

# The Cal/OSHA Aerosol Transmissible Diseases Standards

# Objectives

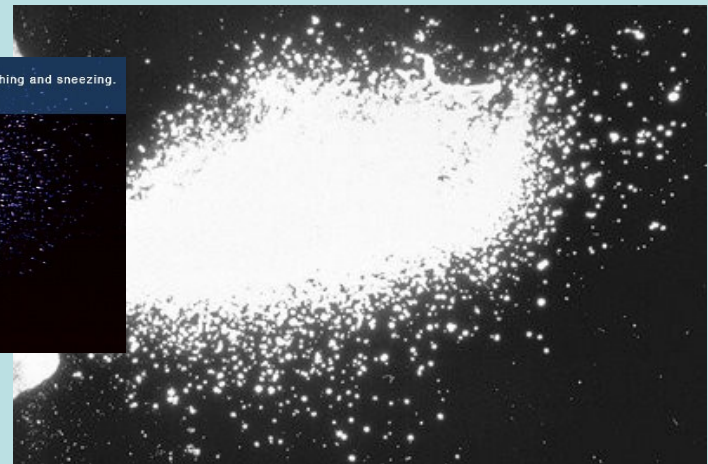
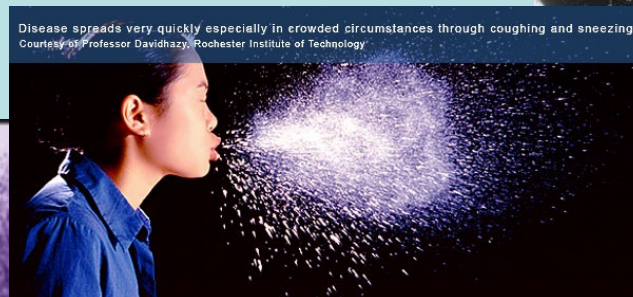
1. Describe how aerosol transmissible diseases are classified.
2. Apply common control measures to prevent the risks of aerosol transmissible diseases in medical practices.
3. Identify specific control measures applicable to airborne infectious diseases such as tuberculosis
4. Interpret and report the exposure incidents and medical follow-up requirements under the ATD Standard

# Physician's Roles in the ATD Standards

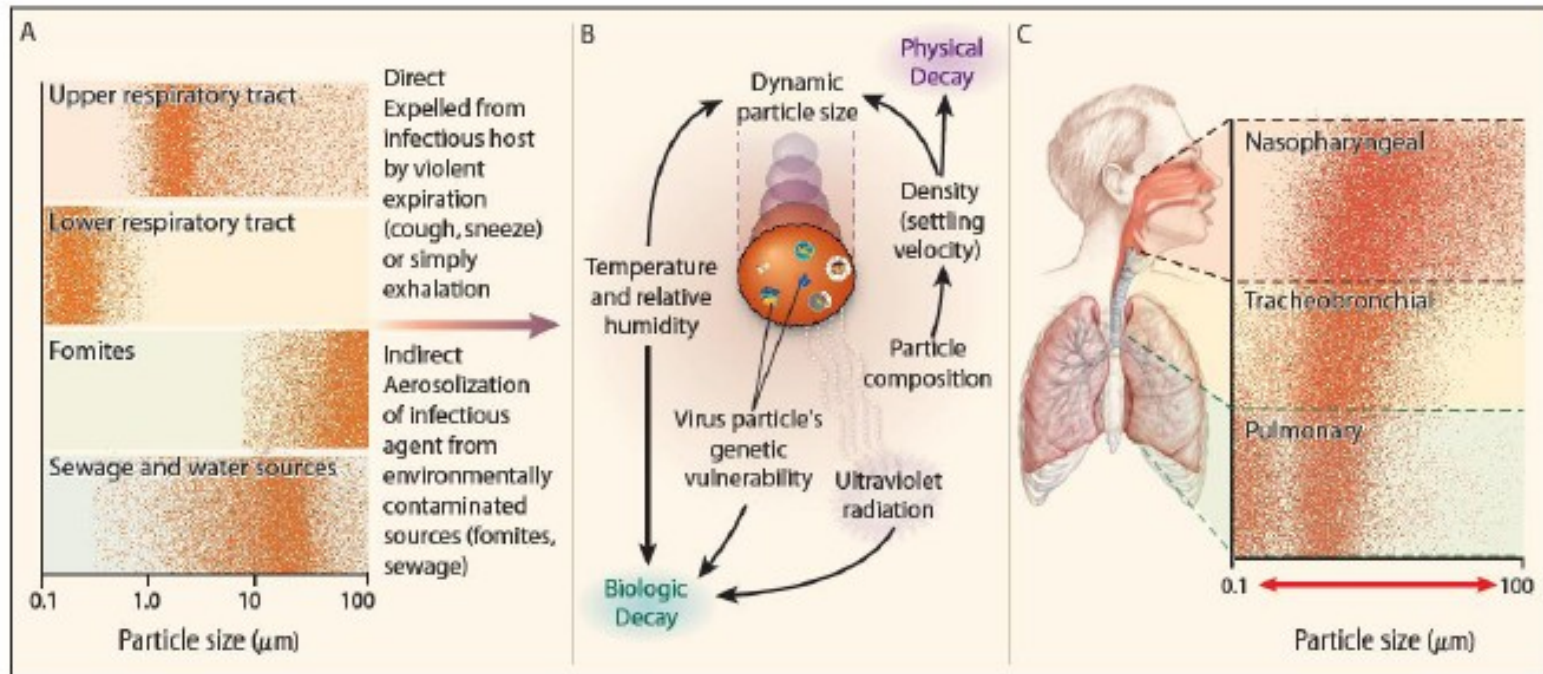
- Prevention and surveillance
  - Vaccination
  - TB surveillance
  - Medical surveillance program for zoonotic quarantine or emergency response, laboratories
- Post-exposure
  - Evaluation
  - Prophylaxis
  - Precautionary removal
- Employer
  - Establish infection control procedures (referring) or ATD exposure control plan

# What is an Aerosol Transmissible Disease?

- A disease
- That is transmitted by aerosols (A gaseous suspension of fine solid or liquid particles)



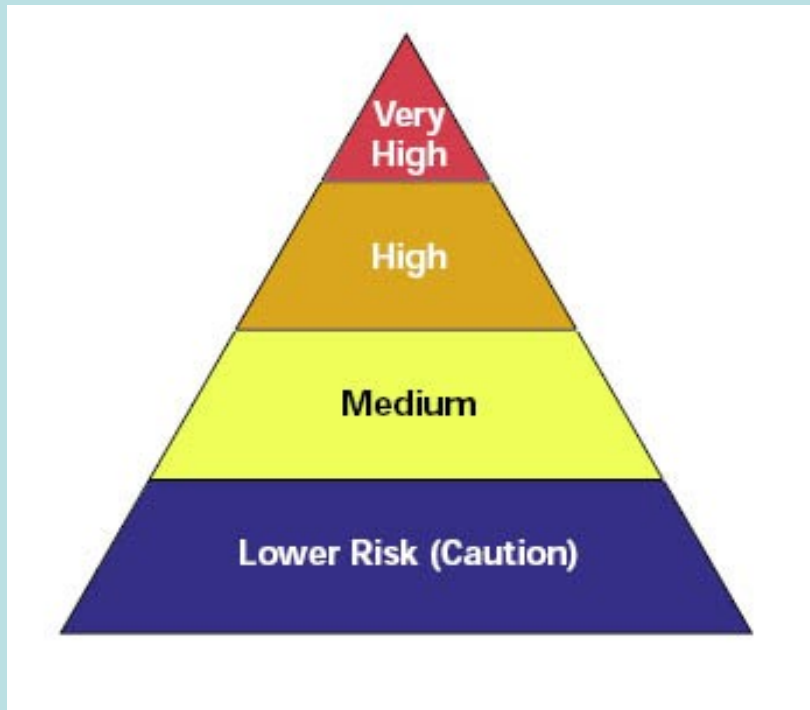
# The Aerobiological Pathway for Transmission of Communicable Respiratory Disease



A: Source, B: Transport and Dispersion, C: Deposition

Roy C and Milton DK, New Engl J Med, 2004

# OSHA Risk Pyramid



How Do You Know  
it's a pyramid?

**HCW – Aerosol  
Generating Procedures**

**HCW**

**High Frequency  
Contact with General  
Population**

**Minimal contact with  
general public and  
other co-workers**

# Scope

- Applies in health care and certain other high risk environments
  - Corrections
  - Homeless shelters
  - Drug treatment programs
  - First receiver
- Applies to diseases classified by HICPAC as either droplet or airborne
  - Novel or unknown pathogens considered airborne

# Occupational Exposure

- Work activity or conditions create an elevated risk of contracting disease if protective measures are not in place
  - Elevated exposure risk vs. other public contact operations
- Presumed for at least some employees in every facility, service or operation listed in (a)(1)
- Examples:
  - Direct contact with cases or suspected cases of ATDs
  - Works within range of at-risk populations (e.g. homeless shelter staff)
  - Laboratory areas where ATPs-L are handled
  - Contaminated equipment (e.g. AIIR ventilation systems)



# Which Diseases?

- Covered diseases listed in Appendix A
- California Code of Regulations (Title 17) lists reportable diseases
- HICPAC “epidemiologically significant” diseases by route of transmission
- New diseases -- Novel and Unknown Pathogen, e.g. SARS, pan flu
- Seasonal flu classified as “droplet”, vaccinations for all covered by standard

# Droplet vs. Airborne

- Infection control guidelines distinguish between diseases primarily spread by:
  - larger droplets (near field) >5 microns (droplet precautions)
  - Small droplets, droplet nuclei, dusts containing the pathogen (airborne isolation)
- Aerosol science does not distinguish in this way
- There is evidence for an “airborne route” for many diseases
  - E.g Roy CJ, Milton DK NEJM 350;17 April 22, 2004

# Airborne Infectious Diseases

- Airborne spore release (e.g. anthrax) until decon
  - Chickenpox (Varicella)
  - Highly pathogenic avian influenza
  - Herpes zoster (varicella-zoster, disseminated disease, per CDC)
  - Measles (rubeola)
  - Monkeypox
  - SARS (Severe Acute Respiratory Syndrome)
  - Smallpox
  - Tuberculosis
- Cal/OSHA added:**
- **Novel or Unknown pathogen**
  - **Any other disease or pathogen for which CDPH or local health officer recommends All**

# Some Droplet Diseases

- Diphtheria
- Influenza
- Meningococcal disease
- Mumps
- Mycoplasma pneumonia
- Pertussis
- Plague (pneumonic)
- Rubella
- SARS
- Viral hemorrhagic fevers
- Any other disease or pathogen for which CDPH or LHO recommends droplet precautions

“One example was the debate during SARS over whether SARS was transmitted by large droplets or through airborne particles. The point is not who was right and who was wrong in this debate. When it comes to worker safety in hospitals, we should not be driven by the scientific dogma of yesterday or even the scientific dogma of today. We should be driven by the precautionary principle that reasonable steps to reduce risk should not await scientific certainty.” SARS

*Commission Final Report, Volume 3, p. 1157*

# Controlling Aerosol Infection Risks

- Reducing exposure
- Source Control
- Engineering controls – closed circuit suctioning, booths, Airborne infection isolation as necessary
- Respiratory Protection
- Hand hygiene (contact precautions where indicated)
- Medical services

# Four Types of Employers defined by the Cal-OSHA ATD Standard

- Referring: don't provide care beyond initial to cases and suspected cases of AirIDs diseases, and don't 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 **don't** treat ATDs and have screening procedures

# Is My Facility a “Referring Employer?”

- **Screen** persons for airborne infectious diseases (AirID).
- **Refer** any person identified as a case or suspected case of and Airborne Infectious Disease.
- **Not intend to provide further medical services** to **AirID** cases and suspected cases beyond first aid, initial treatment or screening and referral (no high hazard procedures on ATD cases)
  - Exception for novel pathogens – may maintain in facility if not feasible to provide All
- **Not provide transport, housing, or airborne infection isolation** to any person identified as an **AirID** case or suspected case,
  - Exceptions: may provide non-medical transport in the course of a referral
  - May provide housing and isolation if All not feasible for novel pathogens



# Referring Employers

(subsection c)

- Source control, including early identification, cover cough, separation
- Screening procedures for airborne infectious diseases (AirIDs)
  - Medical
  - Non-medical (App. F)
- Have a system for timely referral (transfer) including getting information back
- Train employees
- Respirators for:
  - AirID cases not referred
  - AirID cases during initial treatment who are not using source control, unless respirator use not feasible

# Referring Employers

(subsection c)

- Have a system for exposure incidents, including precautionary removal, and TB surveillance
- Provide additional CDC recommended vaccines to HCWs (effective 9/1/10)
- Provide seasonal flu vaccine to all employees with occupational exposure
- Record keeping

# Elements of the ATD Standard

(Title 8, California Code of Regulations, Section 5199)

- 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, if applicable

# Employer Required to Pay for Medical Services

The employer shall provide all safeguards required by this section, including provision of 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 (5199(a)(4))

# Medical Services Requirements

- Follow applicable public health guidelines  
[5199(h)(1)]
- By or under supervision of PLHCP  
[5199(h)(2)]
- Ensure **confidentiality** of patient and  
employee [5199(h)(2)]
- Lab tests conducted by accredited lab  
[5199(h)(4)]

# Vaccinations

- Seasonal influenza – all employees covered by the standard as of 8/5/09
  - Not required outside of CDC recommended time frame
- Susceptible health care workers – as of 9/1/10
  - Mumps measles rubella (MMR)
  - Varicella
  - Tetanus, diphtheria, acellular pertussis (Tdap)
  - Influenza
- Laboratory
  - If HCW, as above
  - Additional vaccine as recommended by BMBL/ACIP

# Tuberculosis Surveillance

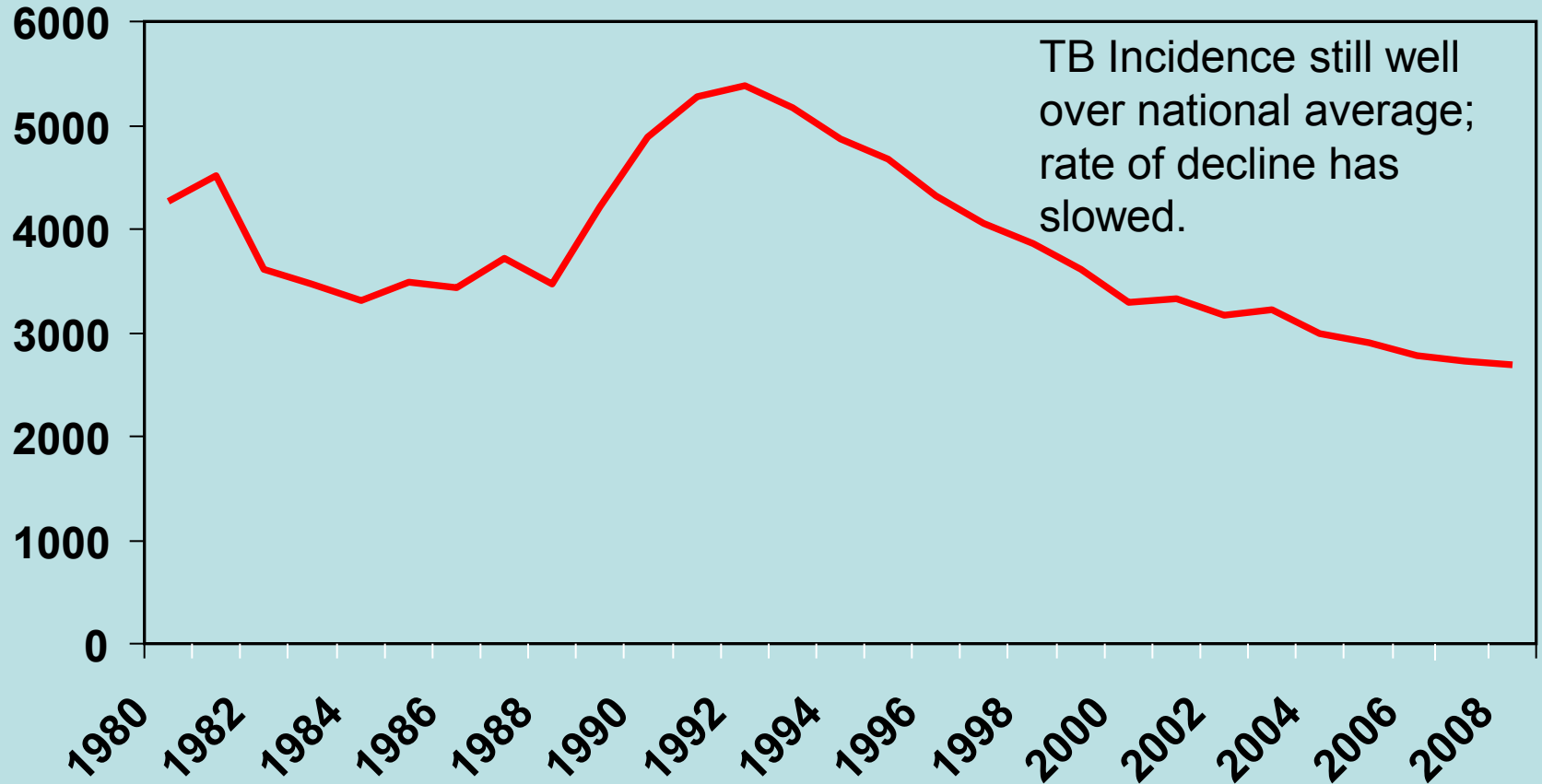
- Annual for all employees covered by the standard
- Permits any test approved by FDA and recommended by CDC
  - Use of tests other than tuberculin skin test still needs CDPH waiver where required by Title 22 and other regs
- PLHCP to evaluate conversions, make recommendation re precautionary removal
- Employer to record TB conversions unless not occupational

# Why Annual TB Test

- Tuberculosis is a serious, life threatening disease
- Approximately 1/3 of the world's population is infected
- California a high TB state
- TB often not diagnosed at first health care encounter
- Exposure investigations less effective the longer the time interval between infection and detection
- Treatment most effective in first year after infection
- Recommended by California TB Controllers and CDPH Occupational Health Branch



# Tuberculosis Cases in California, 1980-2008



# Counties in CA with increased TB incidence 2007- 2008



Source: CDPH

# TB conversion

- Refer to PLHCP knowledgeable about TB
- If employee consents, PLHCP to perform diagnostic tests
- PLHCP to inform employee about treatment options
- If employee is TB case or suspected case:
  - Inform local health officer and employee
  - Consult with LHO re infection control
  - Precautionary removal recommendation as indicated to employer
- Provide written opinion to employer

# RATDs

- Reportable Aerosol Transmissible Disease
  - Reportable under California Public Health Regulations (Title 17, Section 2500)
  - Listed in ATD Standard, App. A
  - Includes “unusual disease” for which CDPH requires a report
  - Triggers requirements for investigation of exposure incidents (Subsections (h)(6) through (h)(9))

# Exposure Incident reports

- Diagnosing health care provider or HCP's employer reports RATD to local health officer (LHO)
- Employer to determine from its records other employers whose employees may have had contact with case and notify within reasonable time frame for specific disease, and no longer than 72 hours past report to LHO
  - E.g. Ambulance, paramedics, EMTs, referring physician's office or clinic

# Exposure Analysis

- Each employer conducts analysis of exposure scenario within timeframe reasonable for specific disease and no longer than 72 hours after report to LHO or receipt of notification.

## Record:

- name and employee identifier of each employee included in analysis
- basis for determining that an employee doesn't need to be referred for medical follow-up
- Person performing exposure analysis and PLHCP consulted re immunity

# Evaluating Exposure Incidents

- What determines the likelihood of transmission of disease?
  - Distance
  - Time
  - Infectivity of the source
    - Superspreaders
  - Susceptibility of the host
- TB contact tracing typically limited by time and distance

# Exclusion from post-exposure follow-up

- PLHCP determined that employee not susceptible to disease
  - Susceptibility to be determined in accordance with applicable public health guideline
- Employee did not have “significant exposure”
  - “An exposure to a source of ATPs or ATPs-L in which the circumstances of the exposure make the transmission of a disease sufficiently likely that the employee requires further evaluation by a PLHCP.”



# Exposure Incident Medical Follow-Up

- Within reasonable time frame for disease and no more than 96 hours after notified of exposure
  - Notify all employees with significant exposures
  - As soon as feasible, refer to medical provider who is knowledgeable about the specific disease

# Medical Services – Alternate Provider

When an employer is also acting as the evaluating health care professional, the employer shall advise the employee following an exposure incident that the employee may refuse to consent to vaccination, post-exposure evaluation and follow-up from the employer-health care professional. When consent is refused, the employer immediately shall make available a confidential vaccination, medical evaluation or follow-up from a PLHCP other than the exposed employee's employer.

## Exposure Incident Medical Follow-up (2)

- PLHCP to provide vaccination, prophylaxis and treatment
- Test isolate for drug susceptibility if available and indicated by public health guidelines
- Determination regarding precautionary removal
- Written opinion to employer

# Precautionary Removal

- As a result of follow-up for TB conversion
- As a result of follow-up for an exposure incident
- Employee is otherwise able to work
- Physician or Local Health Officer recommends removal for infection control
- Employer must maintain employee's pay and other benefits during period of removal
- PRP ends at end of potential infectious period or if employee becomes sick

# Information Provided to the PLHCP

- Standard, Applicable Guidelines
- Info re respirators, per 5144
- Info re exposure incident
  - Employee's duties
  - How exposure occurred
  - Available diagnostic tests for source
  - Relevant employee medical records (e.g. vaccination)

# Information Provided by PLHCP

- Respirators, same as 5144
- TB Conversions and Exposure Incidents
  - TB or RATD test status
  - Infectivity status
  - Statement that employee has been informed of results of evaluation and offered relevant prophylaxis, vaccination or treatment
  - Statement that employee has been told about further treatment issues resulting from exposure
  - Recommendation for precautionary removal, if any
- ALL other conditions/findings to remain confidential



"CRACKER SCHMACKER!...POLLY WANNA GAS MASK!!"

# Zoonotics – Section 5199.1

- Applies to any place where employees are exposed to animals, or their products or wastes
- Under normal circumstances address under IIPP (Section 3203), PPE and sanitation regulations





# Zoonotic Disease: Exposures to Infected Animals

- 3 levels of risk lead to increased protection
- Increased precautions for wildlife when alert issued by DFG, USDOJ
- Increased precautions on farms etc. when movement restriction or quarantine issued by CDFA or USDA
- Hazwoper style precautions for eradication and disposal operations for infected animals
- Vivariums to comply with BMBL
- Medical services required as recommended by CDPH or LHO



# Find Cal/OSHA on the Web

- Section 5199:  
<http://www.dir.ca.gov/Title8/5199.html>
- Cal/OSHA regulations:
  - <http://www.dir.ca.gov/samples/search/query.htm>
- Advisory committee webpage:
  - [http://www.dir.ca.gov/dosh/DoshReg/advisory\\_committee.html](http://www.dir.ca.gov/dosh/DoshReg/advisory_committee.html)