- Obtain sample from source individual and the exposed employee and test as soon as possible after the exposure incident and after consent is obtained.
- Provide written opinion of findings to employer and copy to employee within 15 days of the evaluation.
- Employee shall be advised of regulations concerning disclosure of the identity and infectious status of the source individual.
- Provide risk counseling and offer post-exposure protective treatment for disease when medically indicated in accordance with current U.S. Public Health Service guidelines.
MEDICAL RECORDKEEPING REQUIREMENTS

- Employee’s name and social security number
- Employee’s vaccination and TB status
- Results of examinations, medical testing, and post-exposure evaluation and follow-up procedures
- Health care professional’s written opinion
- Information provided to the health care professional
- Employee medical records must be kept confidential and not disclosed or reported without the employee’s written consent (unless required by law)
- Medical records must be maintained for duration of employment plus 30 years according to OSHA’s rule governing access to employee exposure and medical records
- Medical Records are stored at the Occupational Health Care Provider, and HR if worker’s compensation. Vaccination records are maintained at EHS.
REFERENCES

 CDC

• 2007 Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings

• Guideline for Hand Hygiene in Health-Care Settings
  MMWR 2002; vol. 51, no. RR-16
  http://www.cdc.gov/mmwr/PDF/rr/rr5116.pdf

 Cal/OSHA

• Aerosol Transmissible Disease Standard
  http://www.dir.ca.gov/Title8/5199.html

• Appendix A http://www.dir.ca.gov/Title8/5199a.html
REFERENCES

Seasonal Influenza Infection Control Guidelines 2010

- CDC: http://www.cdc.gov/flu/professionals/infectioncontrol/index.htm