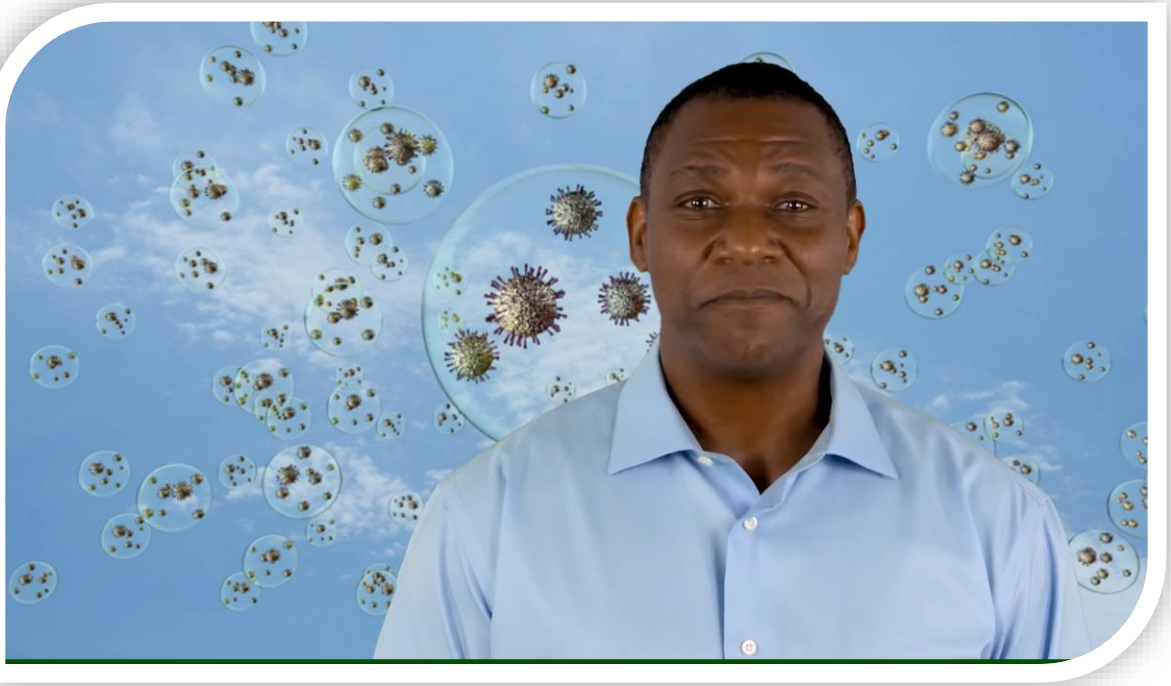
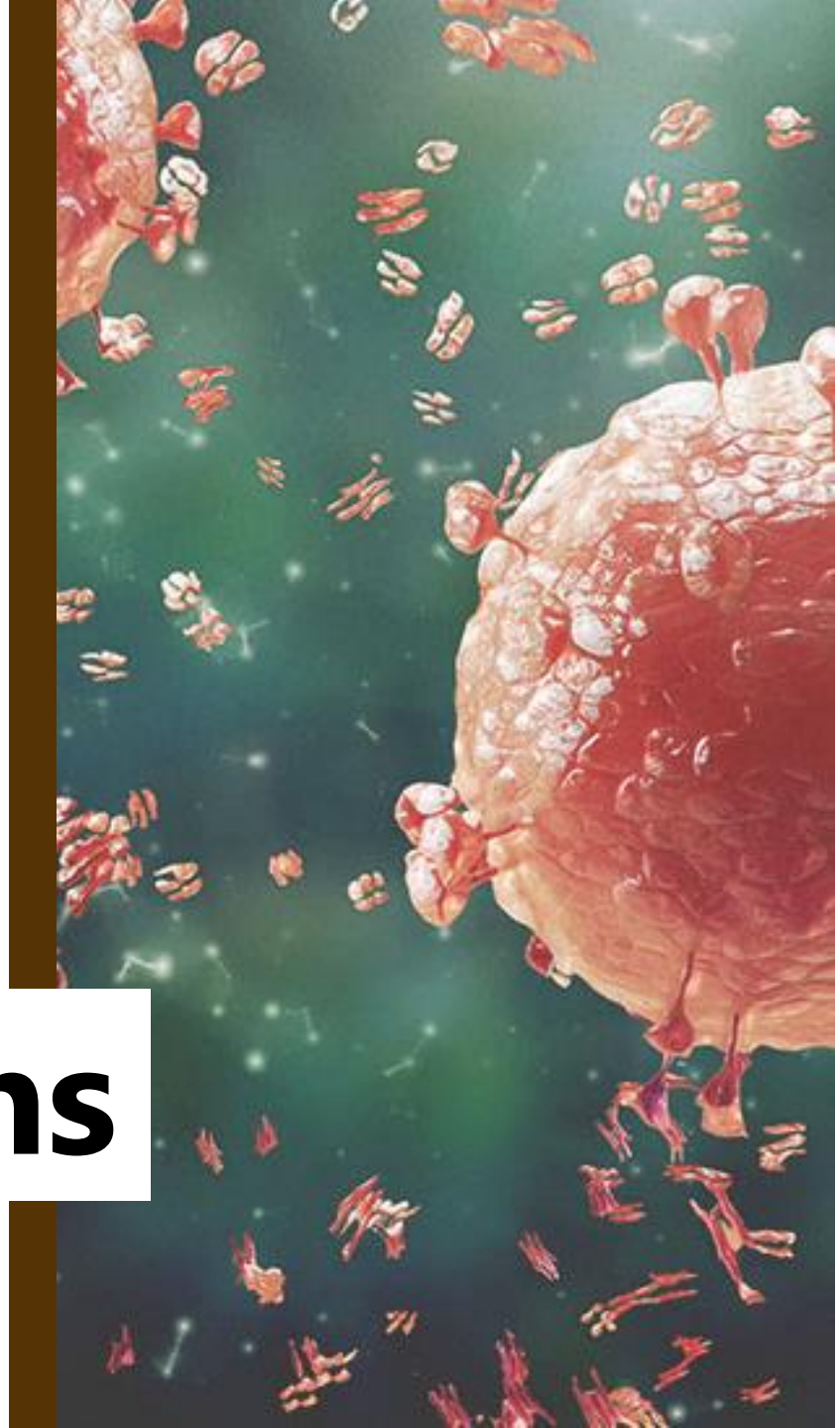
MISSION CIT
Critical Immersive Training





OSHA CARE BY MISSIONCIT™

Airborne Pathogens

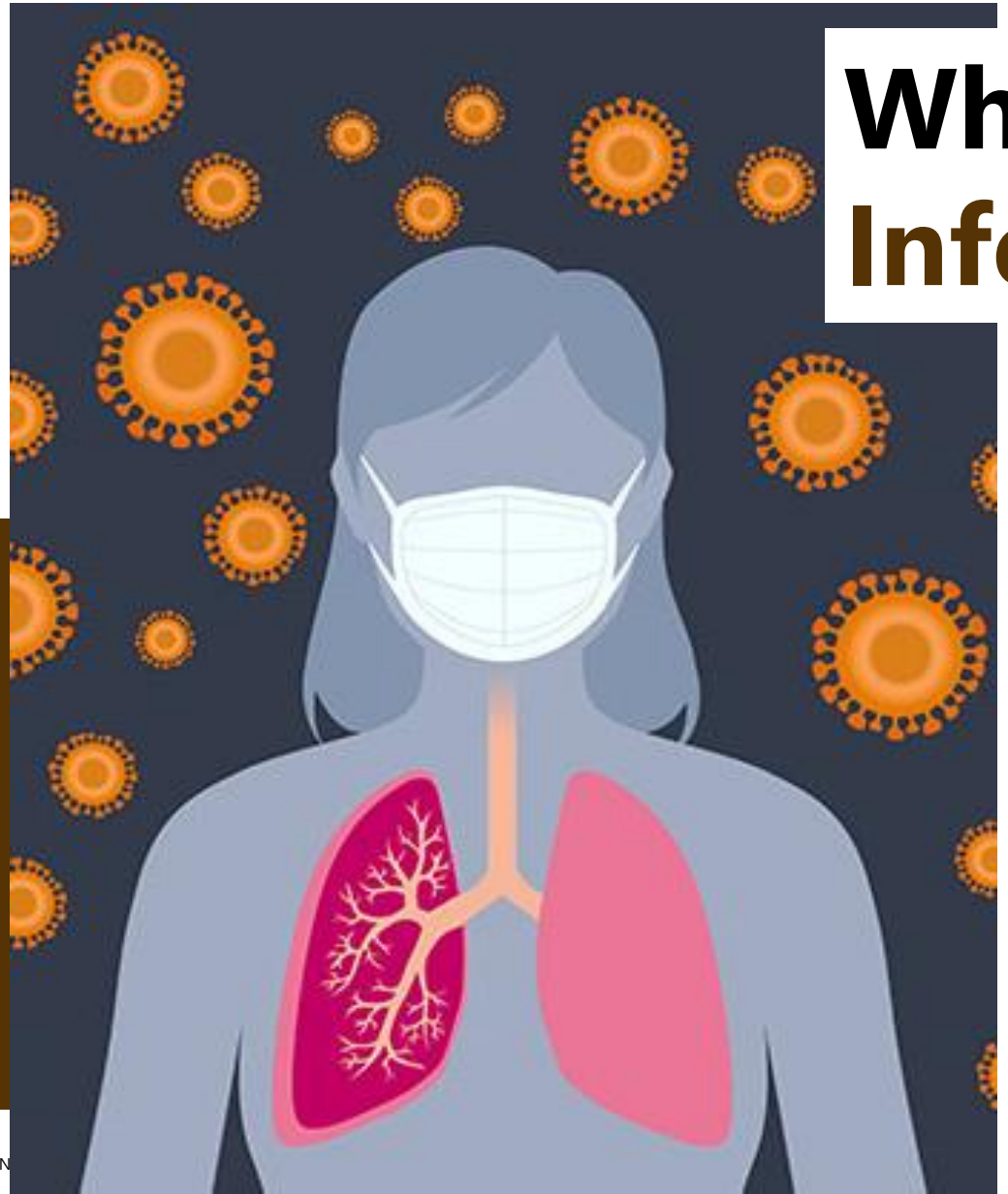
OSHA Care Ch 03

COPYRIGHT © MISSIONCIT, LLC 2020-2021 ALL RIGHTS RESERVED | OSHA CARE™ CHAPTER 03 | AIRBORNE PATHOGENS

Lessons

1. What are Infectious Diseases?
2. Specific Airborne Diseases
3. Protecting Against Airborne Pathogens

Copyright © MissionCIT, LLC 2020-2021 All Rights Reserved | OSHA Care™ Chapter 03 | Airborne Pathogens



What are Infectious Diseases?



COPYRIGHT © MISSION

What are Infectious Diseases?

- Caused by living organisms like virus, fungi, bacteria, and parasites
- Quickly transmit from infected to healthy individuals
- Potential to infect large numbers of people quickly

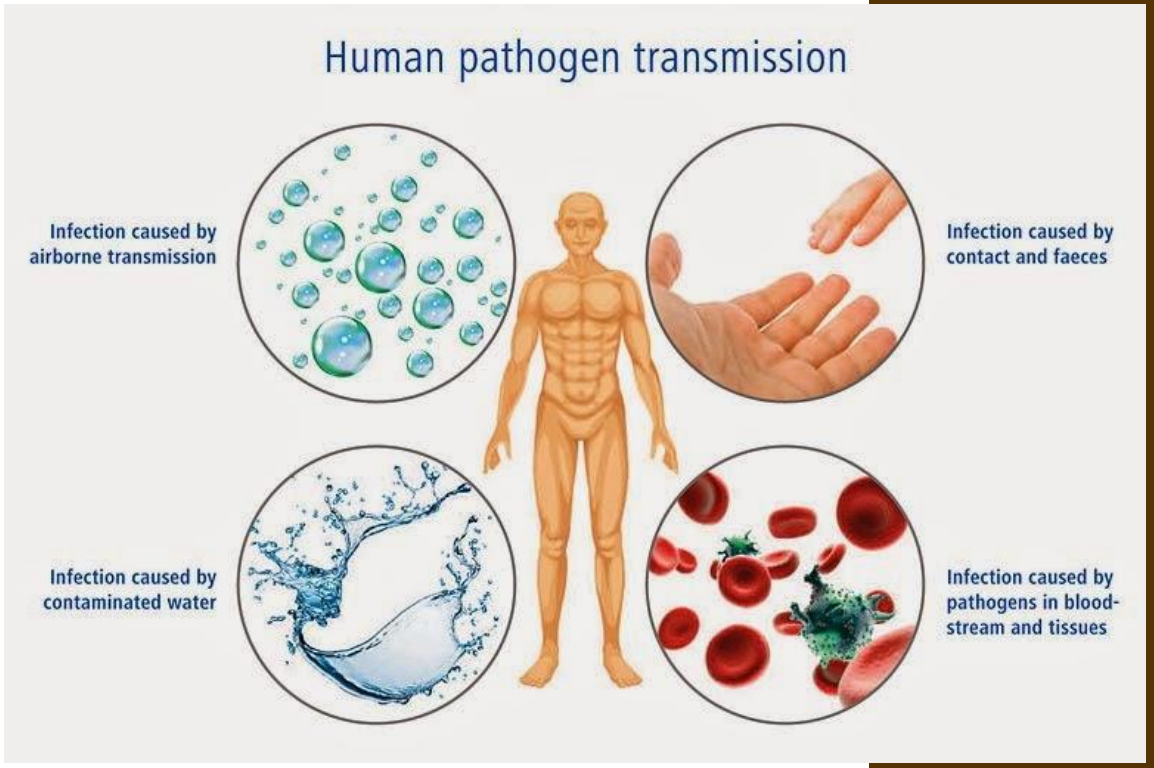




Copyright © MissionCIT, LLC 2020-2021 All Rights Reserved | OSHA Care™ Chapter 03 | Airborne Pathogens

Modes of Transmission

- Transmitted in multiple ways
- Air is the most common medium
- Severity depends on a host of factors
- Higher risk comes with:
  - ✓ Suppressed immunity system
  - ✓ Unvaccinated against common diseases
  - ✓ Healthcare workers
  - ✓ Travelers going to high-risk areas
  - ✓ Contact with infected person

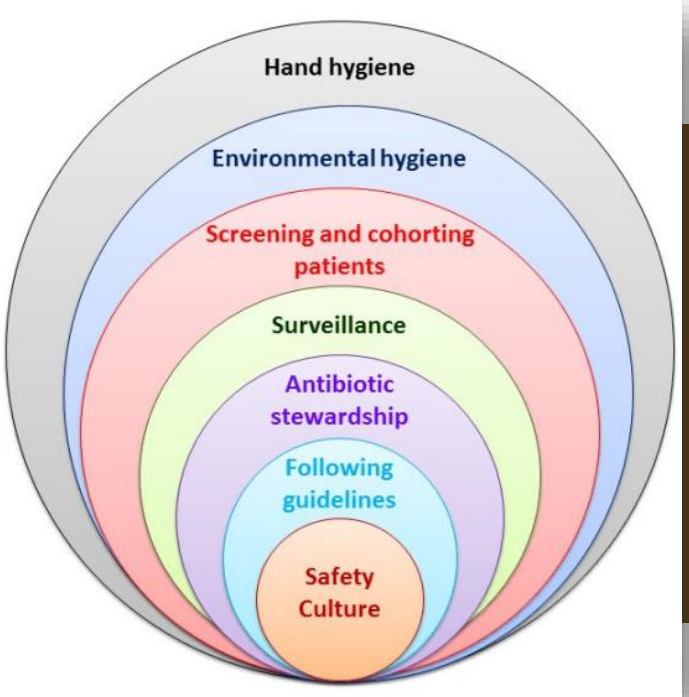


Copyright © MissionCIT, LLC 2020-2021 All Rights Reserved | OSHA Care™ Chapter 03 | Airborne Pathogens

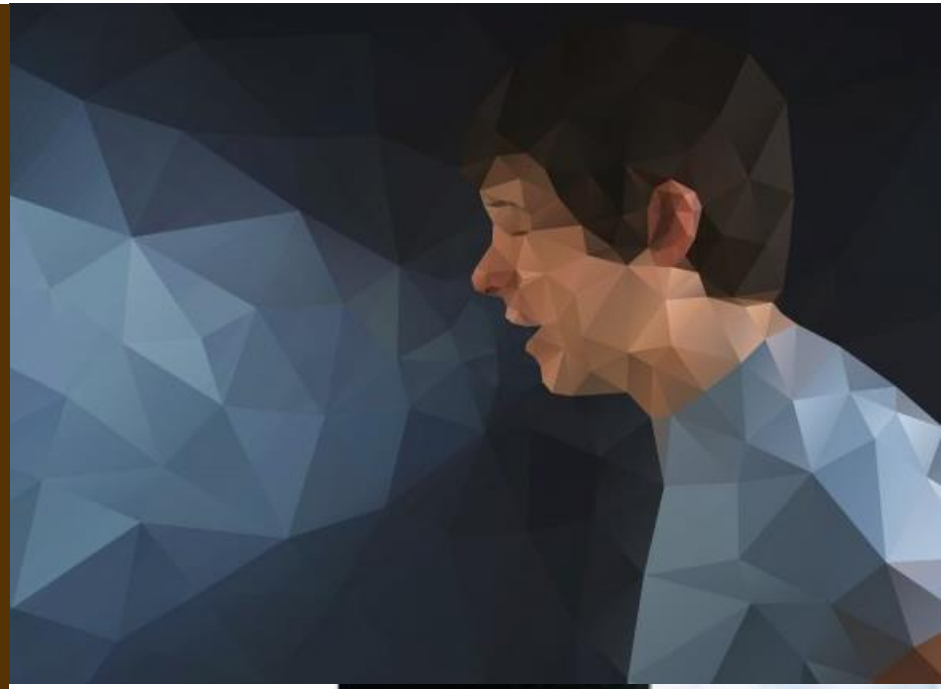


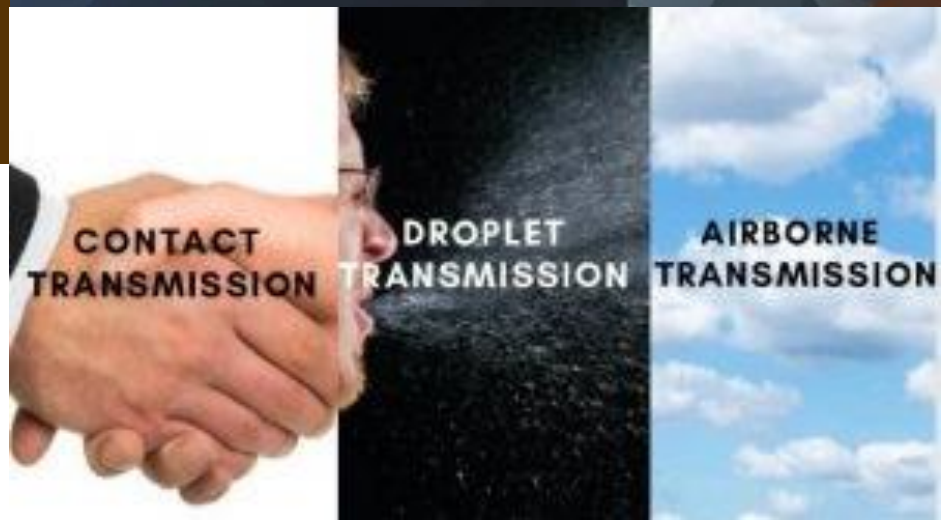
Transmission of Infectious Agents for Emergency workers

- While examining patients
- Moving individuals from a building that's on fire
- Transporting individuals from their homes to hospitals
- Coming in contact with contaminated surfaces and objects
- Providing care for an infected individual in a healthcare setting



COPYRIGHT © MISSIONCIT, LLC 2020-2021 ALL RIGHTS RESERVED | OSHA CARE™ CHAPTER 03 | AIRBORNE PATHOGENS





Impact on Non-emergency workers

- Close contact with co-workers
- Infected people at public places like parks and shopping malls
- Stay on top of infectious diseases and their symptoms
- Understand and follow the guidelines

COPYRIGHT © MISSIONCIT, LLC 2020-2021 ALL RIGHTS RESERVED | OSHA CARE™ CHAPTER 03 | AIRBORNE PATHOGENS



Specific Airborne Diseases

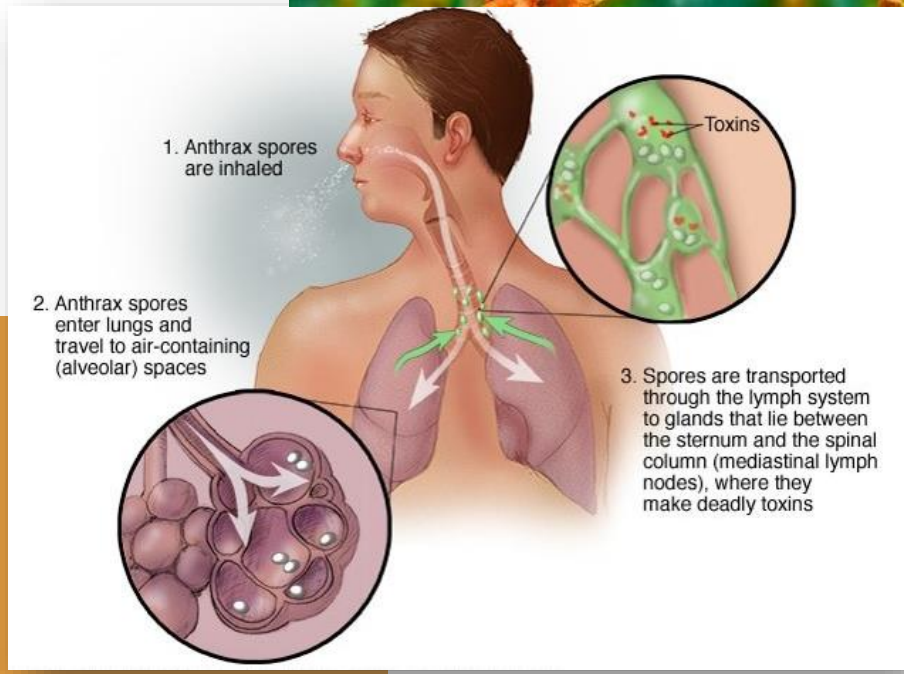


COPYRIGHT © MISSION

Anthrax

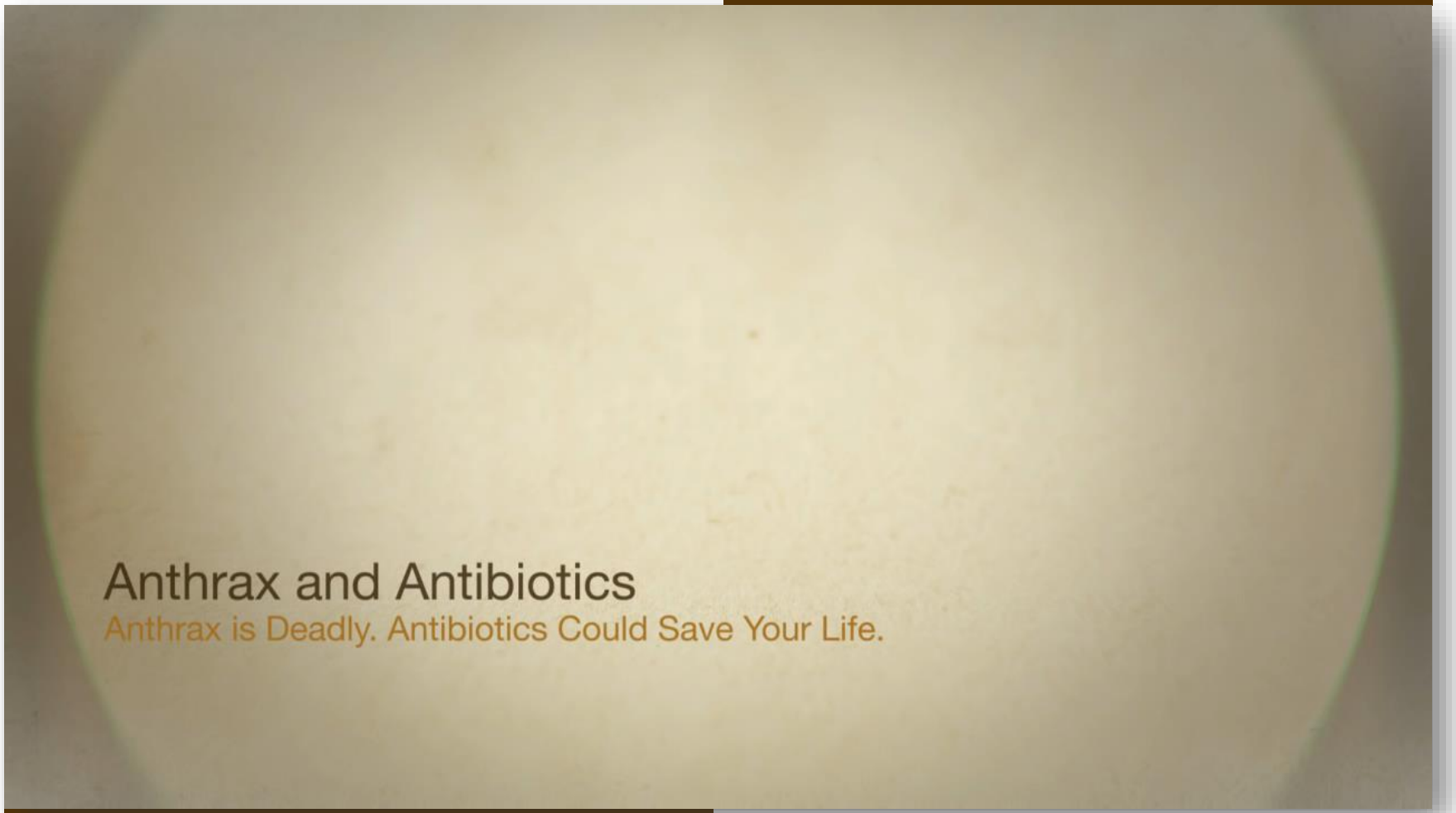
- Rare but serious bacterial infection
- Affects animals and spreads to humans through contact with infected animals or inhaling spores
- Common symptoms:
  - ✓ Mild chest discomfort
  - ✓ Flu-like symptoms
  - ✓ Nausea
  - ✓ Painful swallowing
  - ✓ Coughing blood
  - ✓ Meningitis





Copyright © MissionCIT, LLC 2020-2021 All Rights Reserved | OSHA Care™ Chapter 03 | Airborne Pathogens

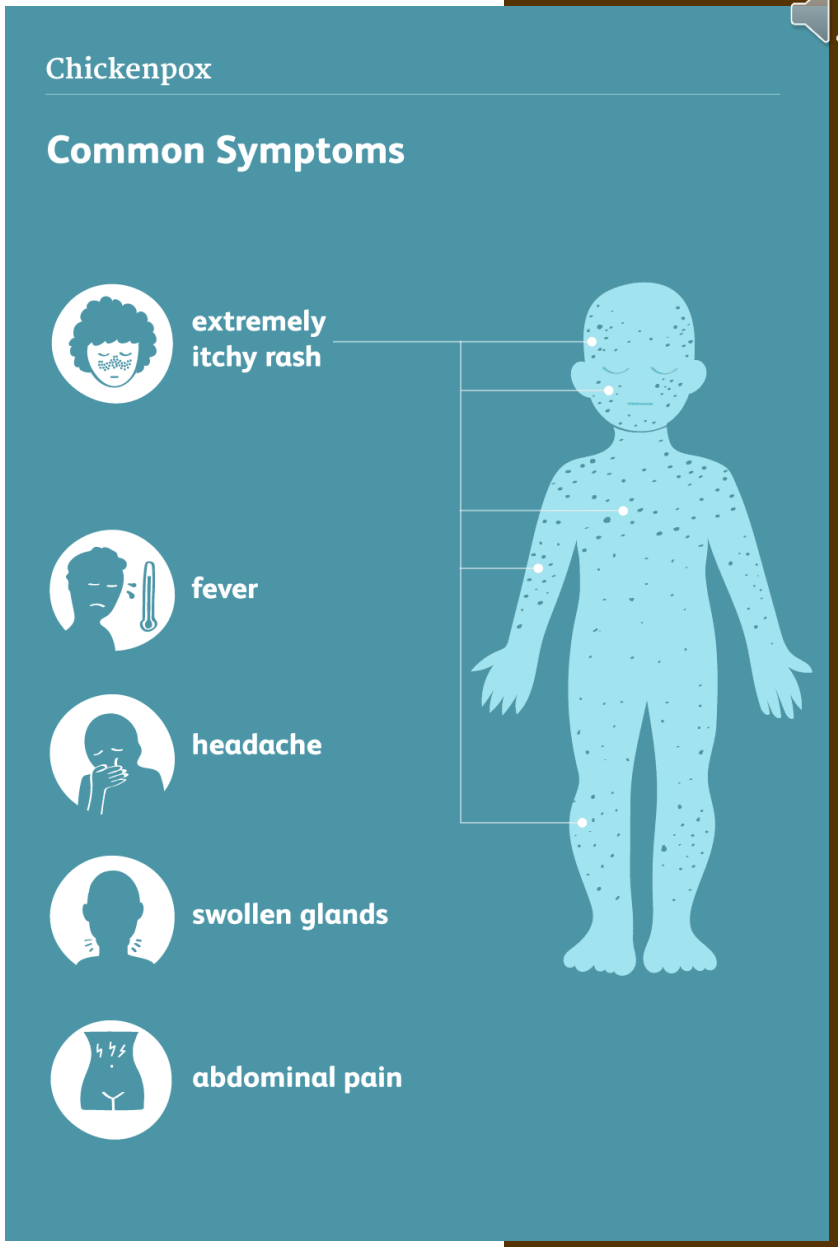
Anthrax is Deadly. Antibiotics Could Save Your Life.



Copyright © MissionCIT, LLC 2020-2021 All Rights Reserved | OSHA Care™ Chapter 03 | Airborne Pathogens

Chickenpox

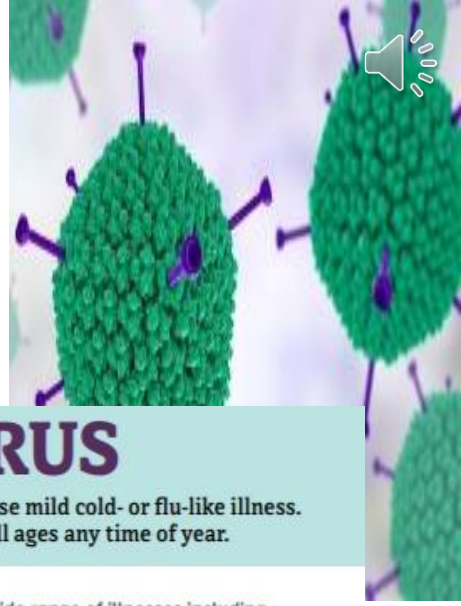
- Highly contagious
- Caused by varicella-zoster virus
- Characterized by a skin rash that starts on the chest, back, and face, and spreads to the rest of the body
- A person becomes infectious 1-2 days before the rash becomes visible
- When you get chickenpox, you get immunity for life



Copyright © MissionCIT, LLC 2020-2021 All Rights Reserved | OSHA Care™ Chapter 03 | Airborne Pathogens

Adenovirus

- Common virus that affects the lining of the eyes, airways, and lungs, intestines, urinary tract, and nervous system
- More likely in kids than adults
- Common symptoms – Fever, cough, core throat, diarrhea, pink eye, croup cough, ear infection, stomach and intestinal infections, and bronchitis



ADENOVIRUS

Adenoviruses are common viruses that typically cause mild cold- or flu-like illness. Adenoviruses can cause illness in people of all ages any time of year.

ADENOVIRUS SYMPTOMS

Adenoviruses can cause a wide range of illnesses including

- common cold- or flu-like symptoms
- fever
- sore throat
- pink eye (conjunctivitis)
- acute bronchitis (inflammation of the airways of the lungs, sometimes called a "chest cold")
- pneumonia (infection of the lungs, occasionally severe)
- diarrhea
- acute gastroenteritis (inflammation of the stomach or intestines causing diarrhea, vomiting, nausea, and stomach pain)

Less common illnesses caused by adenovirus include bladder infection or inflammation and neurologic disease (conditions that affect the brain and spinal cord).

HOW ADENOVIRUSES SPREAD

Adenoviruses are usually spread from an infected person to others through

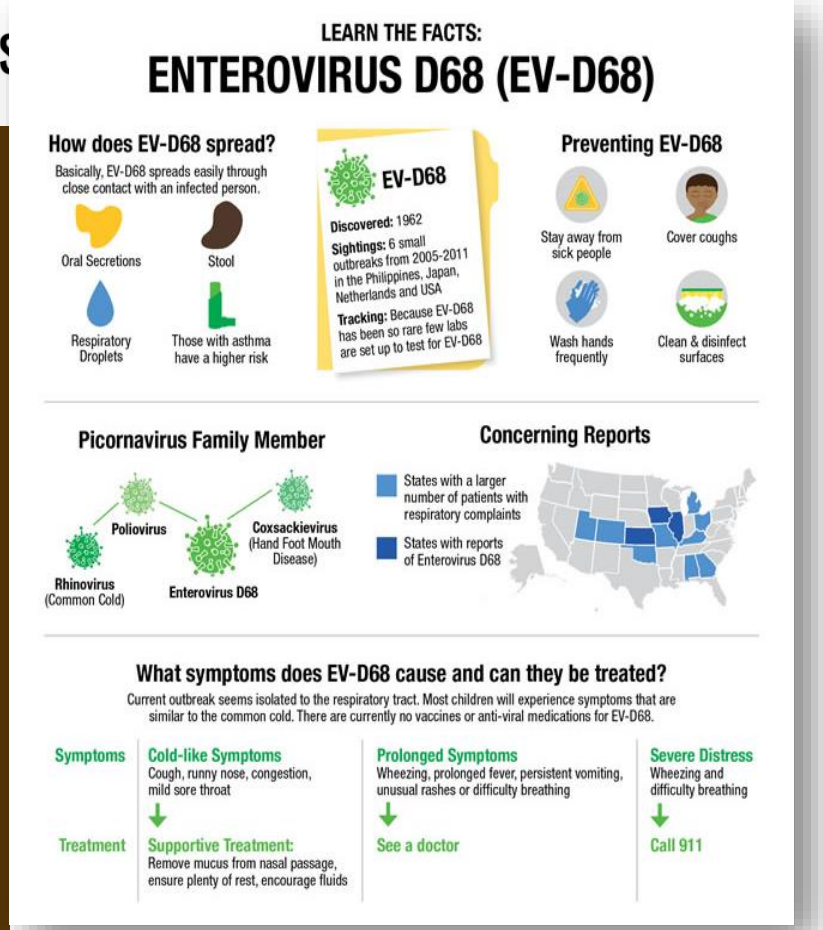
- close personal contact, such as touching or shaking hands
- the air by coughing and sneezing
- touching an object or surface with adenoviruses on it, then touching your mouth, nose, or eyes before washing your hands
- contact with stool, for example, during diaper changing

Adenoviruses are often resistant to common disinfectants and can remain infectious for long periods of time on surfaces and objects.

WHO IS AT RISK FOR SEVERE ADENOVIRUS INFECTION?

People with weakened immune systems (including from medications they are taking or from heart or lung diseases) are at higher risk for developing severe adenovirus infection. Certain types of this virus have been linked to more severe illness. Rarely, otherwise healthy people with adenovirus infections will become so ill that they need to be hospitalized and may die.

Copyright © MissionCIT, LLC 2020-2021 All Rights Reserved | OSHA Care™ Chapter 03 | Airborne Pathogens



Enterovirus

- More likely to infect babies and children
- Adults with compromised immune system and chronic medical conditions
- More than 100 strains
- Mostly mild
- Extremely rare outcome – muscle paralysis and inflammation of heart and brain

COPYRIGHT © MISSIONCIT, LLC 2020-2021 ALL RIGHTS RESERVED | OSHA CARE™ CHAPTER 03 | AIRBORNE PATHOGENS

Rhinovirus

- Most common cause of common cold
- Mostly infects during winter and spring
- Common symptoms – Sore throat, runny nose, headaches, sneezes, body aches
- Recovery in 7 to 10 days

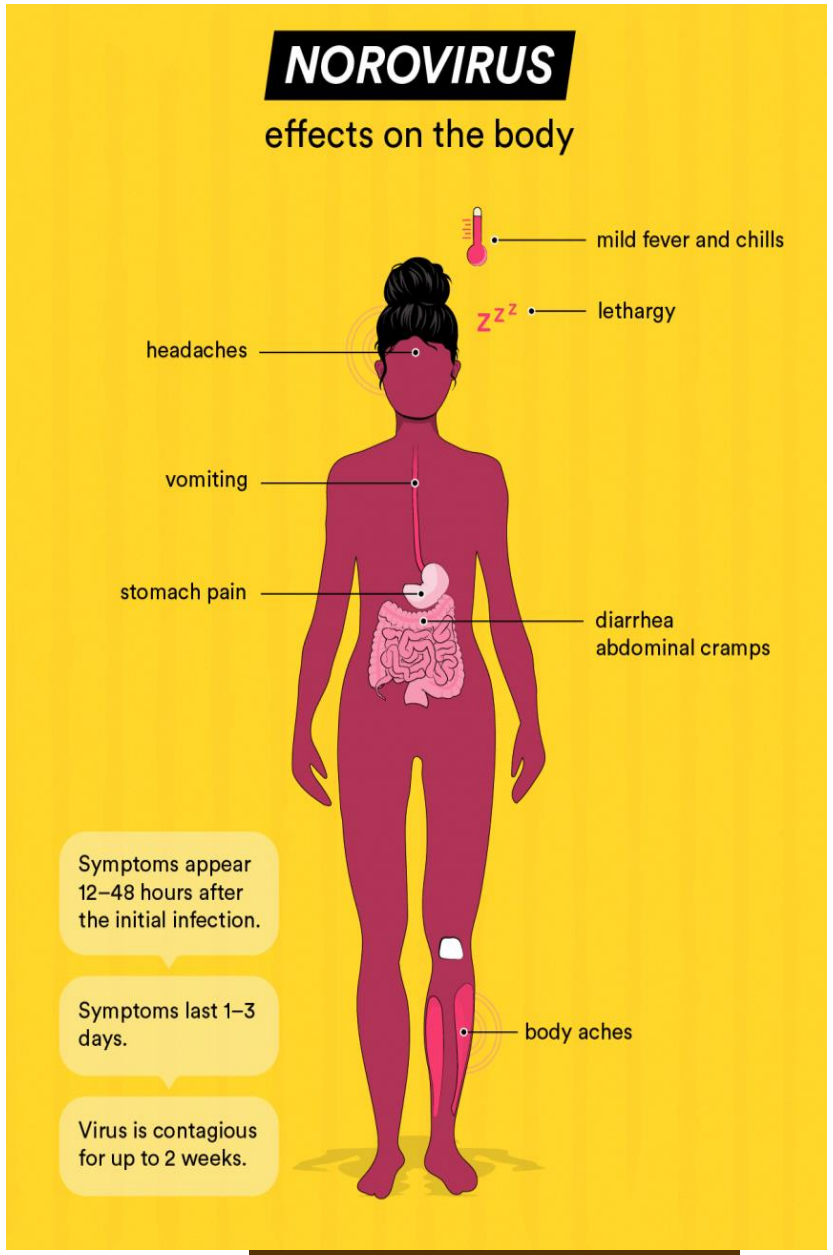


COPYRIGHT © MISSIONCIT, LLC 2020-2021 ALL RIGHTS RESERVED | OSHA CARE™ CHAPTER 03 | AIRBORNE PATHOGENS



Norovirus

- A contagious virus that causes vomiting and diarrhea
- Direct contact with an infected person, or consuming contaminated food
- Symptoms – Diarrhea, vomiting, nausea, and stomach pain
- Outbreaks are common from Nov to Apr



COPYRIGHT © MISSIONCIT, LLC 2020-2021 ALL RIGHTS RESERVED | OSHA CARE™ CHAPTER 03 | AIRBORNE PATHOGENS

What is Norovirus?

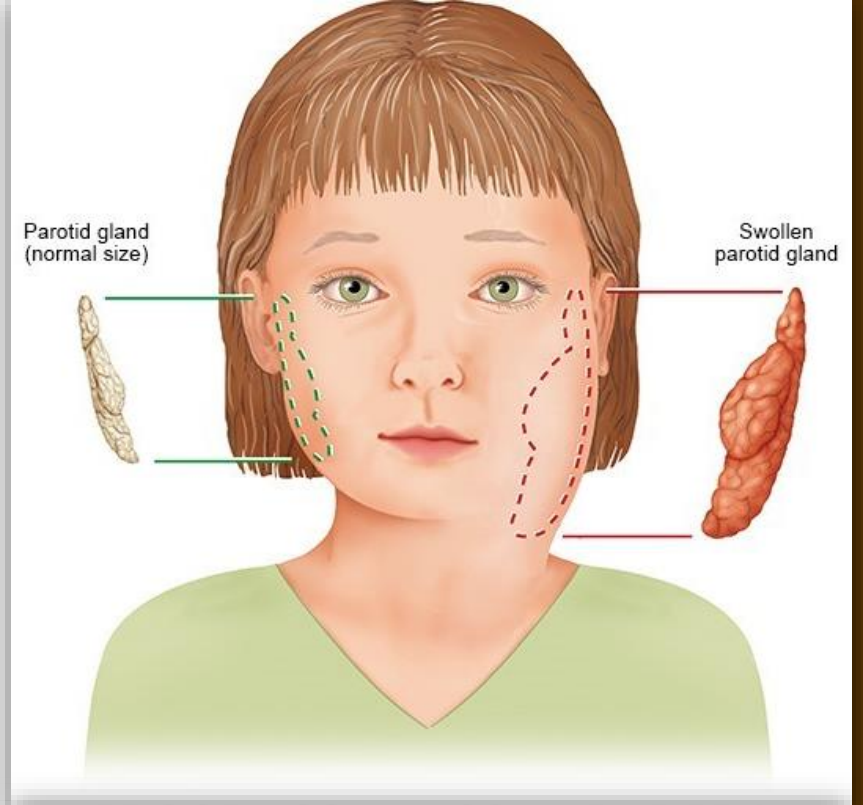


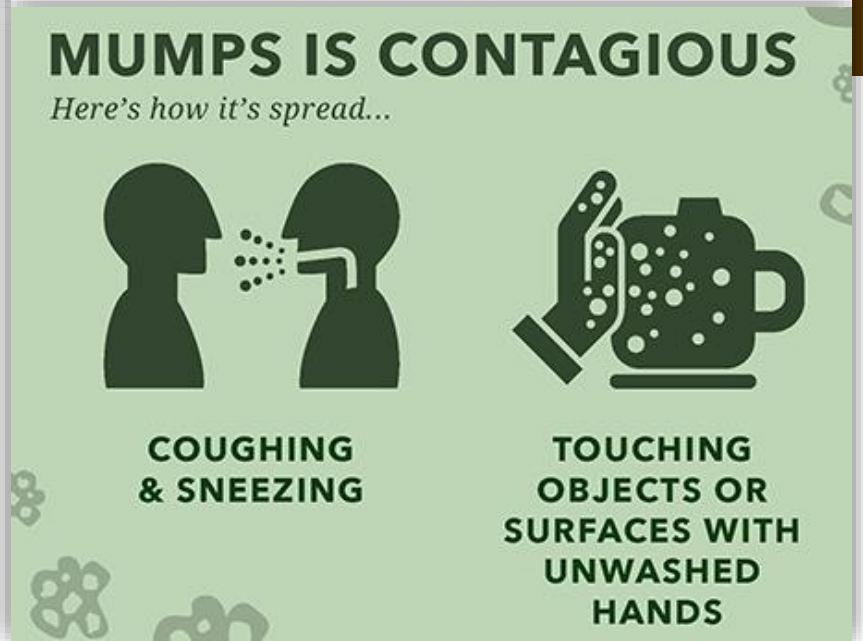
COPYRIGHT © MISSIONCIT, LLC 2020-2021 ALL RIGHTS RESERVED | OSHA CARE™ CHAPTER 03 | AIRBORNE PATHOGENS

Mumps

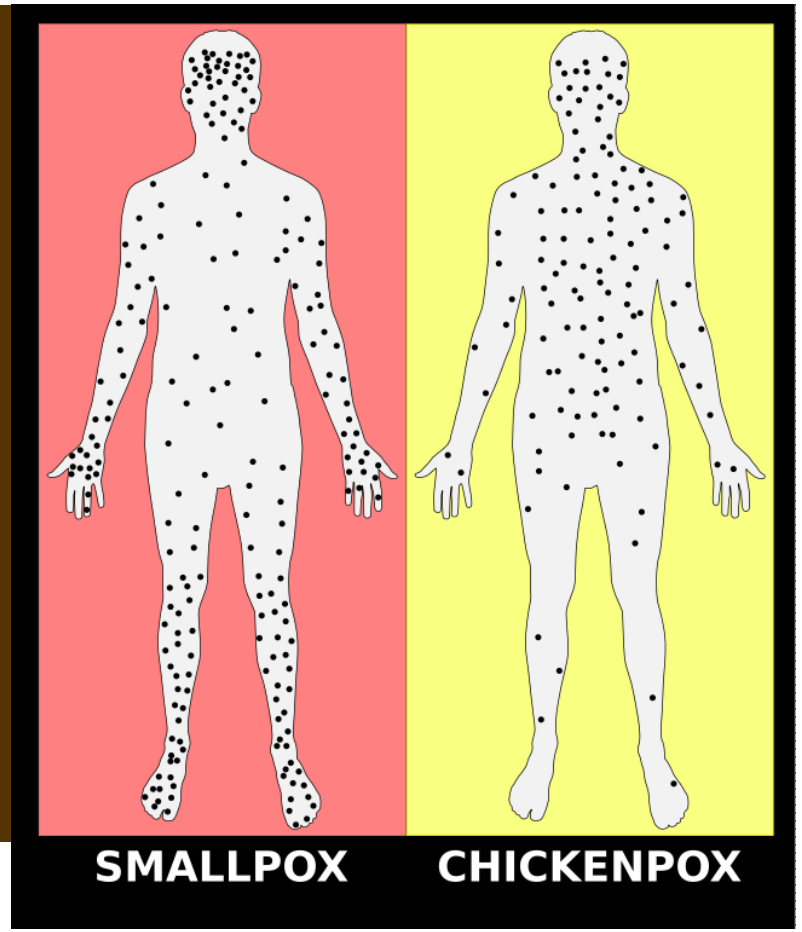
- Viral infection
- Affects the salivary glands
- Symptoms – Swollen salivary glands, fever, headache, fatigue, and appetite
- Recovery time – 2 weeks
- Preventable with MMR vaccine





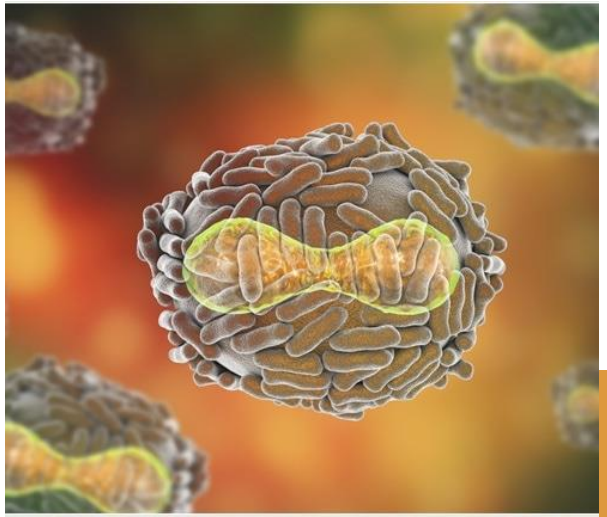


COPYRIGHT © MISSIONCIT, LLC 2020-2021 ALL RIGHTS RESERVED | OSHA CARE™ CHAPTER 03 | AIRBORNE PATHOGENS



Smallpox

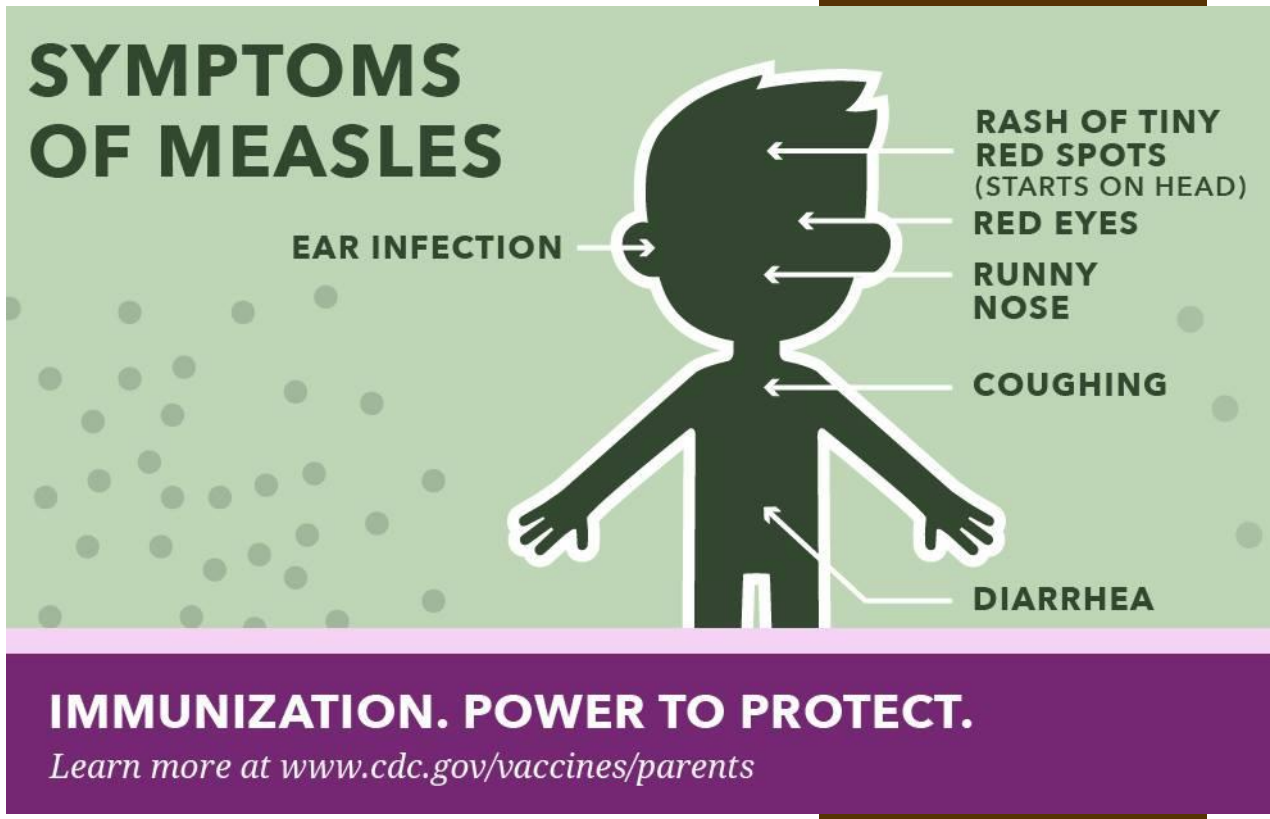
- Serious infection caused by variola virus
- Fever and progressive rash
- Eliminated vaccines
- Some regions are seeing a resurgence



Copyright © MissionCIT, LLC 2020-2021 All Rights Reserved | OSHA Care™ Chapter 03 | Airborne Pathogens

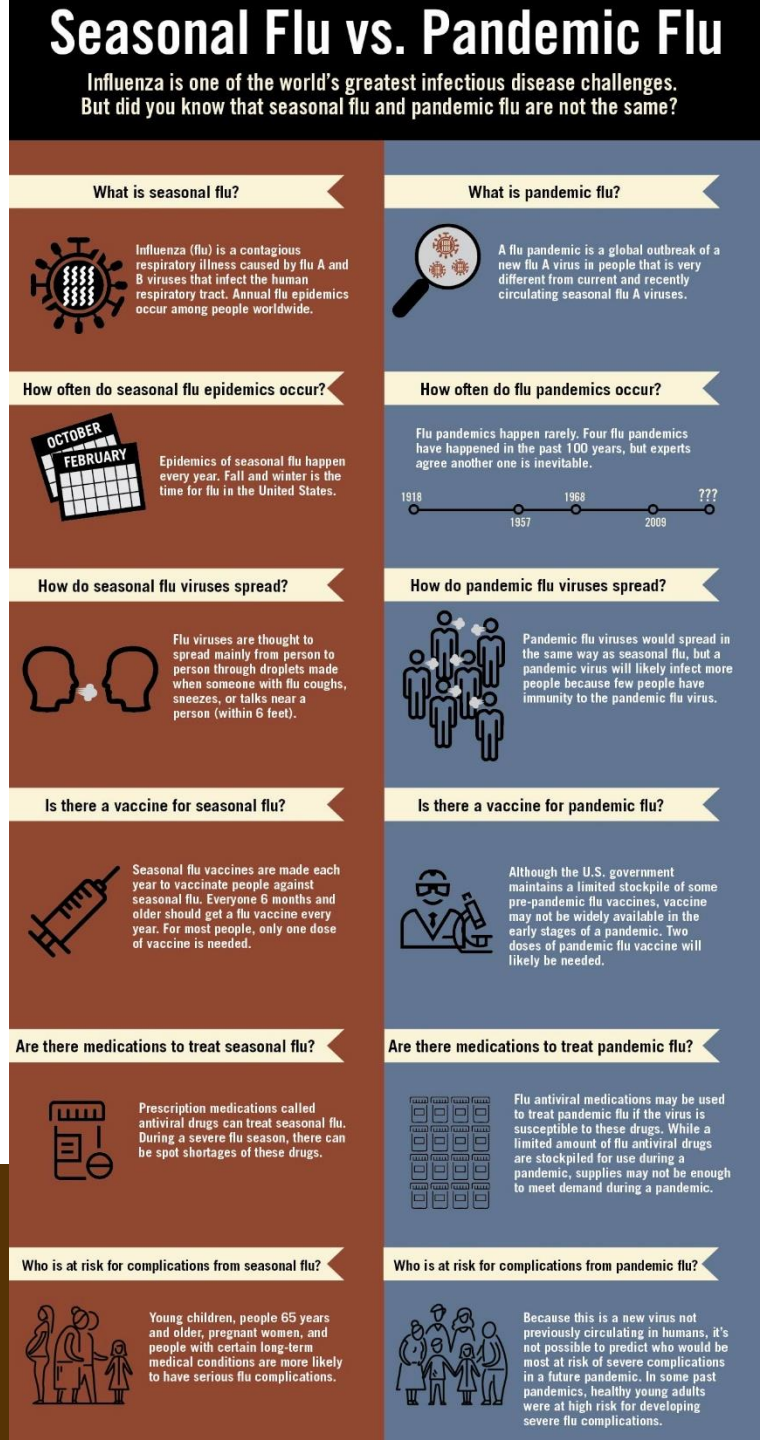
Measles

- Highly contagious
- Risk factors – being unvaccinated, traveling to counties with measles outbreak
- Complications – Ear infection, bronchitis, pneumonia, encephalitis, and problems in pregnancy
- Vaccine



COPYRIGHT © MISSIONCIT, LLC 2020-2021 ALL RIGHTS RESERVED | OSHA CARE™ CHAPTER 03 | AIRBORNE PATHOGENS

Pandemic Flu



- Global disease outbreak
- New influenza strain for which there's no known immunity
- Transmission is quick
- Widespread impact
- Education and outreach are important

Seasonal Flu

- Similar to pandemic
- Typically fever, cold, cough, and muscle aches
- Immunity
- Flu vaccines



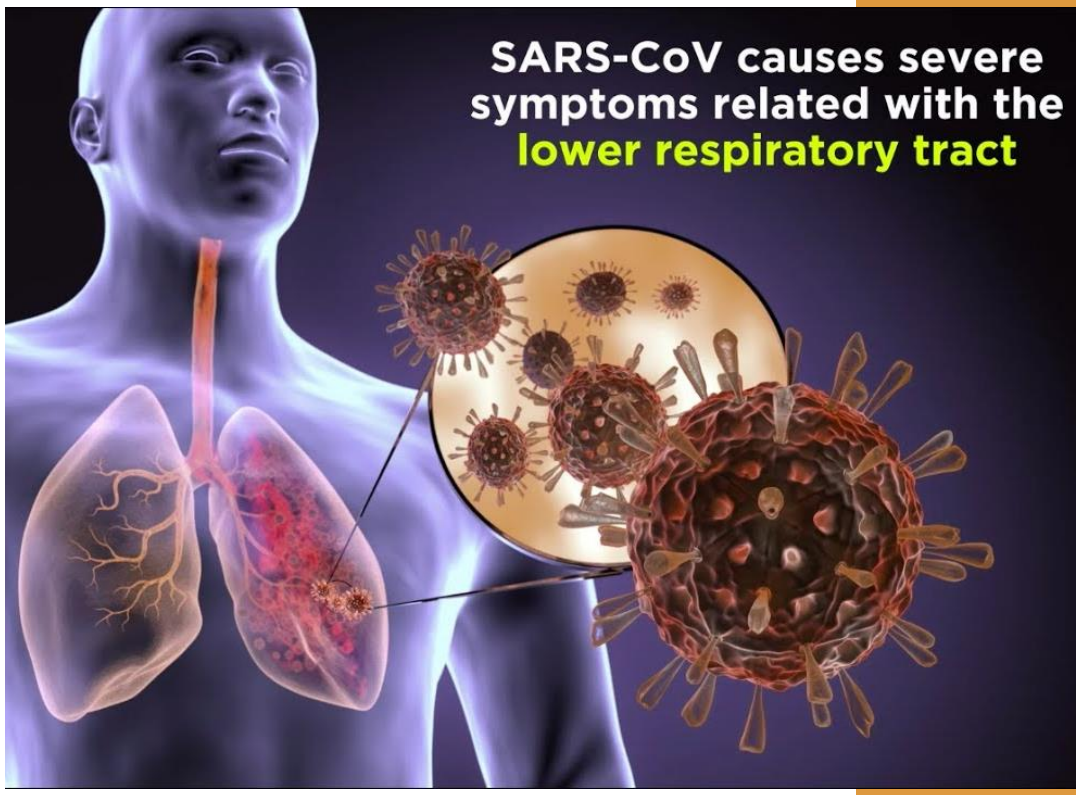


Copyright © MissionCIT, LLC 2020-2021 All Rights Reserved | OSHA Care™ Chapter 03 | Airborne Pathogens

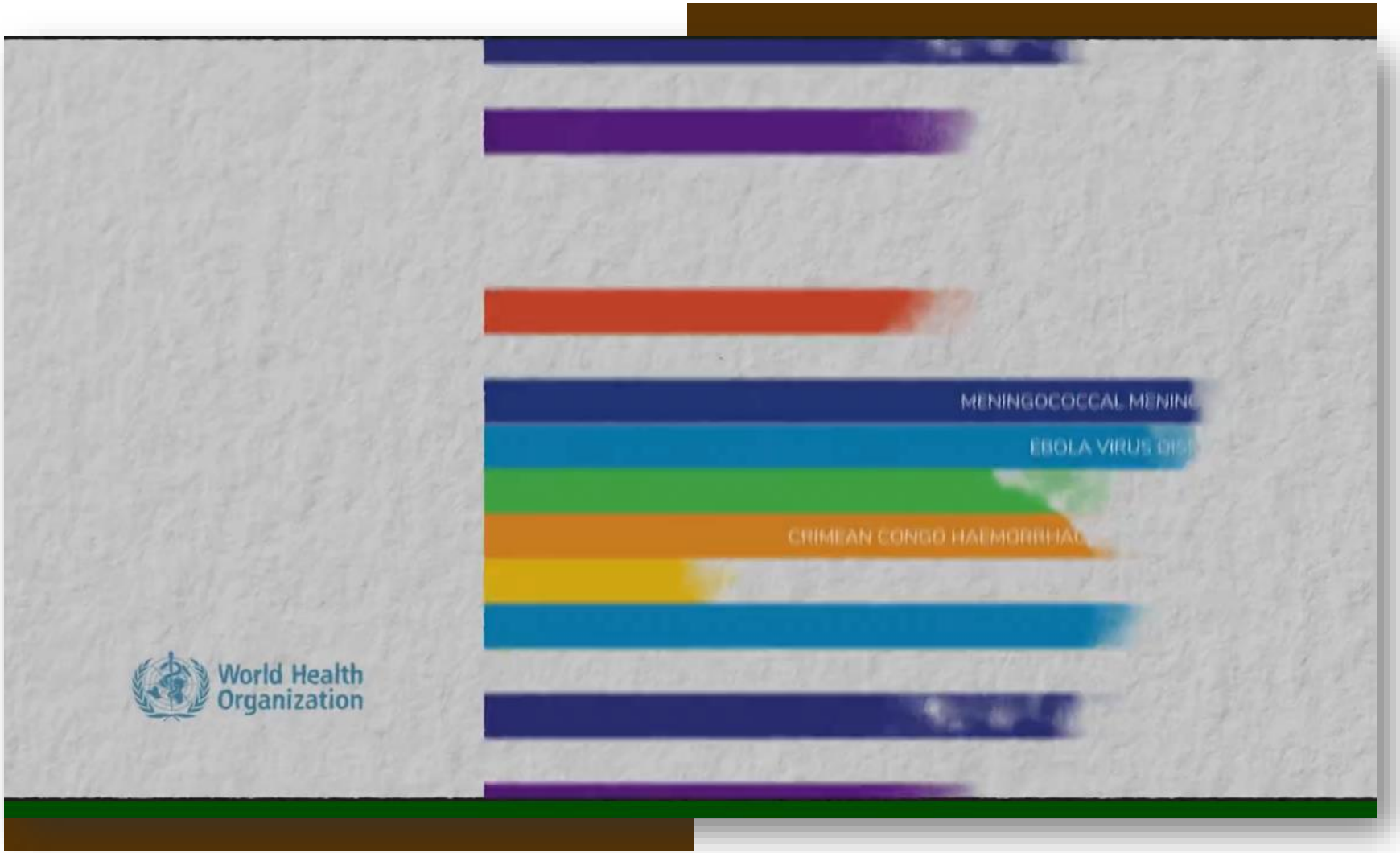
MERS and SARS



- MERS and SARS are respiratory illness
- MERS origins in Middle East and SARS in China
- Fever, cough, shortness of breath and difficulty of breathing
- No vaccine yet



Five things you need to know about MERS

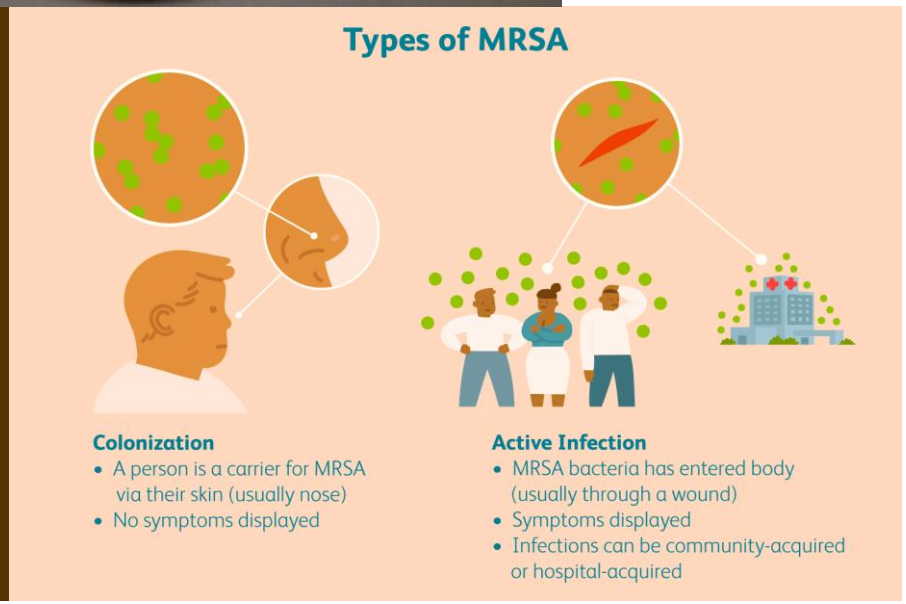


COPYRIGHT © MISSIONCIT, LLC 2020-2021 ALL RIGHTS RESERVED | OSHA CARE™ CHAPTER 03 | AIRBORNE PATHOGENS



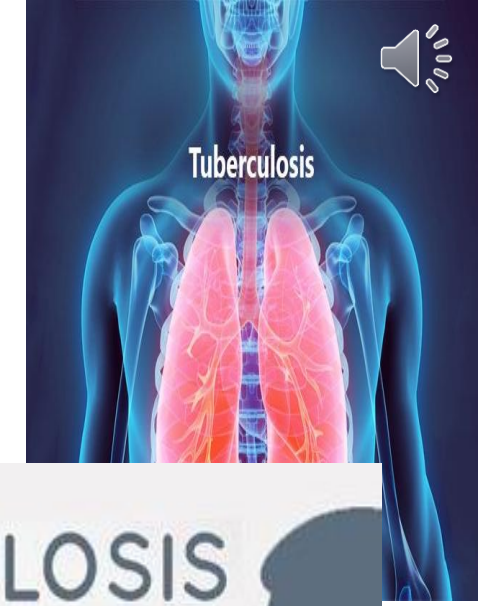
VRSA and MRSA

- Resistant to antibiotics
- Spreads through hospitals or infected people
- Impacts those with compromised immune system



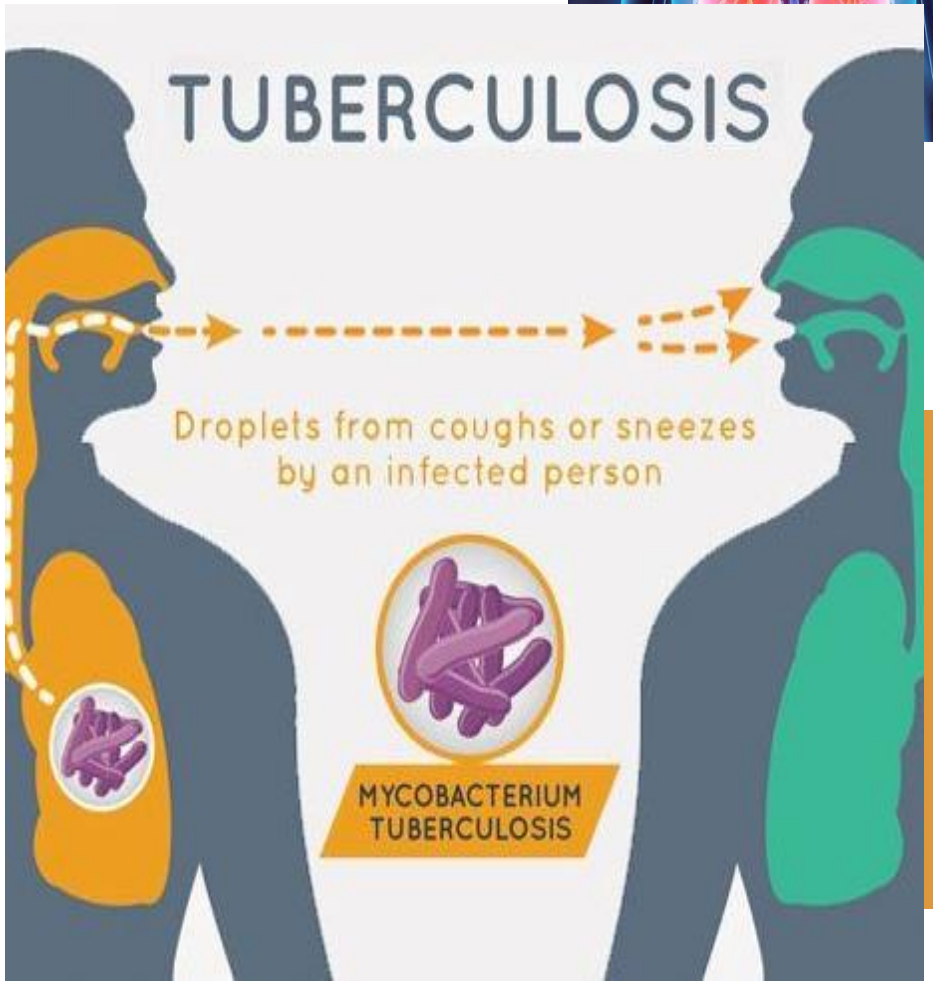
- VRSA is mostly mild and requires regular washing
- MRSA is moderate with painful red bumps and fever

COPYRIGHT © MISSIONCIT, LLC 2020-2021 ALL RIGHTS RESERVED | OSHA CARE™ CHAPTER 03 | AIRBORNE PATHOGENS



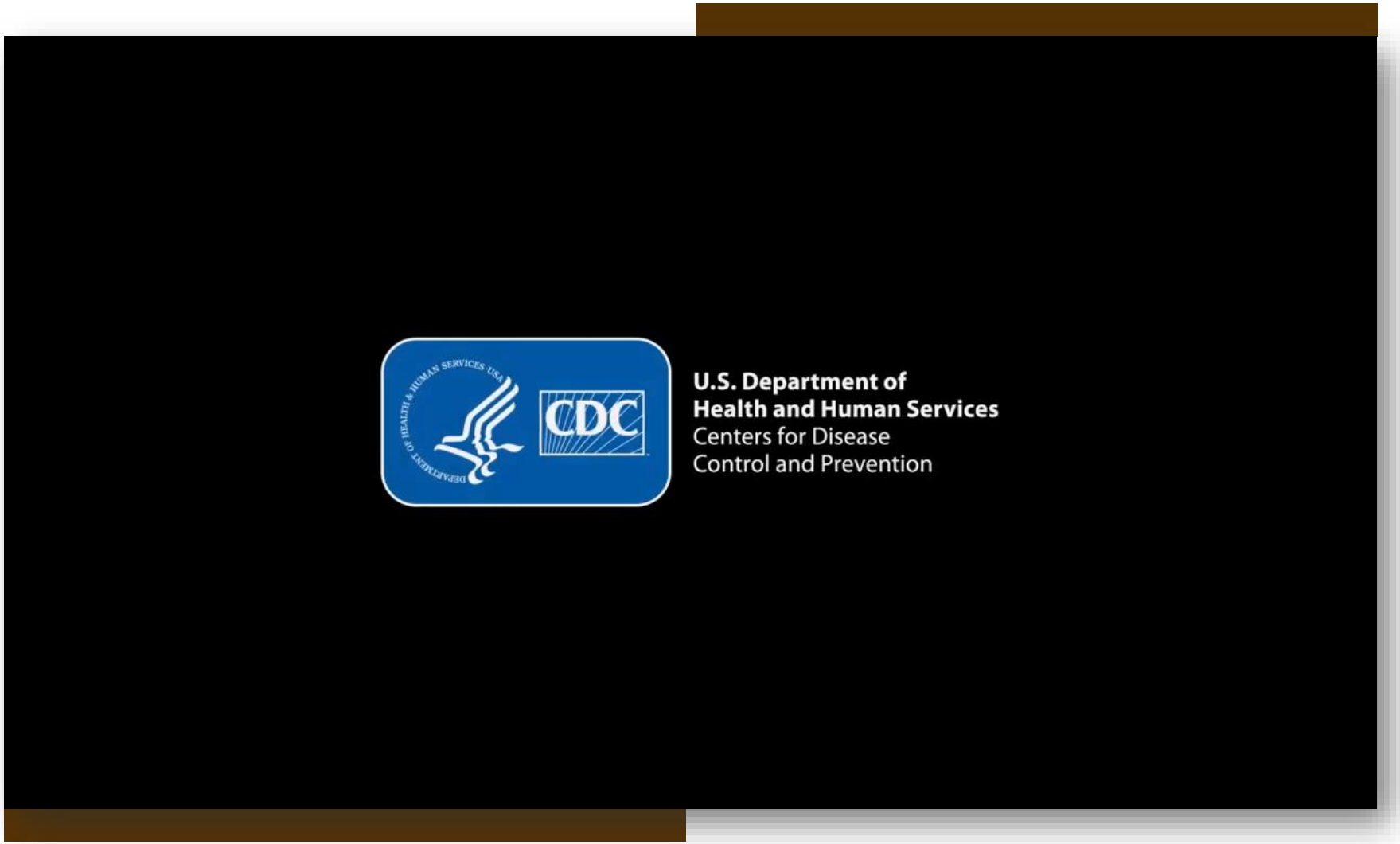
Tuberculosis

- 1/3rd of world population is infected with TB
- Caused by airborne bacteria
- Co-morbidities like HIV/AIDS, severe kidney disease, diabetes, head and neck cancers
- Risk with infected family members and co-workers

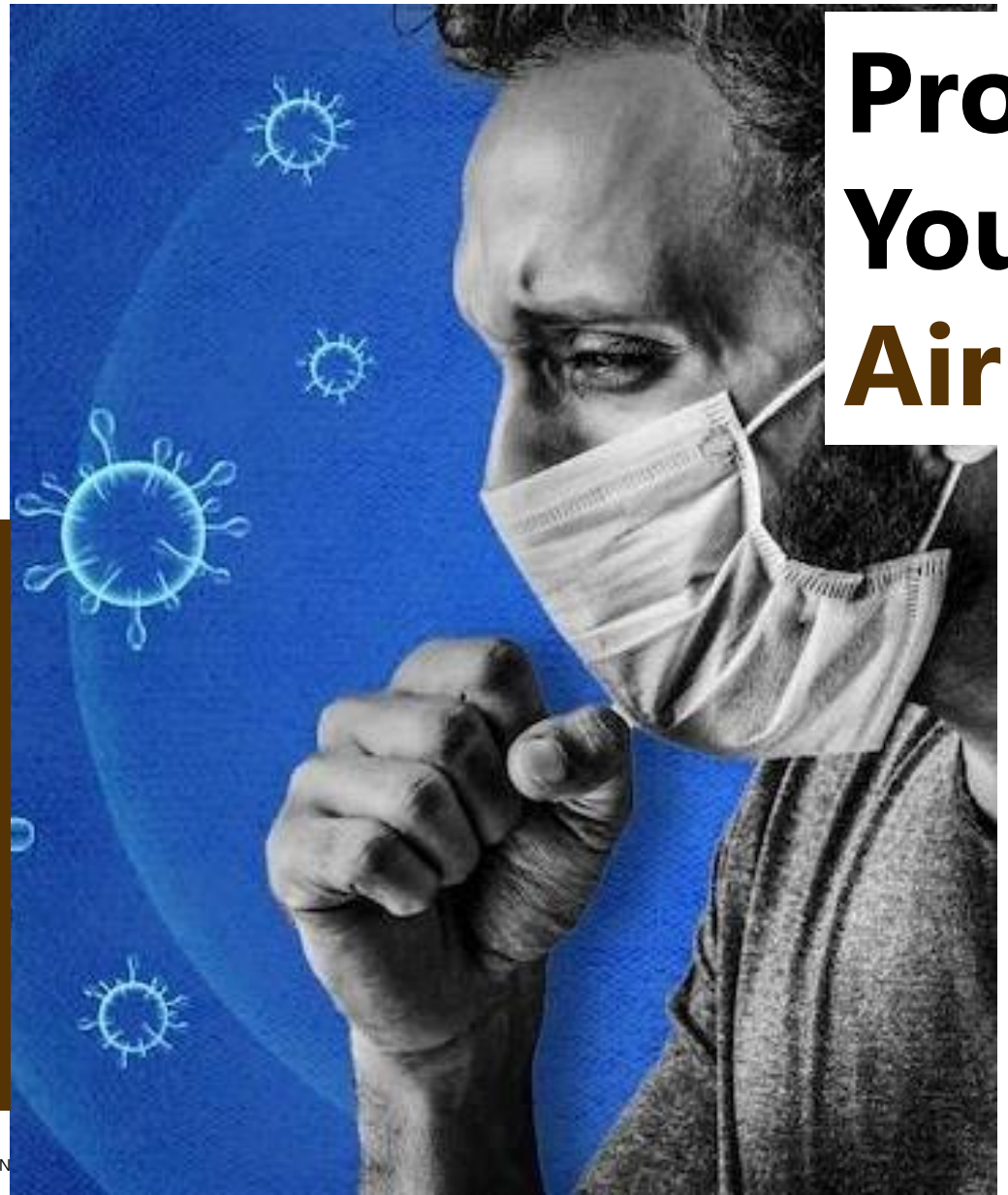


COPYRIGHT © MISSIONCIT, LLC 2020-2021 ALL RIGHTS RESERVED | OSHA CARE™ CHAPTER 03 | AIRBORNE PATHOGENS

5 Things to Know About TB



COPYRIGHT © MISSIONCIT, LLC 2020-2021 ALL RIGHTS RESERVED | OSHA CARE™ CHAPTER 03 | AIRBORNE PATHOGENS



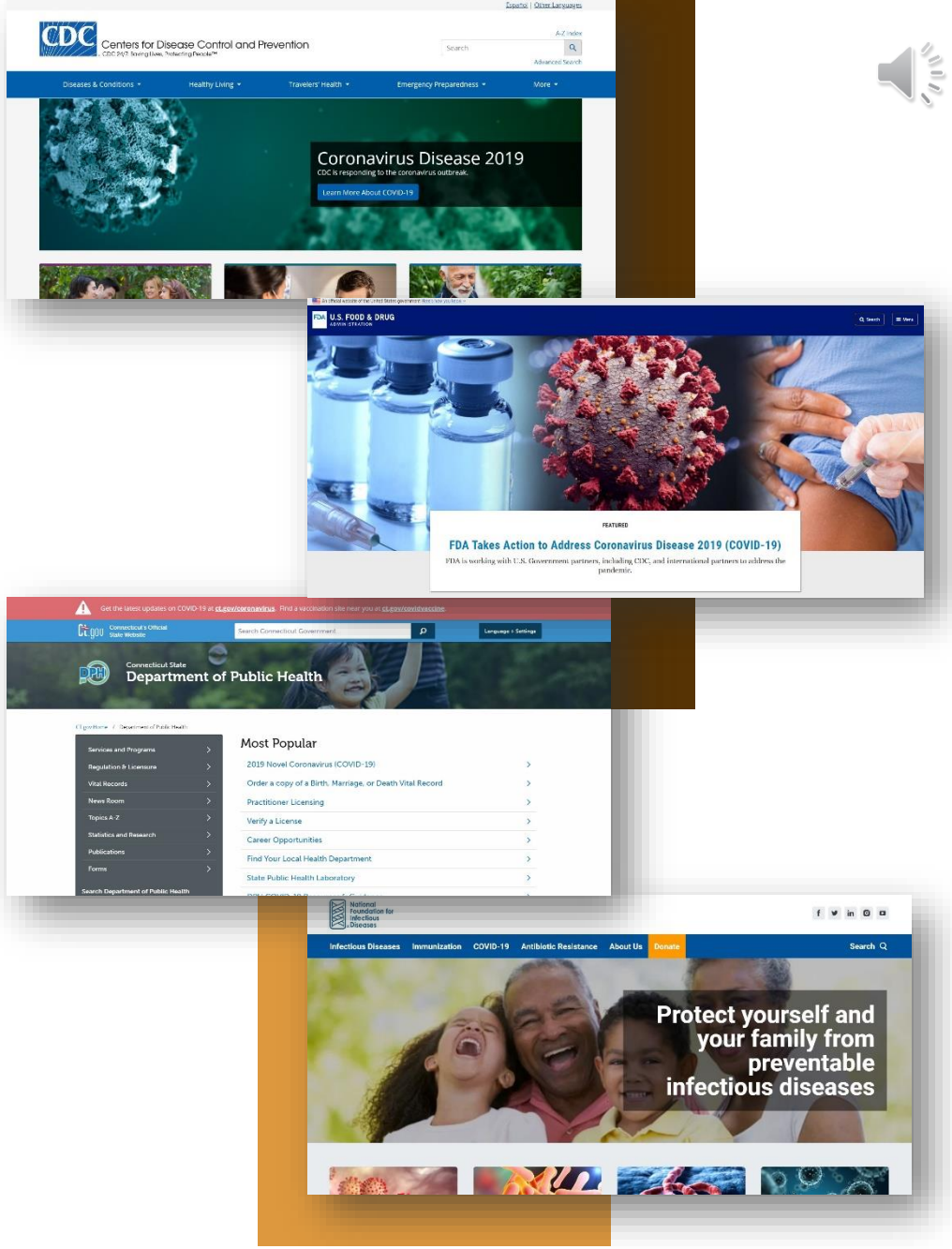
Protecting Yourself Against Airborne Pathogens



COPYRIGHT © MISSION

Being Aware

- Being aware is the first step
- Some sites to follow for updates:
  - ✓ https://www.cdc.gov/ncezid/
  - ✓ https://www.fda.gov/
  - ✓ https://portal.ct.gov/dph
  - ✓ https://www.nfid.org/infectious-diseases/



COPYRIGHT © MISSIONCIT, LLC 2020-2021 ALL RIGHTS RESERVED | OSHA CARE™ CHAPTER 03 | AIRBORNE PATHOGENS

Wearing Personal Protective Equipment

- PPE is important
- Includes protective equipment for eyes, face, head, and extremities, protective clothing, respiratory devices, and protective shields and barriers
- Sanitized and reliable. Meet design standards



COPYRIGHT © MISSIONCIT, LLC 2020-2021 ALL RIGHTS RESERVED | OSHA CARE™ CHAPTER 03 | AIRBORNE PATHOGENS



Respiratory Protective Standards

- OSHA has laid down specific guidelines
- Employers must do everything to prevent occupational diseases caused by breathing contaminated air
- Appropriate equipment must be provided
- Written respiratory protection program



COPYRIGHT © MISSIONCIT, LLC 2020-2021 ALL RIGHTS RESERVED | OSHA CARE™ CHAPTER 03 | AIRBORNE PATHOGENS



Handwash and Personal Hygiene

- Wash hands regularly
- Use soap and water, antiseptic handwash, antiseptic hand rub (alcohol-based hand sanitizer including foam or gel), or surgical hand antisepsis
- Healthcare workers must always wash:
  - ✓ After touching a patient
  - ✓ Before performing an aseptic task
  - ✓ After coming in contact with body fluids
  - ✓ Immediately after removing gloves

Copyright © MissionCIT, LLC 2020-2021 All Rights Reserved | OSHA Care™ Chapter 03 | Airborne Pathogens

WHO: How to handwash? With soap and water



COPYRIGHT © MISSIONCIT, LLC 2020-2021 ALL RIGHTS RESERVED | OSHA CARE™ CHAPTER 03 | AIRBORNE PATHOGENS

Infection Prevention in Outpatient Settings

- High priority
- Develop and maintain programs
- Assure the availability of supplies
- Regular training and workshops
- Infection preventable policies and procedures
- Periodic surveys and audits
- Enforce frequent hand washing
- Provide PPEs
- Select EPA-registered disinfectants



COPYRIGHT © MISSIONCIT, LLC 2020-2021 ALL RIGHTS RESERVED

Disinfection and Sterilization

- Educate workers
- Create programs for monitoring occupational hazards
- Clean, disinfect, and sterilize
- Remove residues
- Automatic washers must meet manufacturer's recommendations



COPYRIGHT © MISSIONCIT, LLC 2020-2021 ALL RIGHTS RESERVED | OSHA CARE™ CHAPTER 03 | AIRBORNE PATHOGENS

Isolation

- Education and training
- Isolation plan
- Monitor the epidemiology
- Implement strategies
- Review periodically



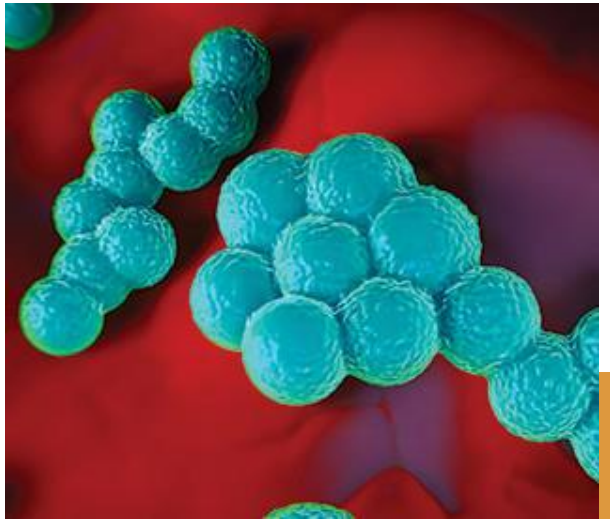


Copyright © MissionCIT, LLC 2020-2021 All Rights Reserved | OSHA Care™ Chapter 03 | Airborne Pathogens



- Make MRDO prevention a high priority
- Provide necessary administrative support
- Systems and procedures in place
- Improve compliance
- Educate and train
- Use standard equipment and practices
- Monitor trends
- Understand the SOP for reporting

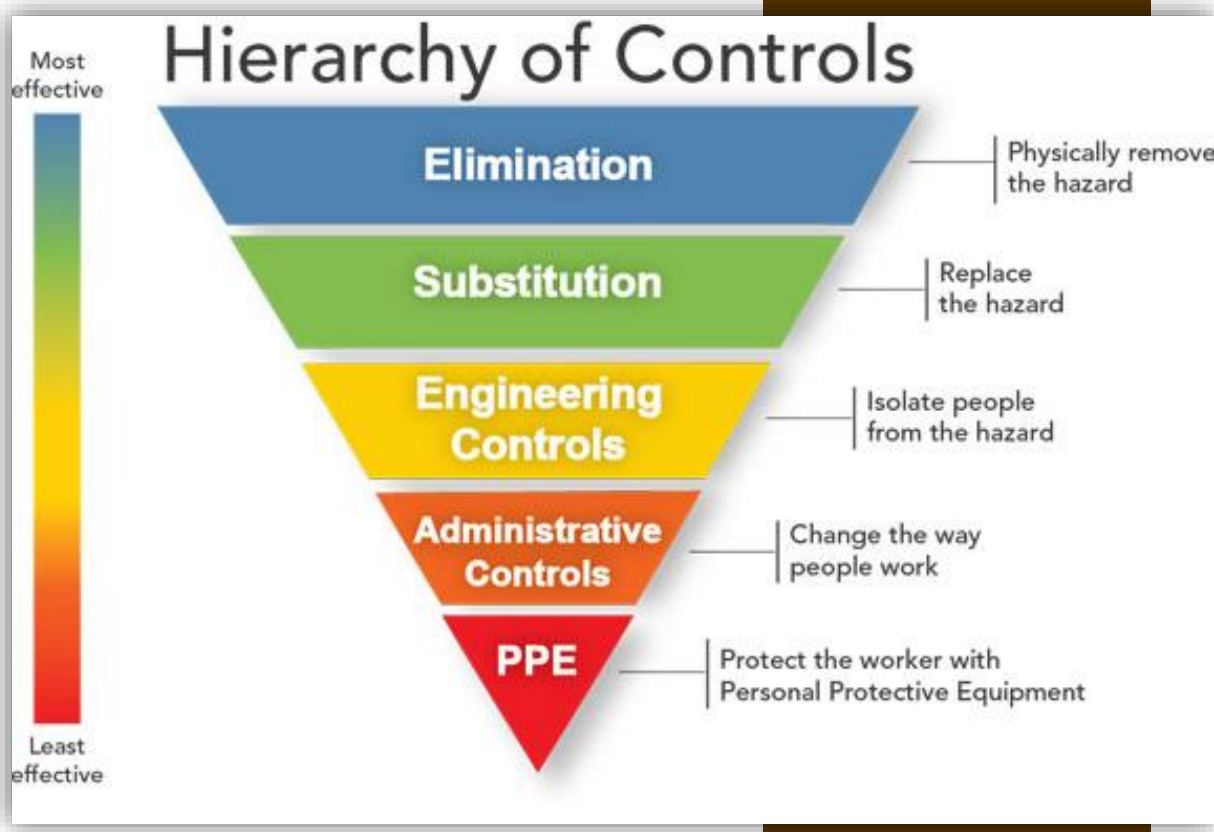
Preventing the Transmission of MRDO



Copyright © MissionCIT, LLC 2020-2021 All Rights Reserved | OSHA Care™ Chapter 03 | Airborne Pathogens

Infection Control for Workers

- Vaccination for all workers
- Encourage the use of PPE when needed
- Arrange for prompt diagnosis
- Implement measures to curb infection
- Reporting and notification are mandatory



COPYRIGHT © MISSIONCIT, LLC 2020-2021 ALL RIGHTS RESERVED | OSHA CARE™ CHAPTER 03 | AIRBORNE PATHOGENS



e Safety

mmon types of eye protection:

ggles, face shields, and safety

sses

ntact lens don't offer protection

gear depends on the workforce

rker should feel comfortable

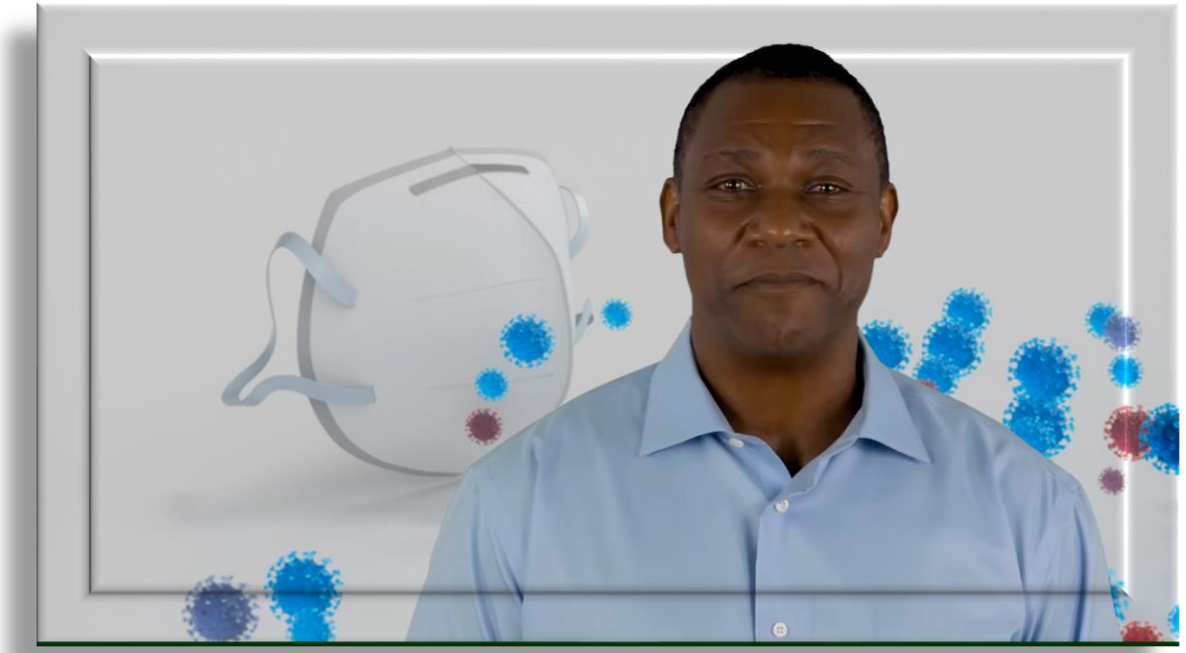
wear must be disinfected and

itized regularly

COPYRIGHT © MISSIONCIT, LLC 2020-2021 ALL RIGHTS RESERVED | OSHA CARE™ CHAPTER 03 | AIRBORNE PATHOGENS



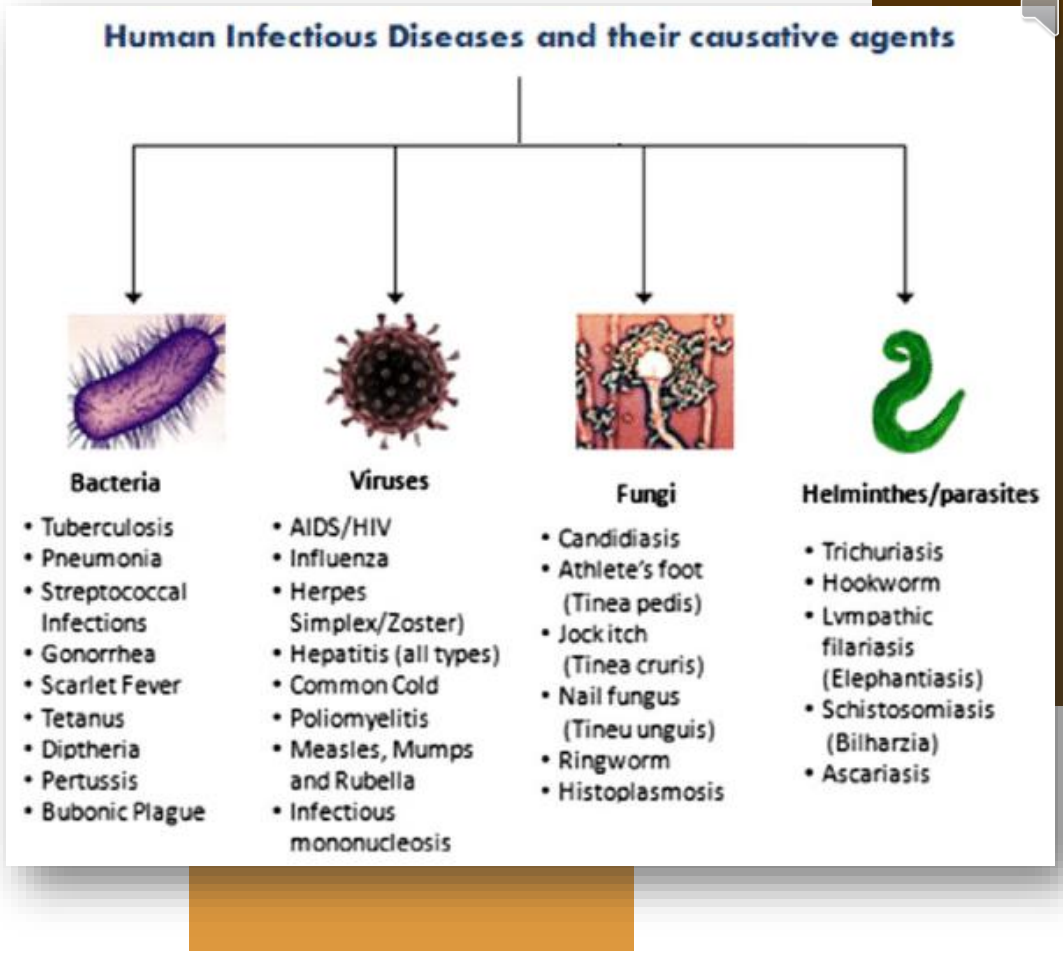
Chapter Review



COPYRIGHT © MISSION

Lesson 1 – What are Infectious Diseases?

- Caused by living organisms like virus, fungi, bacteria, and parasites
- Quickly transmit from infected to healthy individuals
- Transmitted in multiple ways
- Air is the most common medium
- Can also be transmitted through droplets and contact
- Stay wary of possible infectious diseases and symptoms



COPYRIGHT © MISSIONCIT, LLC 2020-2021 ALL RIGHTS RESERVED | OSHA CARE™ CHAPTER 03 | AIRBORNE PATHOGENS

Lesson 2 – Specific Airborne Diseases

- Anthrax
- Chickenpox
- Adenovirus
- Enterovirus
- Rhinovirus
- Norovirus
- Mumps
- Smallpox
- Measles
- Pandemic Flu
- Seasonal Flu
- MERS and SARS
- VRSA and MRSA
- Tuberculosis



Copyright © MissionCIT, LLC 2020-2021 All Rights Reserved | OSHA Care™ Chapter 03 | Airborne Pathogens

Lesson 3 – Protecting Against Airborne Pathogens

- Being aware is the first step
- PPE is important
- Respiratory protection program
- Wash hands regularly
- Follow guidelines in outpatient and ambulance se
- Clean, disinfect, and sterilize
- Isolation plan
- Implement measures to curb infection





Copyright © MissionCIT, LLC 2020-2021 All Rights Reserved | OSHA Care™ Chapter 03 | Airborne Pathogens