

LESSON

1

Infectious Diseases

Journal Question

When was the last time you had the flu or a cold? Which did you have and how do you know?

Infectious Disease

A disease caused by a pathogen that can be spread from one person to another

Pathogen: a microorganism that causes an infectious disease

Spread of Infectious Diseases

- **Direct contact: spread through the transfer of bodily fluid (e.g., kissing, sharing straws)**
- **Indirect contact: spread by touching an object or surface where a pathogen may be found (e.g., keyboards, phones, handrails)**
- **Airborne transmission: carried through droplets of water in the air (sneezing)**
- **Host transmission: coming in contact with an infected animal (insect or animal bites)**

Washing Hands Is One Way to Prevent Infectious Diseases



The Body's Defenses

- ✓ **Skin**
- ✓ **Mucous membranes**
- ✓ **Tears**
- ✓ **Saliva**
- ✓ **Immune system**

The Immune System

Tonsils, lymph nodes, lymphatic vessels, spleen, thymus, appendix, and bone marrow

- ✓ Lymphocytes are found in blood; lymphocytes perform specialized functions and kill pathogens.
- ✓ Lymphatic system attacks and kills pathogens as they are collected from tissue and deposited in blood.

Bacteria

- **Single-cell organisms**
- **May or may not be toxic**
- **Examples: lyme disease, bacterial meningitis, tuberculosis, strep throat (streptococcus)**
- **Typically treated with antibiotics**

Viruses

- **Smallest pathogen that must be in a living cell to multiply**
- **May be airborne or can be in body fluids**
- **Examples: influenza, acquired immune deficiency syndrome (AIDS), severe acute respiratory syndrome**

Cold or Flu?

Influenza (Flu)

- **Caused by virus**
- **Lasts 10 days or more**
- **Attacks upper respiratory system**
- **Fever, sore throat, headache, and cough**
- **30,000 people die from flu each year**
- **Vaccinations to prevent flu exist**

Common Cold

- **Caused by virus**
- **Lasts 3 to 7 days**
- **Similar symptoms as flu**
- **No over-the-counter treatment available to cure a cold (only to treat symptoms)**
- **Rest, fluids, and healthy food help the body fight a common cold**

Fungal Infections

- **Single-cell organisms that thrive in warm, humid environments**
- **Yeasts, molds, mushrooms (half of which are toxic to humans)**
- **Spread through inhalation or direct skin contact**
- **Example: athlete's foot**

Protozoan Infections

- **Large, single-cell organisms**
- **Release enzymes and attack cells**
- **Example: malaria**
 - Malaria is transmitted through mosquito bites.
 - The U.S. eliminated malaria-carrying mosquitos in the 1940s to 1950s.

Other Pathogens

- **Lice, mites, and some worms**
- **May be found in food sources (pigs, cows) and transmitted when food is not properly cooked**
- **Prevention: properly clean, handle, cook, and store food**