Aerosol Transmitted Diseases
What is Aerosol Transmission?

A disease that is transmitted via a gaseous suspension of a fine solid or liquid particles. May require droplet or airborne precautions. Standard precautions should always be implemented as well.

(Gold, 2010)
Droplet Precautions
Droplet Precautions

• Used to prevent transmission of pathogens spread through close respiratory contact or mucous membrane contact with infected respiratory secretions

• **Not infectious over long distances**

• Single patient rooms are preferred

• **Masks are worn** upon entry to patient room

• If patient needs to be transported, the patient wears a mask

(Center for Disease Control and Prevention [CDC], 2007)
Droplet Transmission

- Contact with mucous membranes or conjunctivae with infected large particles (>5 um in size)
- Requires close contact
- Travel short distances (< 3 feet)
- Do not remain suspended in the air
- No special air handling or ventilation is required

(CDC, 1996)
Droplet transmitted diseases and length of isolation

- **Pharyngeal Diptheria** - until 2 sets of cultures are negative 24 hours apart
- **Epiglottis from H. influenzae type B** - 24 hours
- **Seasonal influenza** - 5 days
- **Pandemic influenza** - 5 days from onset of symptoms
- **H1N1** - 7 days from onset or 24 hours after symptoms resolve *whichever is longer

(CDC, 2007)
• Meningitis (H. influenzae type B)- 24 hours
• Meningitis (Neisseria Meningitidis)- 24 hours
• Meningococcal disease; sepsis, pneumonia, or meningitis - 24 hours
• Mumps- 9 days
• Mycoplasma pneumonia
• Parvovirus B19- up to 7 days in immunocompromised patients with chronic conditions
• Pertussis (Whooping cough)- 5 days

(CDC, 2007)
• *Yersinia Pestis* (Pneumonic)- 48 hours
• **Pneumonia** (Adenovirus)-duration of illness
• **Pneumonia** (H. Influenzae type B) infants and children- 24 hours
• **Pneumonia** (Streptococcus type A) adults and children- 24 hours
• *Rhinovirus*- duration of illness
• *Rubella* (German measles)- 7 days after onset of rash
• **Severe Acute Respiratory Syndrome** (SARS)- duration of illness plus 10 days

(CDC, 2007)
Airborne Precautions
Airborne Precautions

• Used to prevent transmission of infectious agents that remain infectious over long distances when suspended in the air
• Single-patient, negative pressure room
• **Wear a mask or respirator (N95 mask or higher) prior to entry**
• Non-immune healthcare workers should not care for patients with vaccine-preventable airborne diseases

(CDC, 2007)
Airborne Transmission

• Small-particle residue (<5 um in size)
• Dissemination of droplet nuclei, evaporated droplets, or dust particles
• Dispersed widely by air currents
• Inhaled
• Special air handling and ventilation is required

(CDC, 1996)
Airborne diseases and duration of isolation

• **Herpes Zoster** (Shingles, chicken pox)- duration of illness from unvaccinated healthcare personnel

• **Measles** (Rubeola)- 4 days after onset of rash, duration of illness from for immunocompromised people

• **Monkeypox**- until confirmed and small pox excluded

(CDC, 2007)
• **Severe Acute Respiratory Syndrome (SARS)**- duration of illness plus 10 days after resolution of illness

• **Smallpox**- duration of illness

• **Tuberculosis** (Extrapulmonary with draining lesion, pulmonary or laryngeal confirmed or suspected)- until clinically improving or 3 consecutive negative wound cultures. For confirmed pulmonary or laryngeal, 3 negative AFB smears collected 8-24 hours apart.

(CDC, 2007)
Precautions in Health Care Settings
Cough Etiquette

- Cover mouth/nose when coughing or sneezing
- Throw tissues away immediately after use
- Wash hands
- Ensure alcohol rubs are conveniently placed for patients and staff if sinks are not readily available
- Offer masks to patients who are coughing in waiting areas
- Wear a mask with close patient contact if a fever and signs of respiratory infections are present

(CDC, 2009)
Standard precautions

• Implemented to decrease the risk of transmission of disease from recognized and unrecognized sources.

• Hand hygiene is an important component and one of the most important aspects of standard precautions

• Use of Personal Protective Equipment (PPE)

(World Health Organization [WHO], 2007)
Personal Protective Equipment (PPE)

- Gloves
- Gowns
- Facial Protection (masks, goggles, face shield, etc.)

(WHO, 2007)
Vaccine Preventable Aerosol Transmitted Disease
Available Vaccines

- Diptheria
- Measles/mumps/rubella (MMR)
- Influenza
- Pnuemonia
- Varicella
- Pertussis
- Meningococcal
- H1N1

(CDC, 2010)
References


