



Emergency Medical Training Services

Emergency Medical Technician – Basic Program Outlines

Outline Topic: Infectious and Communicable Disease

Revised: 11/2013

Infectious disease is illness caused by germ.

- Pathogen is an organism capable of causing disease.
- Bacteria - Single-celled organisms.
- Antibodies are produced to contradict antigens.
- Virus - Cannot reproduce. Uses the hosts cells to reproduce. 400 types of viruses are known.
- Parasitic - ability to move. Live in soil and decaying organic matter.

Pitworm - 3-10mm live in distal colon.

Hookworm - attach to the intestinal wall.

- Communicable disease can be passed from one person to another.
- Sterilization destroys all forms of microbial life.
- Disinfection destroys most viruses, bacterial except bacterial spores.
- BSI - All bodily fluid is contaminated until proven otherwise.

Ryan White Comprehensive AIDS Resource Emergency Act of 1990. (This is covered in the legal video section).

- Notification to emergency responders if they have been exposed to infection disease.
- Also requires employers name a DESIGNATED OFFICER (DO) to communicate with the hospital.
- Notification must be made within 48 hours.

Routs of transmitting germs

Bloodborne (direct or indirect).

Airborne - primary concern is TB.

Vector borne - animals.

Infection to occur:

Must have all four to become infected:

An entry route.

A large quantity of the germ.

A host.

Correct environment.

Precautions: (according to the CDC)

Task Gloves Gown Mask Eyewear

MRSA (Methicillin - Resistant Staphylococcus Aureus)

- Is spread through direct physical contact.
- Often referred to as staph. Top of this page has a link to [specifically explain MRSA/staph](#). Take a look.

Respiratory Syncytial Virus (RSV)

- Major cause of Pneumonia or bronchiolitis in infants. May be fatal.
- Most common November to April.
- Runny nose, nasal congestion.
- Wheezing in children less than 1 year of age is considered RSV.

Pertussis

- Whooping cough.
- Severe, violent coughing.
- Bacterial infection.
- Presents like common cold.

Chickenpox (Varicella zoster virus)

- Incubation period is 2 to 3 weeks. Communicable period occurs 1 to 2 days before onset of rash and until lesions have crusted.
- More lethal in adult onset than child onset. 50% mortality in adults.
- Classic presentation: Winter months and spring with respiratory symptoms, malaise, low grade fever, rash starts on face and trunk, and moves to rest of body (including mouth). Contagious up to the point of ulcer scabs. Remember that transmission to others can start 1 to 2 days before rash.

HIV

- Normal cell does DNA to RNA. HIV virus does RNA to DNA.
- 1 to 10 years of exposure becomes active.
- HIV targets T-cells. CD4 marker counts T-cells.
- P. carinii pneumonia is opportunistic.
- New age drugs: Look out for 3 letter/number drugs - ie AZT or 3TC.
- HIV is transmitted via direct contact with infected blood or body fluids.

Hepatitis A

- Fecal-oral.
- Does not present with jaundice. Are most commonly identified by liver function studies.

- Incubates 3 to 5 weeks. Most susceptible to transmit is within the first week of symptoms. 2 to 6 weeks of illness.

Hepatitis B (serum hepatitis)

- Acute hepatitis, cirrhosis, and liver cancer.
- 5 to 10% of healthcare workers are asymptomatic.
- Sexual transmission is most common.
- Virus is stable on dry surface for more than 7 days.
- Incubates 8 to 24 weeks. Joint pain and rash may be common but most are asymptomatic.

Hepatitis C

- Associated with receipt of contaminated blood with the virus.
- 85% of contaminated needle sticks result in HCV.
- Also known as Non A Non B hepatitis.
- Antibodies are not effective. Long term liver damage.
- Lives with HBV. If immune for HBV you are protected against HDV.
- If HBV and HDV are present has high mortality rates.

Hepatitis E

- Just like Hepatitis A - oral fecal.
- Drinking contaminated water most common.
- Only 6 cases in US from 1989 to 1992.

Tuberculosis

- Bacterial infection through airborne.
- Inhibits the lungs then can spread to organ systems.
- TB patient care: Staff wears Hepa Mask (NIOSH or N95 respirators), patient wears surgical mask.
- Incubation 4 to 12 weeks. Disease occurs 6 to 12 months after infection.

Pneumonia

- Acute lung infection. Virus, bacterial or fungal.
- Absence of fever does not rule out pneumonia.
- In elderly patients signs may be AMS, without fever, and have a headache, diarrhea, and nonproductive cough.
- In children patients signs may be fever, tachycardia, retractions.
- Patient care: Staff or patient should wear surgical mask.

Severe Acute Respiratory Syndrome (SARS)

- Viral infection that is highly infectious.
- Can survive for several days in the environment. Spread through close person-to-person contact.
- Incubation 2-7 days. Quarantined at home for 10 days after the fever has abated.
- History of acute 2-3 word dyspnea, cyanosis, hypoxia, AMS, sore throat, runny nose, chills, myalgia, headache, diarrhea.

Meningitis

- Viral is self limiting and a healthy person will have weakness but will recover.
- Bacterial is the true emergency that kills.
- Mid winter months with low temperature and humidity most common.
- Incubation 2 to 4 days, can last up to 10 days. Bacterial develops much faster than viral. Fever, chills, headache, nuchal rigidity, vomiting, AMS, seizures.
- Infant presentation: Brudzinski sign: flexion of neck causes flexion of the hips and knees. Kernig sign: inability to fully extend knees with the hips flexed.
- 2 months to 2 years are most susceptible to meningitis.
- Confirmed via spinal tap.

Childhood (mumps, measles, rubella)

- Measles are highly contagious viral disease. Reddish rash on fourth or fifth day of illness. Airborne.

Cough and high fever. A day or two before rash starts Koplik's spots (bluish-white spots with red halo)

develop on oral mucosa.

- Mumps are viral infection with painful enlargement of the salivary glands. Most common in 5 to 15 year olds.
- Rubella (German measles) viral infection with fine pink rash on face, trunk and extremities. Low grade fever.

Lice

- Parasite infestation of scalp of skin or pubic areas.
- Lice hard to see but you can comb the eggs out.

Scabies

- Mite Infestation.
- Tunnel into skin lays eggs.
- Intense itching.

Rabies

- Viral infection of the CNS in animals. Animals can bite humans and is transmitted via virus-laden saliva.

- Signs of infection range from 9 days to 7 years.
- Skunks, raccoons, bats, foxes, dogs, wolves, jackals, mongooses, coyotes.
- Hawaii is the only rabies free state of the US.
- Signs:

Phase 1: Headache, fever, chills, sore throat, anorexia, vomiting, diarrhea. Signs last for 1 to 4 days.

Phase 2: Excessive motor activity followed by confusion, hallucinations. Old Yeller.

Chlamydia

- Sexually transmitted disease.
- 25% of men are carriers.
- Is the leading cause of preventable blindness.
- Signs and symptoms are similar to gonorrhea.
- Presents like a UTI.

Gonorrhea

- Bacteria.
- Signs will vary: Fever, pain, swelling, limited range of motion in joints, PID, etc....
- When gonorrhea is present over 50% of the time Chlamydia is present.

Syphilis

- Most common through open wounds or sexual contact.
- Can also be transmitted by kissing.
- Produces lesions on organs.

Phase 1: painless lesion on penis or anal canal, tongue, or lips. 3 to 6 week exposure.

Phase 2: 5 to 6 weeks after phase 1 is skin rash. Small, red, flat lesions. Very infectious.

Phase 3: Symptoms improve or disappear. Relapse within 4 years.

Phase 4: Lesions develop on heart, brain etc.... Can develop over decades.

Tetanus

- Acute bacterial infection of central nervous system.
- Found in soils, street dust, feces. Even minor wounds can be an entry route.
- Incubation is days to months.
- Sign: Spasm of muscles in area of entry. Stiffness in Jaw Muscle.
- Every 10 years need an immunity booster.