



Standard and Transmission-Based Precautions



Basics of Infection Prevention
2-Day Mini-Course
2013

Objectives

- Review modes of disease transmission
- Discuss prevention of infection and prevention of transmission
- Review standard and transmission-based isolation precautions



Infection Prevention vs. Transmission Prevention

Infection prevention: Goal is to avoid introduction of pathogens into sterile body sites, such as during placement of a medical device or during surgery

- Avoid introducing patient's own flora into a sterile site
- Avoid introducing any pathogens acquired in the hospital

Transmission prevention: Goal is to avoid the transfer of pathogens from person-to-person

- Avoid HCW-patient transmission, such as via contaminated hands of HCW
- Avoid patient-HCW transmission of infectious diseases, such as by using appropriate isolation precautions



Standard Precautions



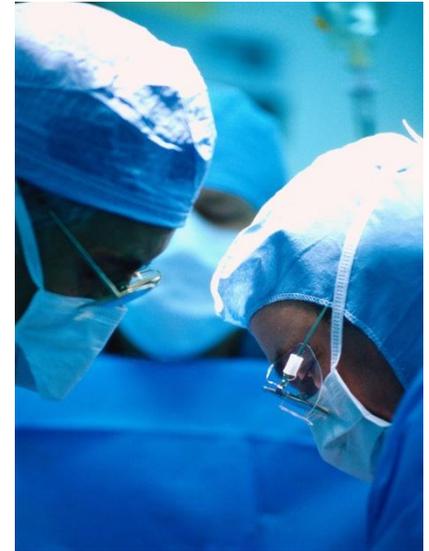
Basic principles

- Designed to reduce risk of transmission from both recognized and unrecognized sources of infection
- Considers all body fluids infectious (except sweat)
- Used for care of all patients

Standard Precautions

Include

- Hand hygiene
- Barrier protective equipment
 - Gloves for anticipated contact with blood, body fluids (except sweat)
 - Mask and eye protection if splash, splatter, or sprays reasonably anticipated
 - Gloves and gown for open, draining wounds, fecal incontinence
 - Mask for new onset or increasing respiratory secretions



Standard Precautions - continued

- Proper...
 - use and handling of patient care equipment
 - environmental cleaning and disinfection
 - handling of linen
 - patient placement to minimize disease transmission
- Respiratory Hygiene/Cough Etiquette
- Safe injection practices



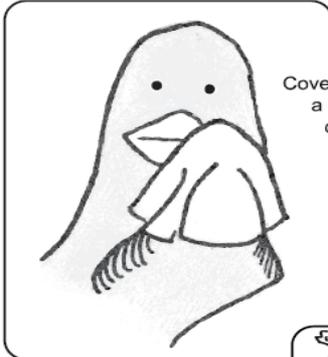
Respiratory hygiene and cough etiquette includes

Containment of respiratory secretions

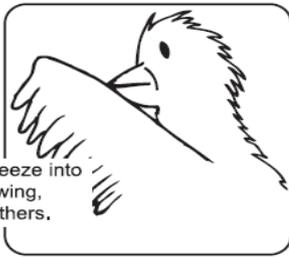
Proper disposal of used tissues

Stop the spread of germs that make you and others sick!

Cover your Cackle

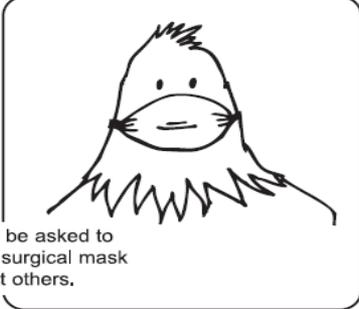


Cover your beak with a tissue when you cough or sneeze



or cough or sneeze into your upper wing, not your feathers.

Put your used tissue in the waste basket.

You may be asked to put on a surgical mask to protect others.

Clean your Feathers

after cackling or chirping.

Expanded Isolation Precautions

- Used in addition to Standard Precautions when SP may be insufficient to prevent transmission
- Include
 - Contact precautions
 - Droplet precautions
 - Airborne precautions



Contact Precautions*

- Intended to prevent transmission of infectious agents via direct or indirect contact
- Used for “epidemiologically important” microorganisms
- Places a barrier between the HCW and infectious agent
- Gown and gloves should be donned prior to entry into room, discarded prior to exit
- Single room preferred; alternatives are spatial separation or cohorting (after consultation with IP)

* used in addition to Standard Precautions



Droplet Precautions

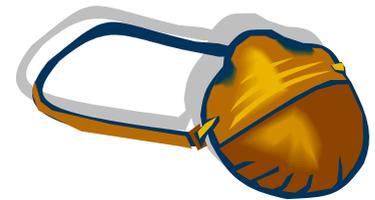
- Intended to prevent transmission of pathogens via respiratory or mucous membrane contact with respiratory secretions
- No special air handling or ventilation required
- Surgical or procedure mask should be donned prior to entry into room, discarded prior to exit
- Single room preferred; alternatives are spatial separation or cohorting (after consultation with IP)
- Patient should be transported in a mask

* used in addition to Standard Precautions



Airborne Precautions

- Intended to prevent transmission by inhalation of infectious agents that can remain suspended in the air
- Requirements include
 - Increased ventilation rate
 - Air exhausted directly to the outside or through HEPA filtration
 - Facility respiratory protection program (education, fit-testing, user seal checks in place)
- Respirator should be donned prior to entry into room, discarded after exit
- Single room preferred; alternative is cohorting
- Patient should be transported in a mask



Relationship of pressure on droplet size and dispersion

Low pressure produces large droplets



Increasing pressure produces more of a range of droplet sizes that travel further from the source

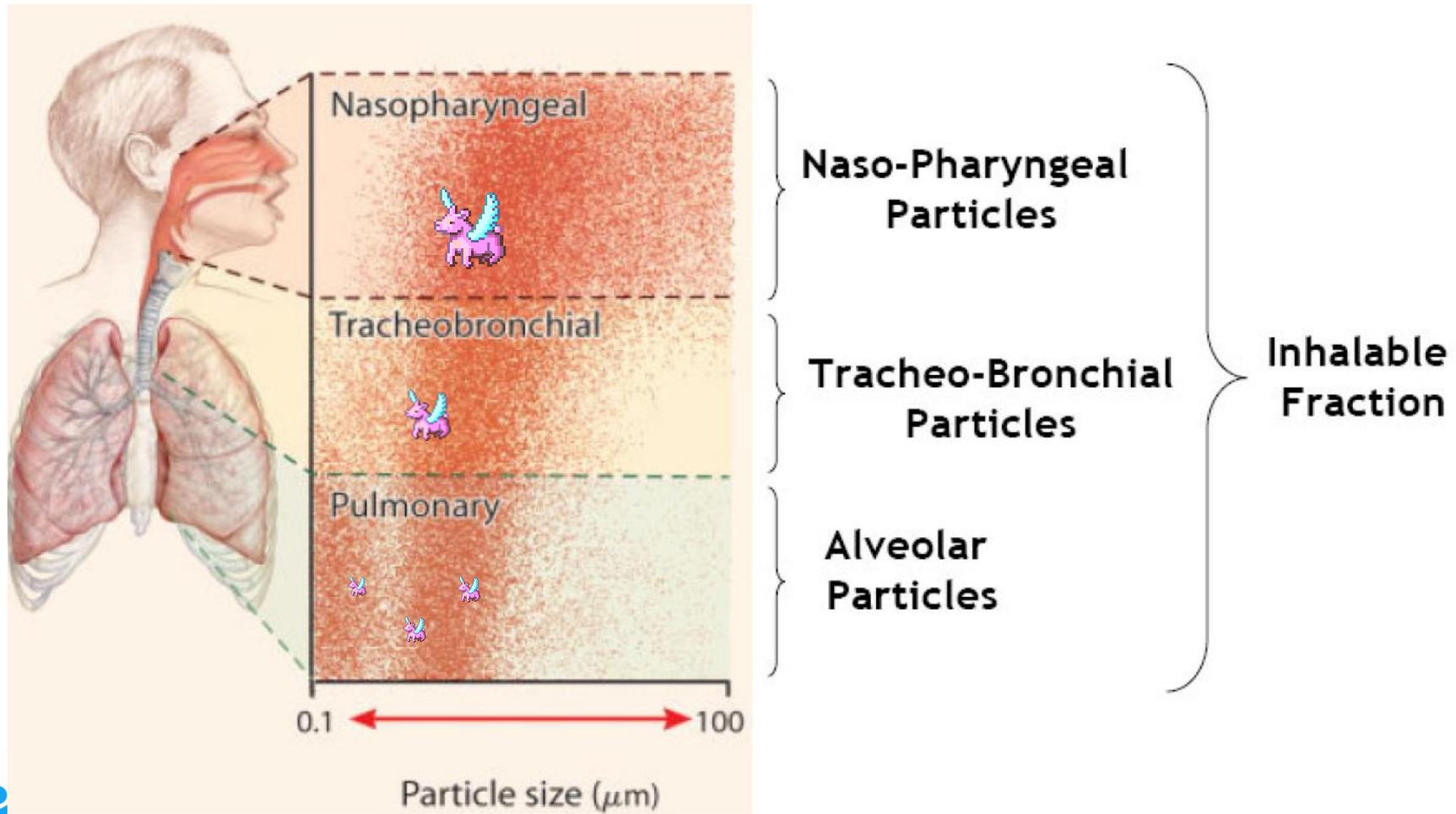
Higher pressure produces sprays of varying sizes including very small particles that can travel even further from the initial source



Model demonstrating variation in particle size and suspension



Particulates deposited in respiratory tract according to size



Update on Near-Aerosol Transmission

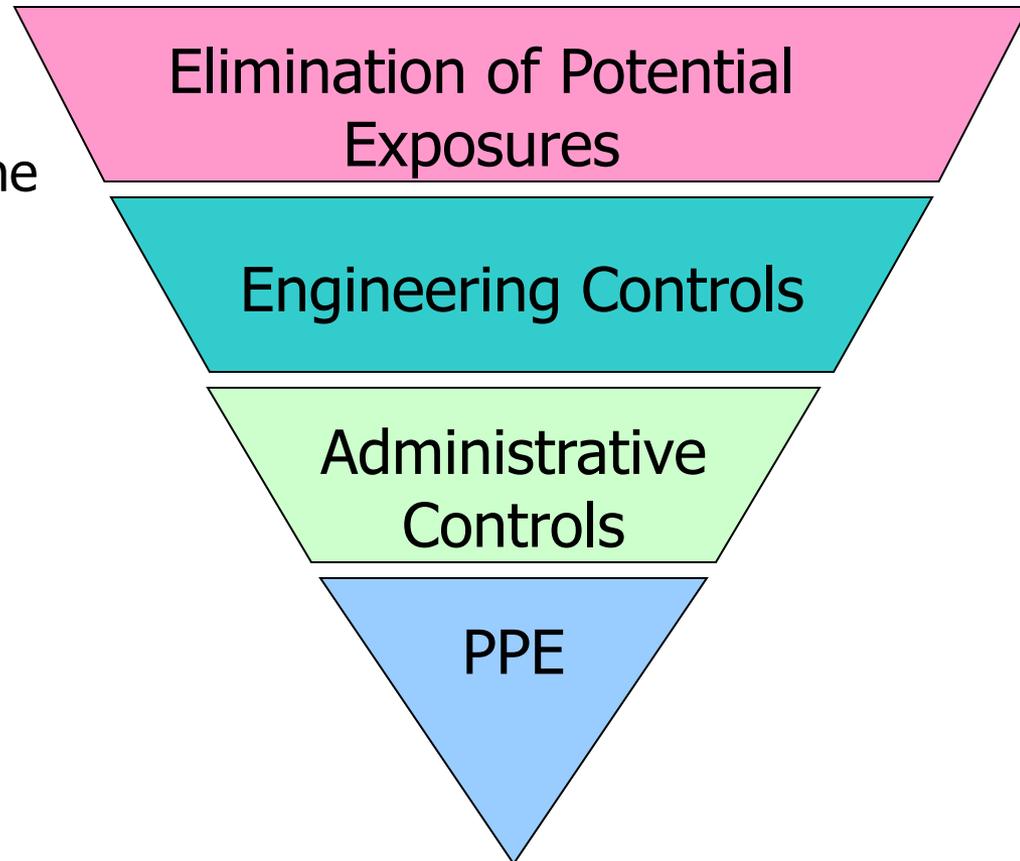
- Recommendations for HCW protection against the flu based on assumptions
 - spread by large particle droplets
 - droplets typically travel < 3 feet from infected person
- Study @ Wake Forest Baptist Medical Center Emergency Department during 2010-2011 flu season found:
 - 94 patients age 2 and up screened for influenza
 - 61 (95%) tested positive for influenza, 26 (43%) released viruses into the air
 - 5 (19%) of 61 were super-spreaders (produced up to 32x more viruses); emitted human infectious dose > 50% of time
 - 89% of flu viruses were small particles (<4.5 microns) up to six feet from patient's head



Bischoff, et.al., Exposure to influenza virus aerosols during routine patient care. J Infect Dis, 2013

Hierarchy of Controls (with examples)

- Eliminate exposure being able to result in disease
 - Immunize HCWs against vaccine-preventable diseases
- Reduce/eliminate exposure at the source
 - Airborne isolation rooms
 - Mask patient with respiratory symptoms
- Rules are only as good as enforcement
 - Wear mask if not vaccinated against influenza
 - Staff do not work when ill
- Least effective; depend upon individual compliance



2007 Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings

Jane D. Siegel, MD; Emily Rhinehart, RN MPH CIC; Marguerite Jackson, PhD;
Linda Chiarello, RN MS; the Healthcare Infection Control Practices Advisory
Committee

Acknowledgement: The authors and HICPAC gratefully acknowledge Dr. Larry Strausbaugh for his many contributions and valued guidance in the preparation of this guideline.

Suggested citation: Siegel JD, Rhinehart E, Jackson M, Chiarello L, and the Healthcare Infection Control Practices Advisory Committee, 2007 Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings
<http://www.cdc.gov/ncidod/dhqp/pdf/isolation2007.pdf>

Note: HICPAC guidelines are CDC guidelines



Questions?

For more information, please contact any
HAI Liaison Team member

Thank you

