

Infectious Diseases



Pea Ridge Fire Department
EMS refresher

Responsibilities of Paramedics

- General cleaning routines:
 - Strip used linens and appropriately discard.
 - Appropriately discard all medical waste.
 - Wash contaminated areas.
 - Disinfect all nondisposable equipment used.
 - Clean the stretcher with a germicidal-virucidal solution.

Responsibilities of Paramedics

- General cleaning routines (cont'd):
 - If any spillage occurred, clean with a germicidal-virucidal solution.
 - Create a schedule for routine cleaning.
 - Have a written policy and procedure for cleaning.
 - Cleaning should focus on high-touch items.

Communicable Disease Transmission

- Diseases that can be transmitted from one person to another under certain conditions
 - Depend on:
 - Dose
 - Virulence
 - Mode of entry
 - Health status of the host
 - Caused by pathogenic microorganisms

Communicable Disease Transmission

- Spread by several mechanisms:
 - Contact transmission
 - Direct
 - Indirect
 - Droplet transmission
 - Airborne transmission
 - Vector

Transmission-Based Precautions

- Standard precautions
- Three additional categories
 - Airborne precautions
 - Droplet precautions
 - Contact measures

Personal Protective Equipment and Practices

Table 26-1

Recommended Personal Protective Equipment for Preventing Transmission of Human Immunodeficiency Virus and Hepatitis B Virus in the Prehospital Setting

Task or Activity	Disposable Gloves	Gown	Mask	Protective Eyewear
Bleeding control with spurting blood	Yes	Yes	Yes	Yes
Bleeding control with minimal bleeding	Yes	No	No	No
Emergency childbirth	Yes	Yes	Yes, if spatter is likely	Yes, if spatter is likely
Drawing blood samples	Yes	No	No	No
Inserting an IV line	Yes	No	No	No
Advanced airway insertion (eg, endotracheal intubation, laryngeal mask airway, Combitube)	Yes	No	No, unless spatter is likely ^a	No, unless spatter is likely ^a
Oral/nasal suctioning, manually cleaning airway	Yes	No	No, unless spatter is likely ^a	No, unless spatter is likely ^a
Handling and cleaning instruments with microbial contamination	Yes	No, unless soiling is likely	No	No
Measuring blood pressure	No	No	No	No
Measuring temperature	No	No	No	No
Giving an injection	No	No	No	No

^aSplashing is often likely, so use personal protective equipment accordingly.

Abbreviation: IV, intravenous

Data from: Centers for Disease Control and Prevention (CDC): Guidelines for prevention of transmission of human immunodeficiency virus and hepatitis B virus to health-care and public-safety workers: a response to P.L. 100-607 The Health Omnibus Programs Extension Act of 1988. *MMWR*. 1989;38(S-6):Table 4, (d)(3)(ix)(A)-(C). <http://wonder.cdc.gov/wonder/prevguid/p0000114/p0000114.asp>. Accessed November 10, 2011; Ask the expert: gloves for injections. HCPro OSHA Healthcare Advisor website. <http://blogs.hcpro.com/osha/2012/01/ask-the-expert-gloves-for-injections/>; and Standard Interpretations. United States Department of Labor, OSHA website. https://www.osha.gov/pls/oshweb/owadisp.show_document?p_table=INTERPRETATIONS&p_id=20819

Personal Protective Equipment and Practices

- Hand hygiene is the primary protective measure.
- PPE should include:
 - Gloves
 - Eyewear
 - Gowns
 - Surgical masks
 - N95/P100 respirators
 - Waterless handwashing foam or gel
 - Needle-safe or needleless devices
 - Biohazard bags
 - Resuscitative equipment

Personal Protective Equipment and Practices

- Particulate respirator
 - Filters particles that come in through the mask.
 - If respirators are on an EMS vehicle, a full respiratory protection program must be in place.

Personal Protective Equipment and Practices

- Gloves
 - Utility-style gloves are required for cleaning activities.
 - Hands should be washed after removal.
- Protective eyewear
- Cover garments



Personal Protective Equipment and Practices

- Needlestick Safety and Prevention Act
 - Requires all sharps be needle-safe or needleless systems.
 - Sharps must be placed in a sharps container.



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Personal Protective Equipment and Practices

- Removal of PPE
 - PPE is only effective if proper removal techniques are employed.
 - Follow CDC guidance.

CDC-Recommended Immunizations and Vaccinations

- Vaccines are suspensions of bacteria or viruses that have been rendered nonpathogenic.
- CDC published an immunization schedule for health care providers.

Table 26-2

Recommended Vaccinations for Health Care Providers

Hepatitis B

Measles, mumps, rubella (MMR)

Varicella (chickenpox)

Tuberculosis (TB) testing

Tetanus, diphtheria, and pertussis (Tdap): one-time dose ^a

Influenza (annually)

^aTd boosters are needed every 10 years. It has not yet been determined when pertussis boosters are needed.

Data from: Healthcare Personnel Vaccination Recommendations. Atlanta, GA: Centers for Disease Control and Prevention. March 2011.

Department Responsibilities

- EMS departments are required to have an exposure control plan.
 - How the department plans to reduce the risk of exposure to infectious agents

Table 26-3

Exposure Control Plan Components

Exposure determination

Education and training

Hepatitis B vaccine program

Tuberculosis testing program

Expanded vaccine program: MMR, chickenpox vaccine, Tdap booster

Personal protective equipment

Engineering controls and work practices

Postexposure management

Medical waste management

Compliance monitoring

Record keeping

Abbreviations: MMR, measles, mumps, rubella; Tdap, tetanus, diphtheria, and pertussis

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Department Responsibilities

- Contaminated
 - An object that has microorganisms on or in it
- Infected
 - Microorganisms produce an illness
- Carriers
 - Persons who have a disease but are not ill

Patient Assessment

- Size up the scene.
- Take precautions.
- Assess ABCs and mental status.
- Prioritize treatment.
- Obtain history.
 - OPQRST
 - SAMPLE and baseline vital signs

General Management Principles

- Focus first on life-threatening conditions.
- Be empathetic.
- Place the patient in a position of comfort.
- Treat for dehydration if indicated.
- Use standard precautions.

General Management Principles

- Dispose of sharps properly.
- Follow your agency's exposure control plan for cleaning reusable equipment.
- Properly discard any disposable supplies and linens.

Chain of Infection

- The study of infectious diseases considers:
 - Age distributions
 - Genetic factors
 - Income levels
 - Ethnic groups
 - Workplaces
 - Schools
 - Geographic boundaries
 - Expansion, decline, or movement of the disease

Exposure and the Risk of Infection

- Factors include:
 - Type of organism
 - Dose of organism
 - Virulence of organism
 - Mode of entry
 - Host resistance
 - Incubation period
 - Communicable period
 - Reservoir
 - Host defense mechanisms

Exposure and the Risk of Infection

Table 26-4

Comparison of Selected Pathogenic Organisms

Organism	Life Cycle	Effect on Host	Example
Bacteria	Grow and reproduce outside the human cell in an environment characterized by the appropriate temperature and nutrients	Cause disease when they invade and multiply within the host's tissues	<i>Salmonella</i> bacteria can multiply in potato salad that has been unrefrigerated, leading to human illness when the food is eaten
Viruses	Much smaller than bacteria and can multiply only inside a host; die when exposed to the environment	Cause disease when they invade and multiply within the host's tissues	HIV does not multiply or maintain its infectiousness outside a living host
Fungi	Similar to bacteria in that they can grow rapidly in the presence of nutrients and organic material	Most infections acquired from contact with decaying organic matter or airborne spores in the environment; often cause opportunistic infections in people with compromised immune systems	Range from relatively harmless infections of the skin, such as athlete's foot (<i>Tinea pedis</i>), to life-threatening systemic infections, such as pneumonia (<i>Pneumocystis jirovecii</i> , formerly known as <i>Pneumocystis carinii</i>) in people with AIDS
Parasites	Live in or on another living creature	Take advantage of their host by feeding off the host cells and tissues	Scabies and lice Protozoa: single-celled, usually microscopic, eukaryotic organisms such as amoebas, ciliates, flagellates, and sporozoans. <i>Entamoeba histolytica</i> , for example, causes dysentery Helminths (commonly called worms): invertebrates with long, flexible, rounded, or flattened bodies; <i>Ascaris lumbricoides</i> , for example, causes hookworm

Abbreviations: AIDS, acquired immunodeficiency syndrome; HIV, human immunodeficiency virus

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Infection and Sepsis

- Sepsis
 - The body's overreaction to an infection or virus that can progress to shock
 - Requires rapid treatment to prevent tissue damage, organ failure, and death
 - People at risk:
 - Age 65 and older
 - Infants younger than 1 year
 - Those with compromised immune systems or chronic medical conditions such as diabetes

Infection and Sepsis

- Assessment
 - Signs and symptoms
 - Quick Sepsis-related Organ Failure Assessment (qSOFA)
 - Rapid scoring system that can be used to identify patients who have an infection and may be at risk of dying from sepsis

Infection and Sepsis

- Management
 - Initiate pulse oximetry and cardiac and blood pressure monitoring.
 - Provide supplemental oxygen.
 - Obtain vascular access and begin fluid resuscitation.
 - Consult medical direction with regard to additional fluids versus vasopressors.
 - Transport the patient to the closest appropriate facility.

Meningitis

- Inflammation of the meninges
 - Bacterial: communicable
 - Viral: noncommunicable
 - *Meningococcal meningitis*: most often involved in epidemic outbreaks

Meningitis

- Pathophysiology
 - Transmission occurs following:
 - Direct contact with infected nasopharyngeal secretions
 - Prolonged contact time of 8 or more hours
 - The incubation period is between 2 and 10 days.
 - The communicable period is variable.

Meningitis

- Assessment
 - Signs and symptoms may include:
 - Fever
 - Headache
 - Stiff neck
 - Kernig sign
 - Brudzinski sign

Meningitis

- Management
 - Place a mask on the patient.
 - Use standard precautions.
 - Treat symptoms.
 - Postexposure treatment includes ciprofloxacin or rifampin.

Seasonal Influenza

- Pathophysiology
 - Droplet transmitted
 - Hand to nose to mouth to eye
 - Incubation period: 1–4 days
 - Communicable from day before symptoms until 5 days after onset

Seasonal Influenza

- Assessment
 - Signs and symptoms may include:
 - Fever
 - Headache
 - Muscle pain
 - Respiratory symptoms
 - The duration of illness is 3 to 4 days.

Seasonal Influenza

- Management
 - Place a mask on the patient.
 - A key preventive measure is an annual flu shot.
 - If you are exposed but not vaccinated, antiviral drugs may be offered within 48 hours.

Pertussis

- Pathophysiology
 - Caused by the bacterium *Bordetella pertussis*
 - Incubation period: 7 to 10 days
 - Highly communicable

Pertussis

- Assessment
 - Fever, thick nasal discharge, and cough that progresses to coughing spasms
 - The patient is not able to take a breath.
 - When the patient can finally take a breath, a high-pitched whoop sound occurs.

Pertussis

- Management
 - Place a mask on the patient.
 - Provide supportive care and antibiotic treatment.
 - Practice good handwashing and routine cleaning.
 - All paramedics should be assessed for immunity.

Mumps

- Pathophysiology
 - Transmitted through droplets of direct contact with saliva or respiratory secretions
 - Incubation period: 16 to 18 days
 - Can cause complications in pregnant women

Mumps

- Assessment
 - Signs and symptoms
 - Fever
 - Headache
 - Muscle aches
 - Swelling of salivary glands

Mumps

- Management
 - Provide supportive care.
 - A nonimmune person will be placed on work restriction for days 12 to 25.

Rubella

- Pathophysiology
 - Infection caused by virus
 - Incubation period: 12 to 23 days
 - Communicable period: up to a week before and after the rash appears

Rubella

- Assessment
 - A rash usually begins on the face and spreads to the rest of the body.
 - Additional signs and symptoms include headache, mild pink eye, swollen lymph nodes, cough, and a runny nose.

Tuberculosis

- Pathophysiology
 - Not highly communicable
 - Three types: typical, atypical, extrapulmonary
 - Persons at risk:
 - Born in Asia or Africa
 - Incarcerated or homeless persons
 - Immunocompromised
 - In long-term care

Tuberculosis

- Pathophysiology (cont'd)
 - Multidrug-resistant TB (MDR-TB)
 - Resistant to two or more first-line drugs.
 - Extensively drug-resistant TB (XDR-TB)
 - Resistant to two first-line oral medications and two first-line injectable medications.

Tuberculosis

- Pathophysiology (cont'd)
 - Transmission by airborne particles
 - Incubation period 4 to 12 weeks
 - Communicable when active lesion develops in the lungs
 - Early infection detected by a skin test

Tuberculosis

- Assessment
 - Signs and symptoms include a persistent cough plus:
 - Night sweats
 - Fatigue
 - Hemoptysis
 - Hoarseness
 - Chest pain

Tuberculosis

- Management
 - Place a surgical mask on the patient.
 - Administer oxygen or ventilatory support if needed.
 - Report the incident to your DICO.
 - Clean the vehicle following transport.

Varicella Zoster (Chickenpox)

- Pathophysiology
 - Produces itchy, fluid-filled vesicles
 - Transmitted by direct contact or droplet spread of respiratory secretions
 - Incubation period: 14 to 16 days
 - Communicable period: 1 to 2 days before rash until about 5 days after

Varicella Zoster (Chickenpox)

- Assessment
 - Highly contagious
 - Signs and symptoms:
 - Listlessness
 - Slight fever
 - Photosensitivity
 - Vesicular rash



Courtesy of Centers for Disease Control and Prevention.

Varicella Zoster (Chickenpox)

- Management
 - Place a surgical mask on the patient.
 - Provide supportive care.
 - Wear gloves when in contact with discharge/drainage.
 - Postexposure treatment includes vaccination.

Measles

- Pathophysiology
 - Highly communicable, transmitted by airborne aerosolized droplets

Measles

- Assessment
 - Early signs and symptoms:
 - Fever
 - Conjunctivitis
 - Coryza
 - Followed by:
 - Cough
 - Blotchy rash
 - Koplik spots



Courtesy of Dr. Heinz F. Eichenwald/CDC.

Measles

- Management
 - Provide supportive care.
 - The only certain protection is immunity.
 - Wash contact areas and launder any soiled linens.

Mononucleosis

- Pathophysiology
 - Caused by the Epstein-Barr virus
 - Transmitted via direct contact with saliva
 - Incubation period: 4 to 6 weeks
 - Prolonged communicable period

Mononucleosis

- Assessment
 - Signs and symptoms may include:
 - Sore throat
 - Swollen lymph glands
 - Malaise
 - Headache
 - Muscle pain

Mononucleosis

- Management
 - Gloves and good handwashing techniques
 - No special cleaning solutions

Gonorrhea

- Pathophysiology
 - Infection caused by *Neisseria gonorrhoeae*
 - Sexual transmission
 - Incubation period: usually 2 to 7 days
 - Remains communicable for months if not treated

Gonorrhea

- Assessment
 - Male signs and symptoms:
 - Pus-containing discharge from urethra
 - Pain on urination
 - Female signs and symptoms:
 - Inflammation of the urethra or cervix
 - Pelvic inflammatory disease

Gonorrhea

- Management
 - Prevention includes glove use if touching drainage from the genital area.

Syphilis

- Pathophysiology
 - Caused by *Treponema pallidum*
 - Transmitted by direct contact with fluids
 - Incubation period: 10 days to 3 months
 - Communicable period variable
 - Noncontagious within 48 hours of treatment

Syphilis

- Assessment
 - Primary infection
 - Chancre
 - Secondary infection
 - Skin rash
 - Patchy hair loss
 - Swollen lymph glands
 - Complications during tertiary stage

Syphilis

- Management
 - Prevention measures include use of gloves and good handwashing techniques.

Genital Herpes

- Pathophysiology
 - Chronic, recurrent illness produced by the herpes simplex virus
 - Classified into:
 - Type 1: transmitted via oral secretions
 - Type 2: spread through sexual contact

Genital Herpes

- Management
 - No cure
 - Can be treated with acyclovir, valacyclovir, or famciclovir to reduce outbreaks
 - Preventive measures: use of gloves and good handwashing techniques

Chlamydia

- Pathophysiology
 - Highest incidence of all STDs
 - Transmission through sexual contact
 - Incubation period: 7 to 14 days or longer
 - Communicable period: unknown

Chlamydia

- Assessment
 - Signs and symptoms:
 - Inflammation of the urethra, epididymis, cervix, and fallopian tubes
 - Gray or white urethral discharge

Chlamydia

- Management
 - Treated with antibiotics
 - Preventive measures: gloves and good handwashing techniques

Scabies

- Pathophysiology
 - Caused by *Sarcoptes scabiei*
 - Transmission via skin-to-skin contact
 - Incubation period: 4 to 6 weeks
 - Communicable until mites and eggs are destroyed

Scabies

- Assessment
 - Signs and symptoms include:
 - Rash
 - Intense itching
 - Sores from scratching



Courtesy of Centers for Disease Control and Prevention.

Scabies

- Management
 - Can be prevented by wearing gloves and by good handwashing.
 - Practice routine cleaning for the vehicle and linens.
 - Treatment cream or lotion should not be used routinely.

Lice

- Pathophysiology
 - Insects that crawl through hair, feed on blood
 - Three types:
 - Head louse
 - Body louse
 - Pubic louse
 - Acquired through direct contact

Lice

- Pathophysiology (cont'd)
 - Pubic lice
 - Transmission through intimate or sexual contact
 - Incubation period: 8 to 10 days after eggs hatched
 - Communicable until all lice and eggs are destroyed

Lice

- Assessment
 - Signs and symptoms include:
 - Itching and irritation
 - Sores
 - Nits

Lice

- Management
 - Wear gloves and practice good handwashing.
 - Routine cleaning of the vehicle is sufficient.

Other STDs and Related Conditions

- Genital warts and human papillomavirus (HPV)
- Chancroid
- Trichomoniasis
- Bacterial vaginosis
- Candidiasis (yeast infection)

Dermatophyte Infections

- Pathophysiology
 - Fungal infections of the skin are common and usually superficial.
 - In most cases the patient has a scaly rash and associated itching.
 - Most infections involve limited areas and respond well to topical antifungal agents.



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Helminths

- Hookworm
 - Larva penetrate skin, enter circulation, travel to lungs, and are coughed up, then swallowed, and develop to adulthood in the small intestine
- Pinworm
 - Spread by the fecal-oral route

Parasitic Insects

- Bedbugs
 - Small, red-brown insects that feed on the blood of humans and other warm-blooded animals.
 - Bite humans at night during sleep.
 - Bites are usually found on the face, neck, shoulder, back, arms, and legs.
 - Topical corticosteroids are used to treat bites.

Types of Viral Hepatitis

- Inflammation of the liver produced by a virus
- Five distinct forms
 - A, B, C, D, and E
 - Vary in means of transmission
 - Same signs and symptoms

Hepatitis B Virus Infection

- Transmitted through:
 - Sexual contact
 - Blood transfusion
 - Puncture of the skin with contaminated needles
- Pathophysiology
 - The incubation period is 60 to 150 days.
 - Communicable weeks before symptoms appear and may persist for years.

Hepatitis B Virus Infection

- Assessment
 - Signs and symptoms may include:
 - Loss of appetite
 - Abdominal discomfort
 - Jaundice
 - Scleral icterus



Courtesy of Centers for Disease Control and Prevention



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Hepatitis B Virus Infection

- Management
 - Use gloves and good handwashing.
 - Paramedics should be immunized.
 - Practice standard precautions.
 - If you are exposed, notify your DICO.

Table 26-6 **Hepatitis B
Vaccination Series**

Initial dose

Second dose: 4 weeks after first dose

Third dose: 6 months after first dose

Titer: 1 to 2 months after completion of the
three-dose series

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Hepatitis C Virus Infection

- Pathophysiology
 - Infection can be acute or chronic
 - Some (15% to 25%) infections resolve on their own.
 - Transmitted by:
 - Sharing needles or syringes
 - Needlestick injuries
 - Mother to infant during pregnancy

Hepatitis C Virus Infection

- Assessment
 - Signs and symptoms the same as HBV infection
 - Signs and symptoms generally appear 6 to 7 weeks after exposure

Hepatitis C Virus Infection

- Management
 - Use gloves.
 - If you are exposed, testing begins with the source patient.
 - Newly diagnosed persons are offered 8 to 12 weeks of treatment.

Hepatitis D Virus Infection

- No hepatitis D infection without hepatitis B
- Pathophysiology
 - Transmission by percutaneous exposure
 - Incubation period: 30 to 180 days
 - Infectious during all phases of illness

Hepatitis D Virus Infection

- Assessment
 - Signs and symptoms same as HBV infection
- Management
 - Use gloves and needle-safe or needleless devices.
 - Perform routine cleaning.
 - Testing begins with source patient.

Human Immunodeficiency Virus (HIV)

- Pathophysiology
 - Transmitted through blood and body fluids.
 - The pathogen attacks the immune system.
 - A patient with AIDS is extremely vulnerable to infections that would not affect a person with an intact immune system.

Human Immunodeficiency Virus (HIV)

- Assessment
 - Signs and symptoms may include:
 - Acute febrile illness
 - Malaise
 - Swollen lymph glands
 - Seroconversion occurs, usually within 3 months.
 - Patients are prescribed antiretroviral drug treatment.

Human Immunodeficiency Virus (HIV)

- Management
 - Use gloves when in contact with blood or OPIM.
 - Use needle-safe or needleless devices.
 - Practice good handwashing technique.
 - Perform routine cleaning of the vehicle.
 - Risk for health care providers is related to sharps.
 - If exposure occurs, notify your DICO.

Ebola

- Falls into two categories for precautions: contact and droplet.
- Pathophysiology
 - Spread via direct contact through nonintact skin or mucous membranes.
 - Incubation period is 2 to 21 days.

Ebola

- Assessment
 - Determine travel history or contact with a person with Ebola.
 - Assess for fever, intense weakness, muscle pain, headaches, and sore throat.
 - As the disease progresses, the patient often experiences profuse diarrhea and vomiting, rash, and impaired kidney and liver function.

Ebola

- Management
 - Treatment is supportive.
 - Take standard, droplet, and contact precautions.
 - Place a surgical mask on the patient.
 - Wear a gown and protective eyewear.
 - Give the patient a biohazard bag to contain any emesis.

Ebola

- Management (cont'd)
 - Notify the receiving facility, so that proper infection control precautions are prepared.
 - Ebola virus can be killed with many common chemical agents, including household bleach.
 - Should an exposure event occur, perform first aid and notify your DICO.

Hepatitis A Virus Infection

- Assessment
 - Phase 1:
 - Fatigue
 - Loss of appetite
 - Fever
 - Nausea
 - Abdominal pain
 - Loss of interest in smoking
 - Phase 2:
 - Jaundice
 - Dark-colored urine
 - Pale stools
 - Resolves after several weeks

Hepatitis A Virus Infection

- Management
 - Use good handwashing techniques and gloves.
 - A vaccine is recommended for FEMA response team members who work outside the United States.

Hepatitis E Virus Infection

- Pathophysiology
 - Transmission via fecal-oral route
 - Incubation period: 15 to 64 days
 - Communicable period: same as HAV infection

Hepatitis E Virus Infection

- Assessment
 - Signs and symptoms same as for other forms of hepatitis
- Management
 - Use gloves when in contact with stool.
 - Practice good handwashing.
 - Clean contaminated equipment.

Vector-Borne and Zoonotic Diseases

- Diseases that are transmitted through a vector are usually transmitted by ticks or mosquitoes.
 - May also be called zoonotic diseases

Lyme Disease

- Assessment
 - Early localized stage
 - Round, red skin lesion
 - Early disseminated stage
 - Secondary lesions
 - Flulike symptoms
 - Late manifestations
 - Arthritis
 - Intermittent joint pain



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Lyme Disease

- Management
 - Prevent tick bites by wearing long sleeves and pants and using insecticides.
 - Use proper removal technique.
 - Postexposure treatment with antibiotics is not warranted or recommended.

Rocky Mountain Spotted Fever

- Transmission by the bite of an infected tick
- Pathophysiology
 - Can be severe or fatal if not treated in first few days

Rocky Mountain Spotted Fever

- Assessment
 - Symptoms may include:
 - Fever
 - Headache
 - Abdominal pain
 - Vomiting
 - Muscle pain
 - Rash

Rocky Mountain Spotted Fever

- Management
 - Doxycycline is the first-line treatment.
 - It is not a communicable disease.

Rabies

- Signs and symptoms:
 - Fever, chills
 - Sore throat
 - Malaise
 - Headache
 - Weakness
 - Paresthesia
- Neurologic phase follows and includes:
 - Hyperactivity
 - Seizures
 - Bizarre behavior
 - Hydrophobia

Rabies

- Management
 - Follow standard precautions.
 - If you are bitten or scratched by a suspect animal, you may be offered human rabies vaccine.
 - Not recommend on a routine basis

Tetanus

- Assessment
 - Signs and symptoms begin at the site of the wound.
 - Followed by painful muscle contractions or rigidity
 - Abdominal rigidity a key sign

Tetanus

- Management
 - Use gloves when treating wounds and drainage.
 - Patient may require airway and ventilation support.
 - Tetanus immune globulin is recommended.
 - Paramedics should receive booster every 10 years.

Infection With Antibiotic-Resistant Organisms

- The overuse and misuse of antibiotics have led some pathogens to develop resistance to them.
 - Patients infected may be protected by the Americans With Disabilities Act.

Methicillin-Resistant *Staphylococcus Aureus*

- Pathophysiology
 - Transmitted via unwashed hands
 - Increased risk:
 - Antibiotic therapy
 - Prolonged hospital stay
 - Stay in an intensive care or burn unit
 - Exposure to an infected patient



Courtesy of Bruno Coignard, M.D./Jeff Hageman, M.H.S/CDC.

Methicillin-Resistant *Staphylococcus Aureus*

- **Assessment**
 - The incubation period is 5 to 45 days.
 - The communicable period varies.
 - Secondary infections can occur after blood infection.

Methicillin-Resistant *Staphylococcus Aureus*

- Management
 - Patients undergo incision and drainage for soft-tissue infections.
 - No antibiotic necessary
 - Use standard precautions.
 - No postexposure treatment recommended.

Thank You



Please continue to the next section