

Infection Prevention & Control for Emergency Medical Services Personnel:

A Review of Procedures for Preventing Exposures &
Reducing Disease Transmission



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Infectious Diseases in the News*

- Up To 10,000 Yosemite Visitors At Risk For *Hantavirus*
- Ohio Woman First In US To Die Of New *H3N2 Swine Flu*
- Three *H1N2v* Swine Flu Cases Reported Among Minnesota State Fair Visitors
- Two Missouri men recovering from a newly discovered tick-borne phlebovirus infection, named *Heartland virus*
- Experts Warn On Long-Term Disabilities Resulting From *West Nile*

*as of September 4, 2012



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Presentation Overview

- Bloodborne Pathogens
- Respiratory Pathogens
 - Influenza
 - Pertussis
 - Meningitis
 - Tuberculosis
- MRSA
- C. difficile
- Q & A

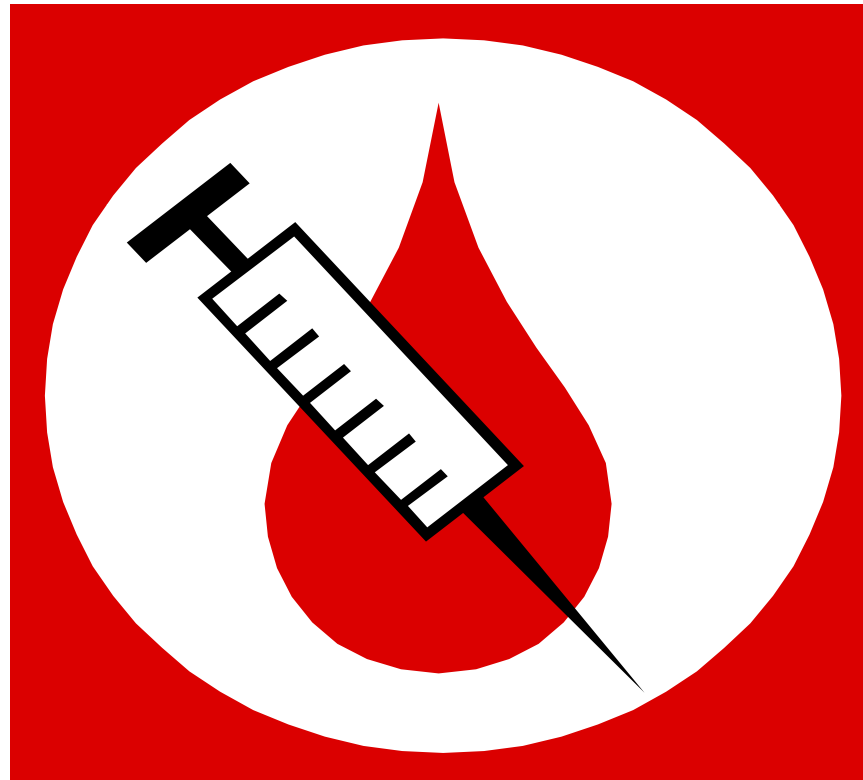


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Bloodborne Pathogens



What are Bloodborne Pathogens?

- Microorganisms carried by human blood and other potentially infectious materials (OPIM)*
- Most common:
 - Hepatitis B virus (HBV)
 - Hepatitis C virus (HCV)
 - Human immunodeficiency virus (HIV)

*Other potentially infectious materials include blood components (platelets, plasma), semen, vaginal secretions, cerebrospinal fluid, synovial fluid, pleural fluid, pericardial fluid, peritoneal fluid, amniotic fluid, saliva in dental procedures, and body fluids visibly contaminated with blood.



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Hepatitis B Virus

- Approx. 500k new infections per year
- Causes inflammation of the liver – mild to life-threatening disease
- Symptoms include fatigue, weight-loss, fever or diarrhea
- Some asymptomatic carriage
- Spread via exposure to contaminated body fluids, sexual intercourse, perinatal spread from mother to infant
- HBV can survive on surfaces for ~1 wk



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Hepatitis C Virus

- Estimated 4m Americans currently infected
- 36-242k new infections per year
- 25-30% of infected individuals symptomatic
- Approx. 15% HCV-infected persons clear the virus; 85% develop chronic infection
- Approx. 8-10k deaths per year due to chronic liver disease
- Most common reason for liver transplants in U.S.



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Human Immunodeficiency Virus

- HIV attacks the body's immune system causing AIDS
- Transmitted mainly via sexual contact; also spread by contact with blood and other contaminated body fluids
- Symptoms include fever, fatigue, diarrhea
- Persons with AIDS may develop AIDS-related illnesses including neurological problems, cancer and other opportunistic infections



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Increasing burden of mortality from viral hepatitis in the U.S. between 1999-2007*

- Deaths from HBV and HCV (15K) surpassed HIV (13K) as a cause of death
- Most deaths from HBV and HCV occurred in middle-aged persons
- IDU considered major risk factor
- Estimated 1.4M living with chronic HBV; 3.2 M with HCV

*Ann Intern Med: Vol.156, No. 4 271-278. Feb 2012



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Direct Transmission

- Direct inoculation via puncture wounds, needlesticks, spills, splashes
- BBPs can cause infection by entering your body through:
 - Open cuts and nicks
 - Skin abrasions
 - Dermatitis
 - Acne
 - Mucous membranes of the mouth, eyes or nose




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Indirect Transmission

- 
- Happens when you touch a contaminated object or surface and then transfer the microorganism to your:
 - Mouth
 - Eyes
 - Nose
 - Non-intact skin



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Bloodborne Virus Transmission

Virus

Risk from Percutaneous Injury

Hepatitis B virus (HBV)
Hepatitis C virus (HCV)
Human immunodeficiency
virus (HIV)

30%*
Approx. 3%
0.3%

*Risk applies to unvaccinated workers only



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Reducing Your Risk

- Training and administrative controls
- Engineering controls
- Work practice controls
- Personal protective equipment (PPE)
- Housekeeping
- Hepatitis B vaccine series



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Training and Administrative Controls

- Written Exposure Control Plan
- Identify persons at risk of exposure to blood and body fluids
- Offer HBV vaccination to at-risk employees
- Make PPE available to all employees
- Training at orientation and repeated annually



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Exposure Control Plan

- **Authority**

- OSHA Occupational Exposure to Bloodborne Pathogens: Final Rule 29 CFR Part 1910.1030. Effective March 6, 1992

- **Objectives**

- To provide employees with guidance for preventing and minimizing occupational exposure to BBPs
- To ensure compliance with Final Rule 29 CFR 1910.1030.



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Safe Work Practices

- Activities **you** can control to make the environment safe for **everyone**
- Eating, drinking, or manipulating contact lenses should be performed **ONLY** in areas where there is **NO** risk for contact with blood/body fluids



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Examples of PPE and Engineering Controls

PPE

- Gowns
- Gloves
- Eye/Face Protection
- Masks

Engineering Controls

- Sharps Containers
- Centrifuge covers/splash shields
- Needleless or blunt cannula systems
- Sharps with engineered sharp injury protection



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Know this label



- Watch for fluorescent orange-red labels, red bags and containers with a biohazard symbol
- This symbol warns you that the container holds blood or other potentially infectious materials



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Housekeeping

- Never pick up broken glass with gloved or bare hands
- Place contaminated sharps and infectious waste in designated containers

If you clean up blood or body fluids:

- Wear appropriate PPE
- Use solution of 1part bleach to 100 parts water (e.g., ¼ cup bleach to 1 gallon water)
- Disinfect mops and cleaning tools after job is done



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HBV Vaccinations

- Vaccination is the best way to prevent HBV infection
- HBV vaccine series is completed in 3 injections over a 6-month period



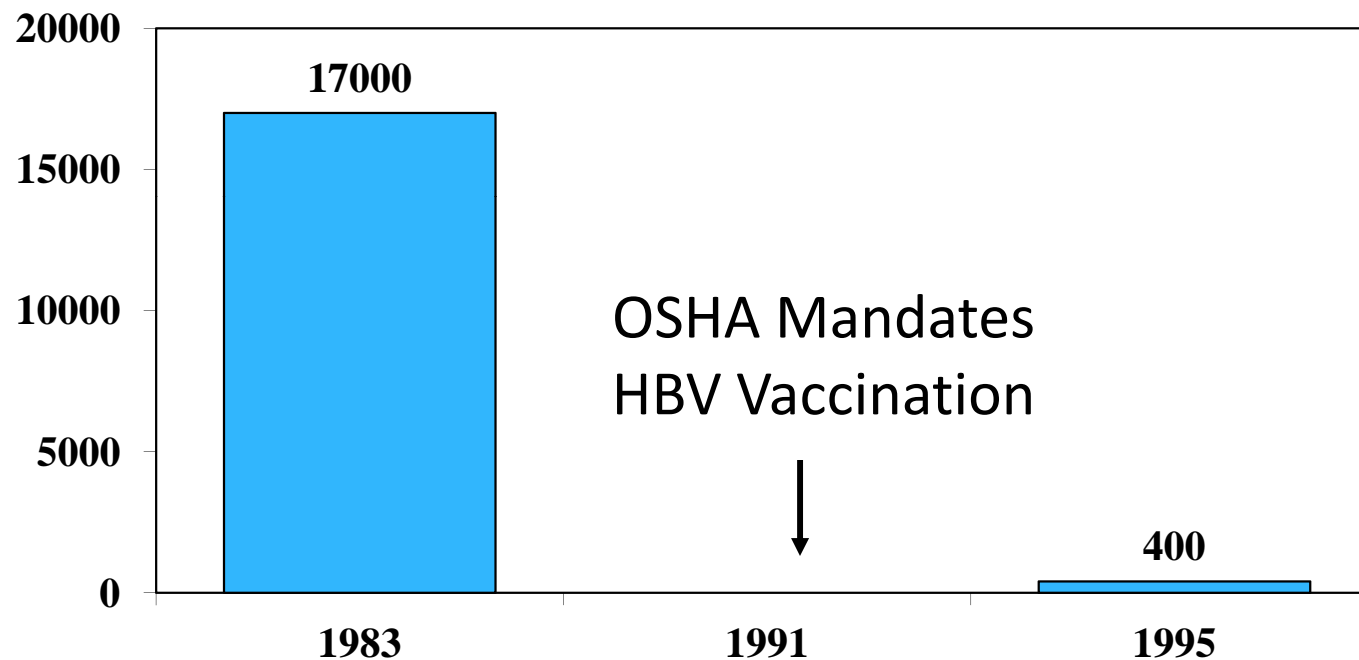
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Decline in U.S. HBV Cases among HCWs Following Vaccination



Decline among HCWs was 1.5 fold greater than reduction among general US population.

From: FJ Mahoney et al, *Archives of Int Med* 157(22):2601-5, 1997.

Standard (Universal) Precautions

- Based on the premise that transmission of disease occurs when healthcare workers are exposed to persons with undiagnosed infectious diseases
- Routinely use personal protective equipment (PPE), engineering controls, and safe work practices to prevent direct contact with blood, body fluids/substances, mucous membranes, non-intact skin, and surfaces contaminated with blood and body fluids/ substances



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Personal Protective Equipment Definition

“specialized clothing or equipment worn by an employee for protection against infectious materials” (OSHA)



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Regulations and Recommendations for PPE

- OSHA issues workplace health and safety regulations. Regarding PPE, employers must:
 - Provide appropriate PPE for employees
 - Ensure that PPE is disposed or reusable PPE is cleaned, laundered, repaired and stored after use
- OSHA also specifies circumstances for which PPE is indicated
- CDC recommends when, what and how to use PPE



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Factors Influencing PPE Selection

- Type of exposure anticipated
 - Splash/spray versus touch
 - Category of isolation precautions
- Durability and appropriateness for the task
- Fit



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Types of PPE Used in Healthcare Settings

- **Gloves** – protect hands
- **Gowns/aprons** – protect skin and/or clothing
- **Masks and respirators**– protect mouth/nose
 - Respirators – protect respiratory tract from airborne infectious agents
- **Goggles** – protect eyes
- **Face shields** – protect face, mouth, nose, and eyes



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Face Protection

- **Masks – protect nose and mouth**
 - Should fully cover nose and mouth and prevent fluid penetration
- **Goggles – protect eyes**
 - Should fit snugly over and around eyes
 - Personal glasses not a substitute for goggles
 - Antifog feature improves clarity



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Face Protection

- **Face shields – protect face, nose, mouth, and eyes**
 - Should cover forehead, extend below chin and wrap around side of face



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Hand Hygiene

- Perform hand hygiene immediately after removing PPE.
 - If hands become visibly contaminated during PPE removal, wash hands before continuing to remove PPE
- Wash hands with soap and water or use an alcohol-based hand rub



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Hand Hygiene Options



Apply ~3ml
(about the size
of a thumbnail)
to palm; rub
hands until dry.

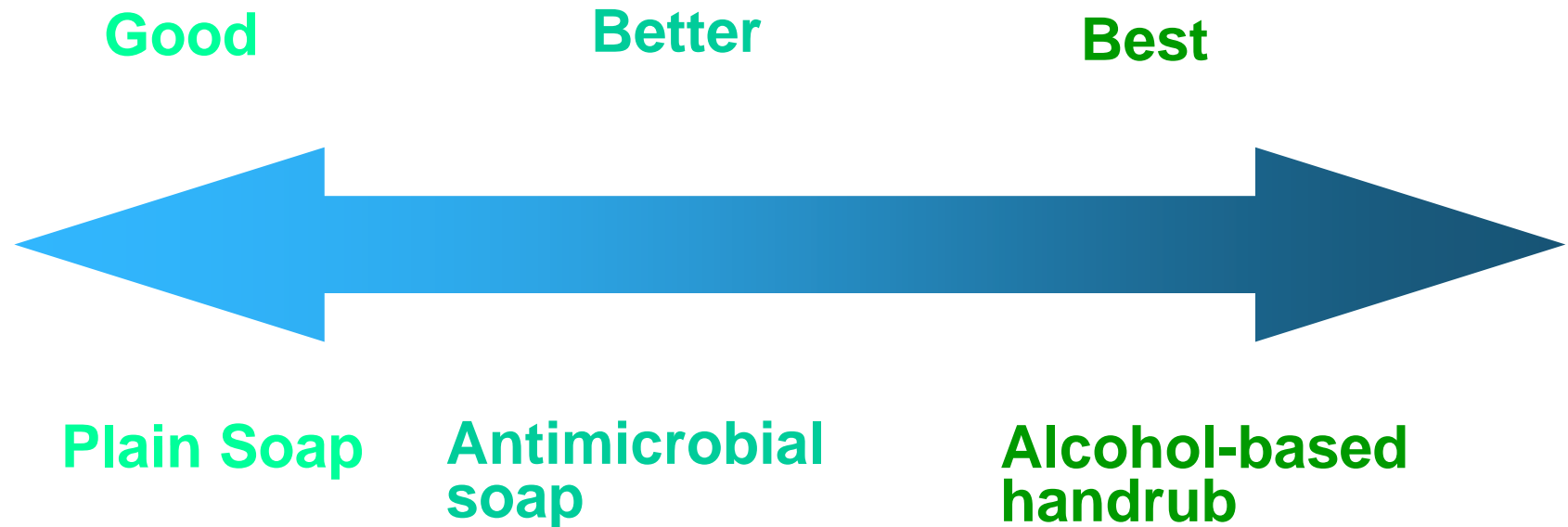
Wet hands, apply 3-
5ml and rub for ≥ 15
seconds. Rinse, dry
& turn off faucet
with paper towel.



~ Use soap and water for visibly soiled hands ~

~ Do not wash off instant hand sanitizer ~

Efficacy of Hand Hygiene Preparations in Killing Microorganisms



Respiratory Pathogens



What are Respiratory Pathogens?

- Microorganisms that infect the respiratory tract
- Transmitted by respiratory secretions (e.g., saliva, nasal secretions, bronchial washes)
- Cause infections of the upper respiratory tract (e.g., sinusitis) or lower respiratory tract (e.g., pneumonia)
- Most commonly caused by viruses (influenza) but also by bacteria (TB)



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Signs and Symptoms of Influenza

- Include:
 - Fever of 100°F or greater *AND any of the following:*
 - Cough
 - Sore Throat
 - Stuffy/Runny Nose



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How does Influenza spread?

- Primarily through respiratory droplets
 - Coughing
 - Sneezing
 - Touching respiratory droplets on yourself, another person, or an object, then touching mucus membranes (e.g., mouth, nose, eyes) without washing hands



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Take these everyday steps to protect your health

STEP 1: CLEAN

- Wash your hands often with soap and warm water, especially after you cough or sneeze. Wash for 15–20 seconds.
- Alcohol-based hand wipes or gel sanitizers are also effective.



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Take these everyday steps to protect your health

STEP 2: COVER

- Cover your nose and mouth with a tissue when you cough or sneeze. Throw the tissue in the trash after you use it
- Avoid touching your eyes, nose or mouth. Germs spread this way
- Avoid contact with sick people



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If you get sick...

STEP 3: CONTAIN

- Stay home if you are sick for 24 hours after resolution of fever, without the use of fever-reducing medications
- If you are sick, limit your contact with other people as much as possible



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More steps to protecting your health

STEP 4: Vaccine

- Get vaccinated! Everyone 6 months and older should receive seasonal flu vaccine

STEP 5: Do not share

- Items such as eating utensils, drinking cups, water bottles, towels or other personal items including lip balm, lipstick, toothbrushes, etc.



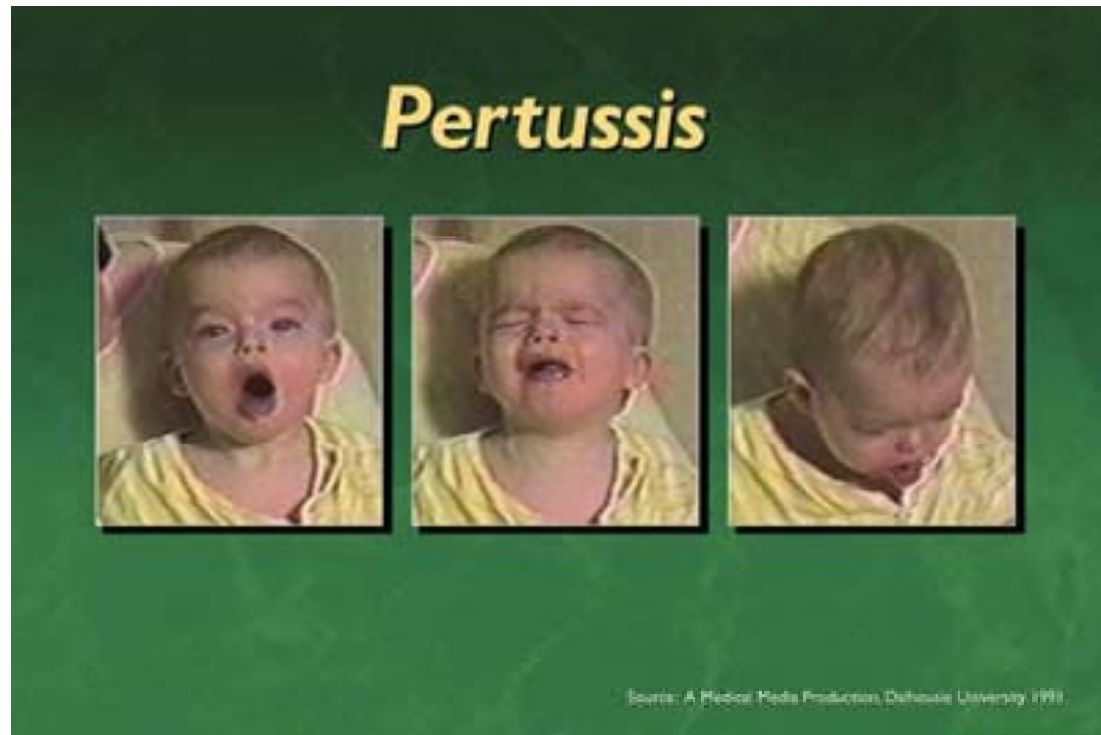
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Pertussis (Whooping Cough)



Stages of Pertussis Infection

- **Stage 1:** Appears as the common cold – runny nose, cough, low-grade fever
- After a week or two ...
- **Stage 2:** Extreme coughing spells.
 - Coughing can be so hard and so long that victims throw up or turn blue because they are unable to breathe.
 - Gasping “whoop” sound when air is sucked in after a coughing fit.
 - About 40% of infants with pertussis are admitted to the hospital
- Pertussis is “no joke”



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Trends

- 18,000 cases reported in U.S. in 2012
 - Highest # cases in a single year since 1959
 - 2-fold increase in cases reported last year at this time
- 1,200 cases in IL in 2012
 - Compared to 490 cases in 2011
- Experts predict more to come




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2009-2012 Pertussis Cases by Month and Year of Onset



	2009	2010	2011	2012	Sum:
January	16	1	12	54	83
February	10	4	8	47	69
March	9	2	5	42	58
April	8	6	7	51	72
May	4	6	16	67	93
June	5	6	15	41	67
July	14	11	22	43	90
August	10	9	15	14	48
September	6	15	18		39
October	3	30	37		70
November	6	28	68		102
December	7	24	57		88
Sum:	98	142	280	359	879

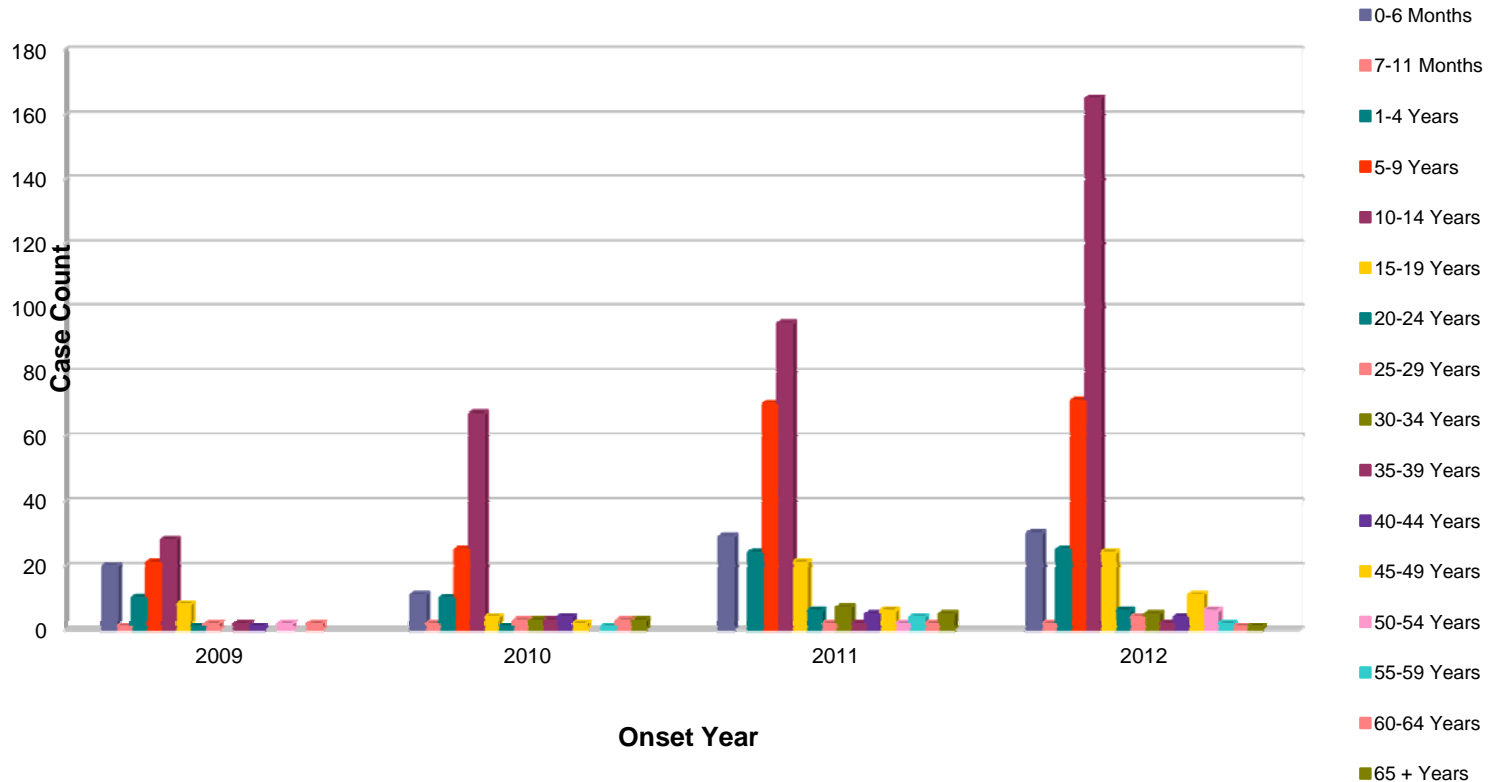


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2009-2012 Sub Cook County Reported Pertussis Cases by Year of Onset and Age group



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Signs/Symptoms

- Paroxysms of cough
- Inspiratory whoop
- Posttusive vomiting
- Apnea
- Cold-like symptoms
- Fever usually minimal throughout course of illness



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Mode of Transmission

- **Transmission: Droplet**
- **Reservoir: Humans**
- **Highly contagious**
- **Duration of Infectivity: 3 weeks**
- **Incubation period: 7-10 days (range 4-21)**



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Droplet Precautions

- Required to protect against “droplet” transmission of infectious agents
- Diseases requiring “droplet” precautions include: pertussis, influenza, meningitis, etc.
- Precautions include:
 - Standard precautions PLUS
 - Use of a surgical mask when within **3 feet** of the suspect or confirmed infectious person



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Treatment

- **Treatment recommended for:**
 - Patients with B. pertussis isolated from culture or PCR
 - Clinical diagnosis of pertussis with symptoms for less than 21 days
- **Medications**
 - Macrolides (erythromycin, clarithromycin, or azithromycin) or TMP-SMX



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Exclusion Practices

- Pertussis cases must stay home until complete 5 days of antibiotics
- If pertussis case does not receive antibiotics, must stay home for 3 weeks



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Identifying Close Contacts

- Droplet spread, must be within 3 feet for an extended period
- IDPH data from prior outbreaks suggested as little as 10 minutes of exposure could result in infection, especially in confined spaces (cars, exam rooms, EMS transport)
- Usually ≥ 1 hour of exposure
 - Household members
 - Caregivers
 - Core group of close friends and social contacts



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Prophylaxis

- Chemoprophylaxis for pertussis contact include full dose of antibiotics
- Contacts should be monitored closely for signs/symptoms of pertussis for at least 21 days after last contact with case
- All close contacts require antibiotic prophylaxis regardless of age or vaccination status



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Pertussis Vaccination

- Five doses of diphtheria, tetanus toxoid, and acellular pertussis vaccine (DTaP)
 - 2, 4, and 6 months, 15-18 months, 4-6 yrs
- Booster (Tdap) as one time dose for adolescents/adults any time after 11 yrs age
- Tdap required for entry to 6th and 9th grades: IL mandate (2012)
- CDC urges ALL adults to get a single dose of Tdap
- Cocooning to protect infants
- Vaccine is 60-90% effective
- Immunity wanes 5-10 years after last booster



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Steps to Prevent the Spread of Respiratory Pathogens

- Be aware of patients with respiratory symptoms
- Contain droplet, airborne, and contact transmission via infection control precautions
- Place surgical mask on patient (if necessary & patient is able to tolerate)
- Use fit-tested N95 respirator if necessary
- Wear other PPE (gloves, goggles, gowns) as appropriate
- Communicate with HC personnel at receiving or destination facility



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Key Points

- **Preventing the spread of respiratory pathogens (influenza, pertussis) includes:**
 - Covering the mouth with a tissue, cloth or a sleeve to stop germs going into the air
 - Promptly disposing of used tissues
 - Hand hygiene
 - Teaching cough etiquette & hand hygiene

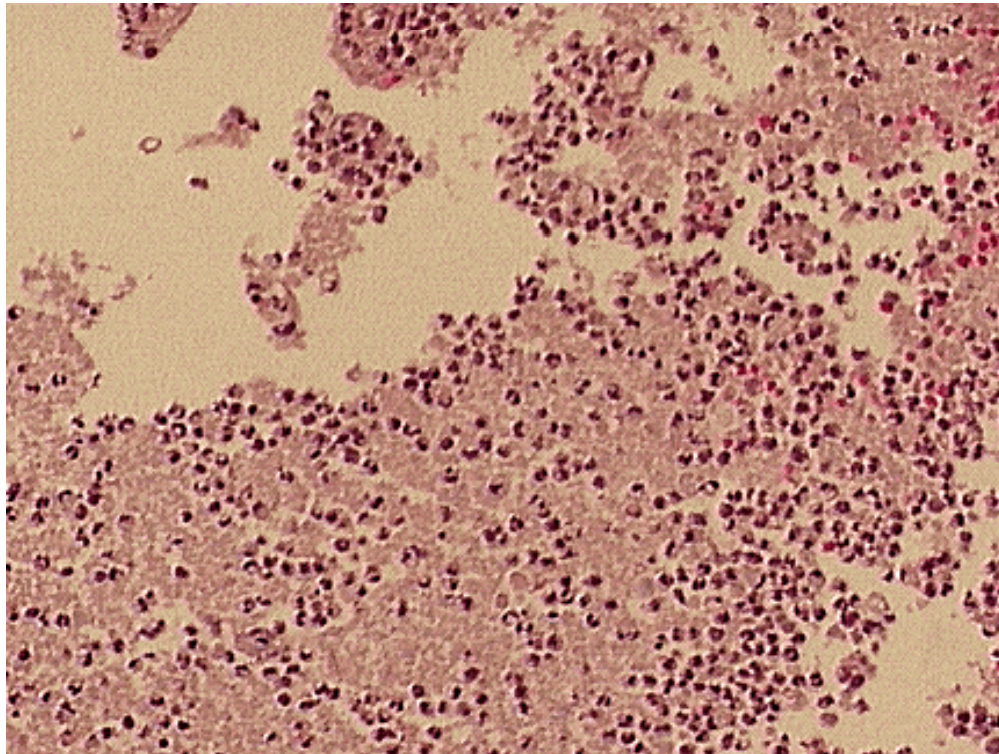


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Meningitis



What is Meningococcal Disease?

- Meningococcal disease is a serious illness, caused by a bacteria (***Neisseria meningitidis***).
- This bacteria causes meningitis, an infection of the fluid surrounding the brain and the spinal cord, and can also cause infections of the blood.
- About 2,600 people get meningococcal disease each year in the U.S.



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Symptoms of Meningococcal Disease

- Fever
- Severe headache
- Stiff neck
- Photophobia (light sensitivity)
- Drowsiness or confusion
- Nausea
- Vomiting
- Possibly a “rash” from bleeding into the skin



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Transmission

- About 5-10% of the population are carriers of *N. meningitidis*, and have no symptoms.
- Spread occurs from person-to-person through contact with respiratory or oral secretions.
- The bacterium does not survive on surfaces. Extensive cleaning is not needed.
- Contacts of a person with meningococcal disease who have no signs of infection do not pose a risk to others.
- The incubation period (time from exposure until become ill) generally ranges from 2 to 10 days and is usually 3-4 days.



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Bacterial Meningitis: who requires prophylaxis?

- Must have very close exposure leading to sharing of oral secretions (spit) to acquire infection:
 - Intubation
 - Suctioning
 - Unprotected exposure to cough or sneeze
- Fortunately the bacteria does NOT spread through casual workplace contacts. Being in the same room or passing a person in the hallway is not a risk for infection.



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Diagnosis

- Early diagnosis and treatment are very important.
- **Diagnosis is made by:**
 - Examination of spinal fluid
 - Growing the bacteria (culture) from blood or spinal fluid



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Who is at risk?

- Anyone can get meningococcal disease, however:
 - 20% of cases occur among adolescents and young adults
 - 16% of cases occur among infants under 1 year of age
- College freshmen living in dormitories are at higher risk than the general population
- Most cases are sporadic (97%); few are associated with outbreaks (3%)



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Treatment

- There are a number of antibiotics for treating meningococcal disease (rifampin, ciprofloxacin).
- 10 – 15% of people will die, in spite of antibiotics.
- Of those who live, as many as 10% will have life-long complications, such as deafness, brain injury, or limb loss.
- *Prevention* through vaccination is very important.



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Meningococcal Vaccine Recommendations

- **A one time meningococcal vaccination (Menactra) is recommended for:**
 - All children at the preadolescent visit (ages 11-12 years)
 - Persons about to enter high school (age 15 years)
 - College freshmen living in a dormitory
 - Any children age 11 – 18 years who were not vaccinated at the above times
- **EMS personnel**



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coughing up blood
WEAKNESS
Weight Loss
POSITIVE SKIN TEST
Night Sweats
CHILLS
MALAISE
FEVER
HEMOPTYSIS
loss of Appetite
Think
TB!
chest pains
Exposure to Tuberculosis
fatigue
difficult breathing
ANOREXIA
failure to thrive
Abnormal X-RAY
Cough
Significant Skin Test
Shortness of Breath

Recognize possible signs and symptoms of Tuberculosis. Early diagnosis and treatment reduces spread. Contact your Health Department or physician for more information.

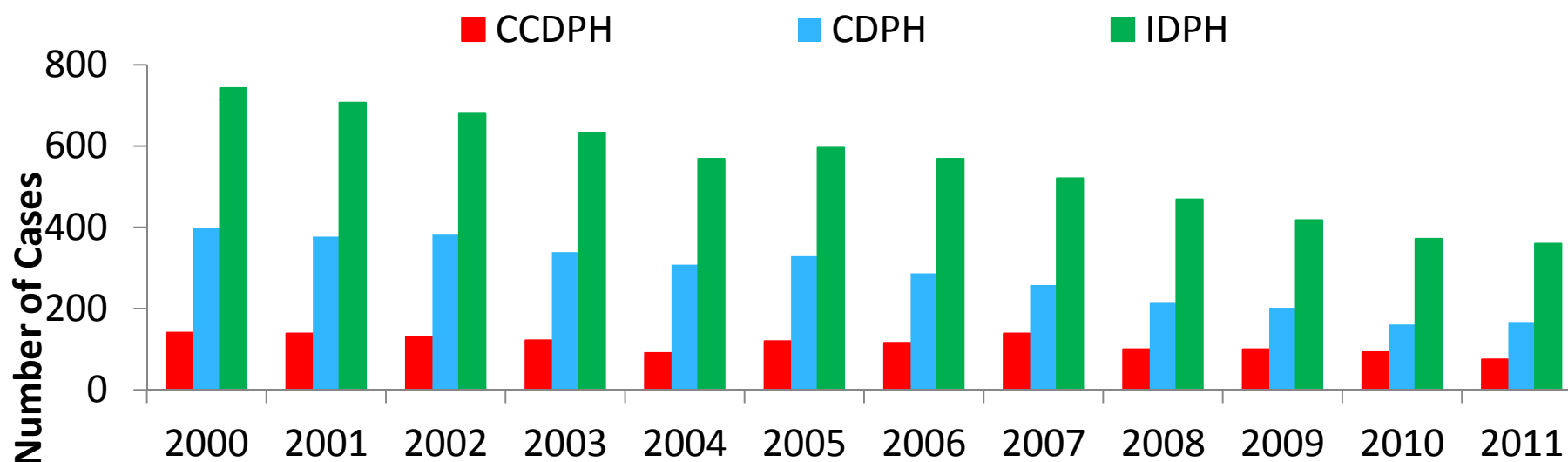


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Public Health Service

CDC

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Tuberculosis Cases in Illinois, Chicago and Suburban Cook County : 2000 – 2011



TB Infection Vs. TB Disease

- **TB Infection:**
 - Person with positive TST but no signs and symptoms of disease
- **TB Disease:**
 - Person with positive TST plus signs and symptoms of TB including cough, fever, night sweats, weight loss



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Airborne Precautions

- Required to protect against “airborne” transmission of infectious agents
- Diseases requiring “airborne” precautions include: measles, chickenpox, SARS, TB.
- Precautions include:
 - Standard precautions
 - PLUS
 - N95 Respirator or Powered Air-Purifying Respirator (PAPR)



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Respiratory Protection

- **Authority:**
 - US Department of Health and Human Services, 1999, [OSHA Technical Manual: Respiratory Protection 29 CFR 1910.134](#)
- **Purpose – protect from inhalation of infectious aerosols (e.g., *Mycobacterium tuberculosis*)**
- **PPE types for respiratory protection**
 - Particulate respirators (e.g., N95)
 - Powered air purifying respirators (PAPR)



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Elements of a Respiratory Protection Program

- Medical evaluation
- Fit testing
- Training
- Fit checking before use



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TB (N95) Masks



TB masks should be used during high risk procedures:

- N95 mask has a filter efficiency of 95%
- Can be reused until contaminated or clogged
- Must be discarded when breathing becomes difficult



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Annual Tuberculin Skin Testing (TST) Program

- TSTs applied to all CCDPH staff annually
- Purpose is to identify converters with latent TB infection
- Allows timely evaluation for active TB disease



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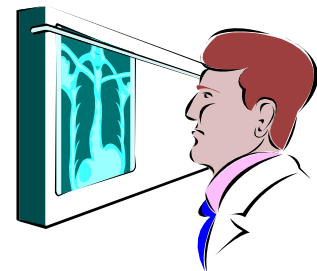
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Medical Evaluation Following a Positive Tuberculin Skin Test

The medical evaluation is performed by the Employee Health Service and may include the following:

- Health Evaluation
- Chest X-Ray
- Sputum cultures
- Medication



Key Points

- **Preventing the spread of TB includes:**
 - Early detection and treatment
 - Strict isolation of smear positive patients
 - Good ventilation
 - Extra precautions during cough inducing procedures
 - Attention to patient placement
 - Teaching cough hygiene



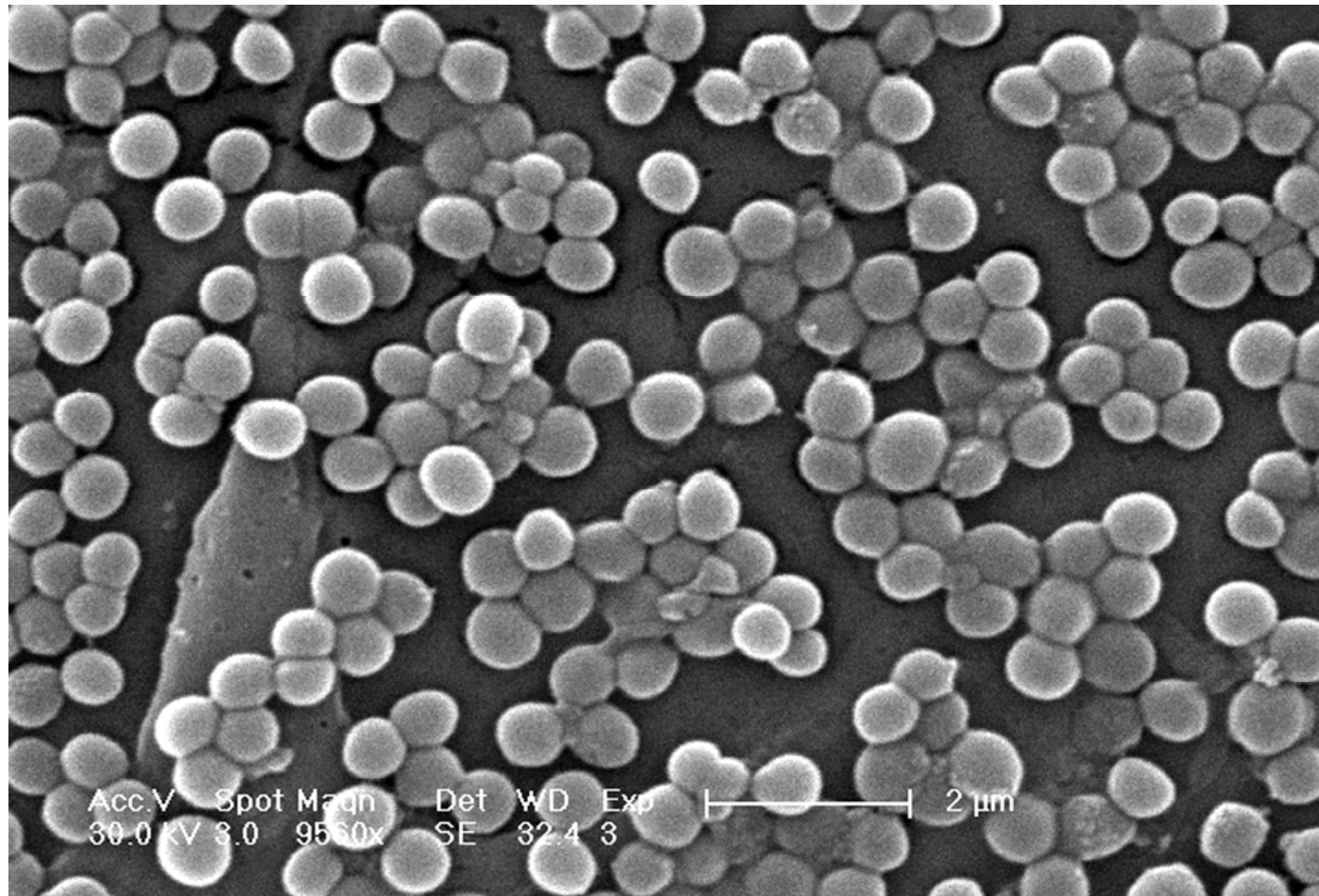
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Staphylococcus aureus



MRSA

- **What is it?**

- Methicillin-resistant *Staphylococcus aureus*
- Staph bacteria resistant to certain antibiotics including methicillin, penicillin and amoxicillin
- HA-MRSA: healthcare-associated MRSA
- CA-MRSA: community-associated MRSA

- **Surveillance definition:**

- Lab confirmed positive MRSA culture or PCR



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MRSA Timeline

- 1940's: penicillin introduced
- 1950's: penicillin-resistant staph detected
- 1959: methicillin introduced
- 1961: HA-MRSA first detected in Europe
- 1968: HA-MRSA detected in a hospital in Boston
- 1981: CA-MRSA outbreak reported among injection drug users in Detroit
- 1999: CA-MRSA reported in 4 previously healthy children in Minnesota & North Dakota
- 2005: increasingly common in the community; may be misdiagnosed as "spider bite"
- 2007: data from CDC suggest that MRSA in the community is increasing



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MRSA in the Media

October 17, 2007

- Deaths from drug-resistant bacteria top those from AIDS
- **19,000 fatalities a year, study says**
 - By Judith Graham | Tribune staff reporter
- High school senior in Moneta, Va., died after being hospitalized for a week with an infection that spread to his kidney, liver, lungs and heart.
- **Officials ordered all 21 schools in the district closed for cleaning**



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MRSA Headline

October 20, 2007

Infection outbreaks spur action in schools

– By Azam Ahmed | Tribune staff reporter

Payton High School on the North Side was completely cleaned after a student was confirmed Thursday to have contracted a drug-resistant staph strain known as methicillin-resistant staphylococcus aureus, or MRSA.



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More MRSA Media Coverage

Monday, November 12, 2007

MRSA-Infected Student's Relatives Booted From School

School Refuses To Let Uninfected Students In Class, Family Says

CHICAGO -- One mother says it all started when her son contracted MRSA, a drug-resistant staph infection that kept him out of school.

But now her daughter, niece and nephew -- who never even had MRSA -- are not being allowed back, either.



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What Type of Infection Does CA-MRSA Cause?

- Skin infections that may appear as pustules or boils which often are red, swollen, and painful, or have pus or other drainage.
- Occur at sites of visible skin trauma, such as cuts and abrasions, and areas of the body covered by hair (e.g., back of neck, groin, buttock, armpit, beard).
- Almost all MRSA skin infections can be effectively treated by drainage of pus with or without antibiotics.
- More serious infections, such as pneumonia, bloodstream infections, or bone infections, are very rare in healthy people who get MRSA skin infections.



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CA-MRSA Skin Lesion



How is MRSA Transmitted?

- MRSA is usually transmitted by direct skin-to-skin contact or contact with shared items or surfaces that have come into contact with someone else's infection (e.g., towels, used bandages)

SOURCE: CDC "Questions and Answers about MRSA in Schools"
published 10/19/07



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CA-MRSA Prevention

- Keep hands clean
- Cover cuts and scrapes
- Avoid contact with draining wounds or used bandages
- Wear gloves
- Wear gown if contact with draining wound is anticipated
- Wash hands immediately after glove removal

SOURCE: CA-MRSA Information for the Public; CDC 2/3/05



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Hand Hygiene

- The single most important practice to reduce the spread of infection, including skin infections caused by MRSA
- Handwashing for 20 seconds with soap and running water
- Use of waterless hand sanitizers:
 - Alcohol-based hand rubs (ABHR)
 - Do not use when hands are visibly soiled



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Clostridium difficile



Definitions/Abbreviations

- *Clostridium difficile* clinical syndromes:
 - CDAD (*C. difficile*-associated disease)
 - CDD (*C. difficile* disease) < For this talk
 - CDI (*C. difficile* infection)
- Epidemic *C. difficile* strain since 2001:
 - REA type *BI* ('Bee-eye')
 - PFGE type *NAP1*
 - PCR Ribotype *027*



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***Clostridium difficile* Disease (CDD)**

- ***Clostridium difficile***
 - Gram-positive, spore-forming, anaerobic rod
 - Toxins produced: Toxin A & B, binary toxin
- **Clinical manifestations of CDD**
 - Asymptomatic carriage
 - Diarrhea
 - Pseudomembranous colitis
 - Fulminant colitis, ileus, toxic megacolon
 - Death



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Major Risk Factors for *Clostridium difficile* Disease (CDD)

- Antibiotic exposure
- Hospitalization/ Institutionalization



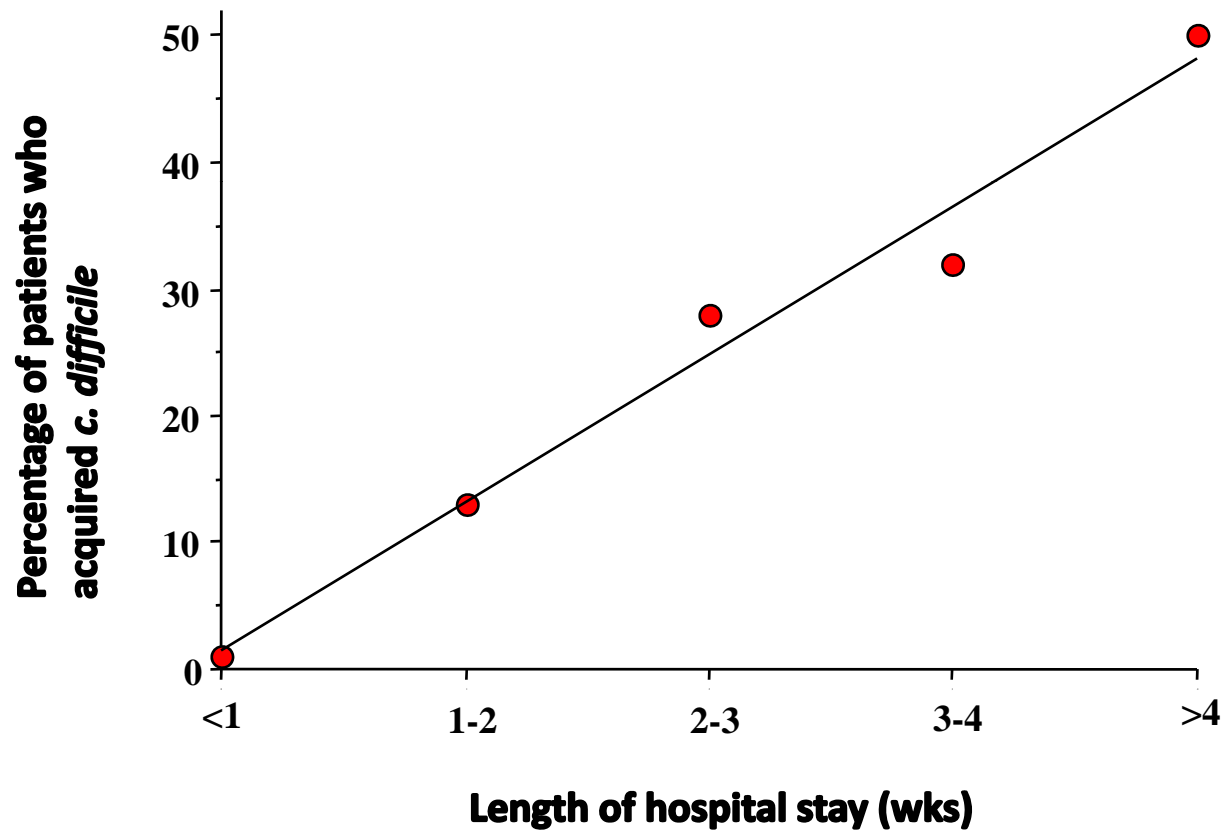
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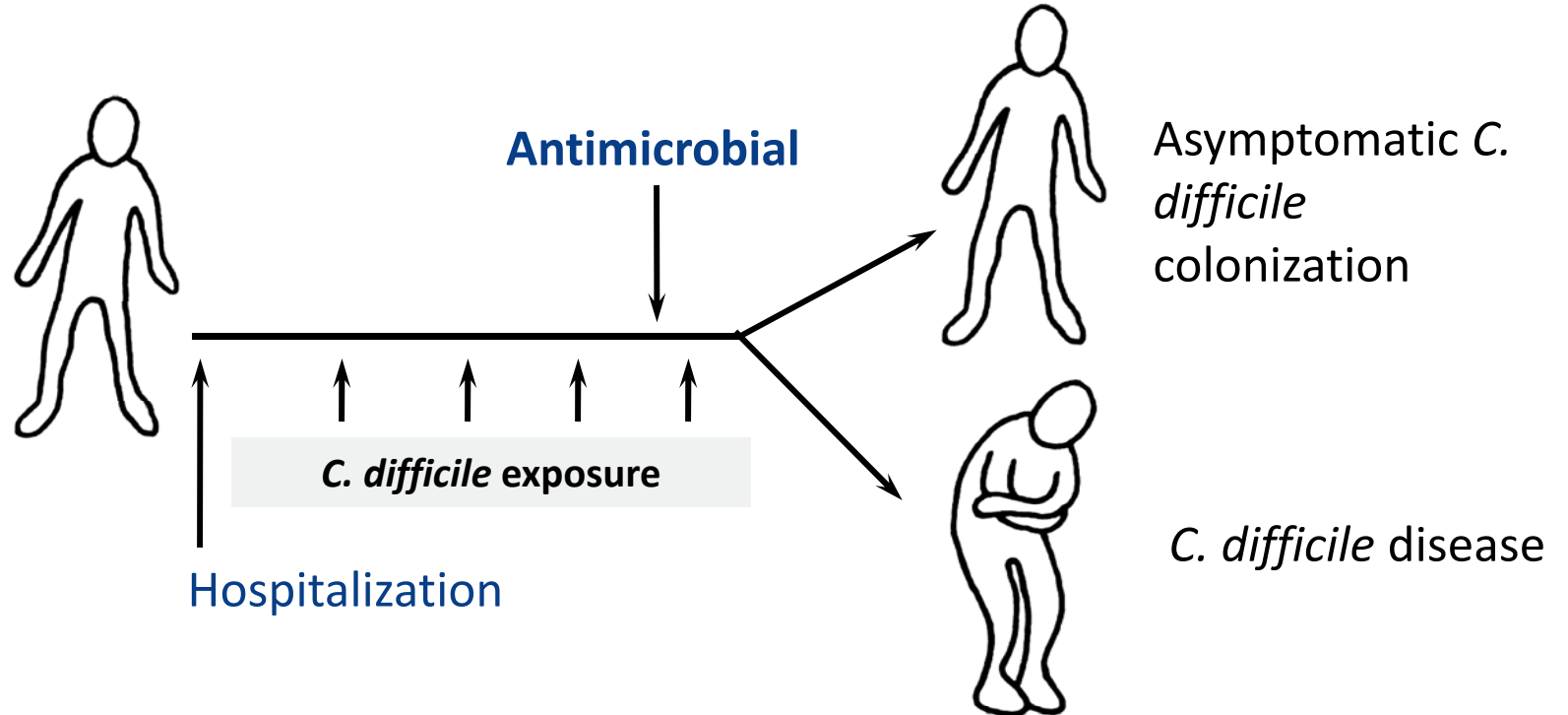
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***Clostridium difficile* is Acquired Exogenously**



Johnson and Gerding J Infect Dis 1998; 26:1027

Pathogenesis



Modified from: Johnson S, Gerding DN. *Clin Infect Dis.* 1998;26:1027-1036

Strategies for Preventing C. difficile Transmission

- Avoid direct contact with diarrheal stools
- Wear gloves
- Use gown if contamination of clothing is anticipated
- Disinfect environmental surfaces with 1:10 dilution of bleach
- Wash hands



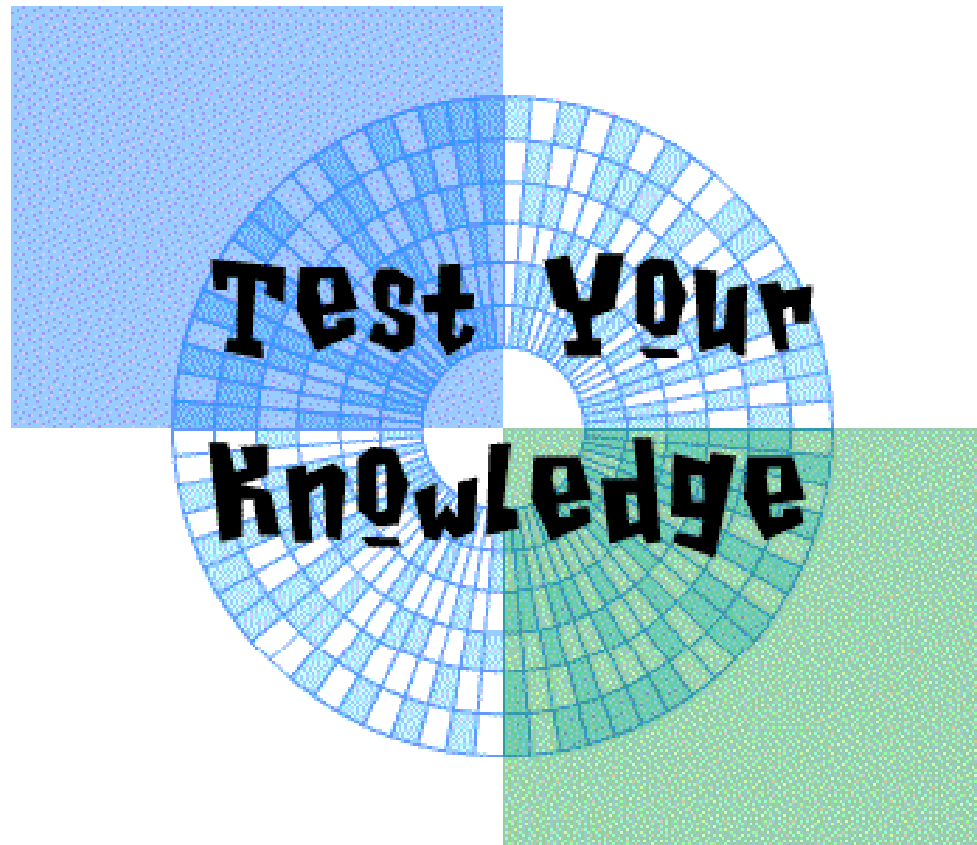
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True or False Quiz





**HIV and HBV may be present in
body fluids other than blood.**

True




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**A person can be infected with
HBV without exhibiting any
symptoms.**

True




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Sexual contact and sharing infected needles are the only ways HBV and HIV can be transmitted.

False




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You should always check disposable gloves for holes to ensure they will protect you from bloodborne pathogens.

True




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**Bloodborne infections can be
transmitted through an open cut or
through common skin conditions like
dermatitis.**

True




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**The HBV vaccine is very effective
in preventing the spread of
hepatitis B disease.**

True



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**Contaminated surfaces can lead
to the spread of HBV.**

True



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**Standard Precautions means treating all
blood and body fluids as if they are
infected with a bloodborne disease.**

True




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**Surfaces contaminated with blood and
certain body fluids should be
decontaminated with a bleach solution
or other EPA-approved disinfectant.**

True




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**Only clinicians and housekeeping staff
are at risk of encountering bloodborne
pathogens at the workplace.**

False



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**You must carefully remove
disposable gloves to minimize
your risk of infection.**

True



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HBV is never life-threatening.

False




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If you contract HBV, your family members may be at increased risk of acquiring the infection.

True




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**There is no need to wash your
hands after removing disposable
gloves.**

False




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**You don't need to follow Standard
Precautions if you know the person
who is injured.**

False



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**Disposable gloves can be reused
if they are rinsed off.**

False



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**Sharp objects, such as needles, can
be discarded in heavy-duty
trash bags.**

False



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**Most exposures to blood result
in infection.**

False




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Immediately after exposure to blood and certain body fluids, the employee should wash the affected body part and report the incident to his or her supervisor.

True



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