

BIOLOGICAL HAZARDS

LCCC SAFE 225

PP 6

Marc Snitzer RS, CSP, CIH



OBJECTIVES

LEARN

- Identify Biological Hazards to Employees
- Identify Protections for These Hazards

BIOLOGICAL HAZARDS

ONE TYPE OF HAZARD

All Hazards are One of These Four Types

- Physical
- Chemical
- Biological
- Ergonomic

BIOHAZARDS

Organism Alive or Not or Its Products that Can Cause Disease or Other Harm to Workers

WHAT ORGANISMS CAUSE BIOLOGICAL HAZARDS

- Virus
- Bacteria or Other Microorganisms
- Plants
- Fungi
- Animals

TYPES OF COMMON HAZARDS

Common Hazards

- Bloodborne Pathogens
- Legionnaires Disease
- Lyme Disease
- Tuberculosis
- Hepatitis B

OTHER BIOLOGICAL HAZARDS

HealthCare

- Infections

Research Facilities

- Q Fever
- Typhoid Fever

Animal Care

- Bites, Scratches
- Parasites

Wood Processing

- Fungi

Childcare

- Measles
- Chickenpox (Shingles)
- Influenza

LEGIONNAIRES' DISEASE

- First Found 1976 Legionnaire Convention
- Type of Pneumonia Caused by Bacteria
- Bacteria Found in Fresh Water

SOURCES AND TRANSMISSION LEGIONELLA

- Contaminated Water Mainly 68°F -122°F
- Water Cooled Heat Transfer Systems
 - Cooling Towers – Most Common
 - Fluid Coolers
 - Domestic Hot Water
 - Cooling Tanks

MOST LIKE TO CAUSE LEGIONELLA TRANSMISSION

Inhalation of
Contaminated Water

- Aerosols
- Fine Sprays
- Mists
- Droplets



SYMPTOMS

Early – Mistaken for Flu

- Headache
- Mild Fever
- Body Aches
- Fatigue
- Loss of Appetite

Later – Pneumonia

- High Fever
- Cough
- Shortness of Breath
- Chills
- Chest Pain

WORKER EXPOSURE WORKERS WORKING NEAR

- Cooling Towers
- Evaporative Coolers
- Water Heaters
- Larger Plumbing Systems
- Pools, Hot Tubs
- Large Air Conditioning Systems
- Humidifiers
- Misting Systems
- Showers and Water Taps

Any Exposure to Water especially at Temperatures between 68°F -122°F

PREVENTION OF LEGIONELLA

- Maintenance of Circulated Water Systems
- Elimination of Standing Water
- Maintaining Water above 122°F or Below 68°F

Refer to:

[Legionnaires' E-Tool](#)

LYME DISEASE

- Black Legged (Deer Tick) Carries Bacteria *Borrelia burgdorferi*
- Bacteria Carried in Deer and Wild Rodents



Black Legged Tick

LYME EARLY SYMPTOMS

- Characteristic Bullseye Rash 70-80% of Patients
- Fever
- Chills
- Headache
- Fatigue
- Swollen Lymph Nodes

LYME LATER SYMPTOMS

- Severe Neck and Headaches
- Arthritis Especially in Large Joints
- Facial Palsy (Droop of Facial Muscles)
- Body Aches
- Heart Palpitations
- Dizziness Shortness of Breath
- Nerve Numbness or Pain
- Short-Term Memory Problems

LYME OCCUPATIONAL EXPOSURES

Outdoor Workers Especially in Areas With Higher
Vegetation

- Forestry, Logging
- Construction
- Clearing Brush
- Park Work

LYME PREVENTION

- Avoid Higher Vegetation Especially April-September
- Permethrin 0.5% on Long Clothing
- Insect Repellents on Skin
- Examine and Remove Crawling Ticks on Skin and Clothing
- Shower Within 2 Hours
- Dry Outdoor Clothing on High Heat for 10 Minutes

TUBERCULOSIS

- Mycobacterium tuberculosis
Bacteria
- Spread Through the Air –
Cough, Sneeze,
Breathing



TUBERCULOSIS SYMPTOMS

- Productive Cough
- Chest Pain
- Coughing Up Blood
- Fatigue
- Weight Loss
- Night Sweats

TB HAZARDOUS EXPOSURES

- Health Care
- Long Term Care Facilities
- Correctional Facilities
- Homeless Shelters
- Drug Treatment
- Long Term Disaster Facilities

TB CONTROLS

- Early Identification
- Medical Surveillance
- Case Management of Employees
- Worker Education and Training
- Isolation/Engineering Controls

[OSHA Tuberculosis Page](#)

HEPATITIS B (HBV)

- Virus that Attacks the Liver
- Can Become Lifelong Infection
- Cirrhosis (Scarring) of Liver
- Liver Failure
- Liver Cancer
- Can be Fatal

SOURCES OF EXPOSURE BLOOD OR BODY FLUIDS

- Needle Sticks
- Injectable Drug Use
- Tattoos and Body Piercing
- Sharing Items Such as Razors or Toothbrushes
- Bites from Infected Person

SYMPTOMS OF HBV

- Fatigue
- Loss of Appetite
- Vomiting/Diarrhea
- Joint Pain
- Dark Urine/Light Colored Stools
- Jaundice

EXPOSED EMPLOYEES

- Healthcare Workers
- First Aid Staff
- Medical Laboratories
- Dental Care
- Funeral Home Workers
- Police and Fire Responders



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