

What are infectious diseases?

Infectious diseases are illnesses caused by harmful organisms (pathogens) that get into your body from the outside. Pathogens that cause infectious diseases are viruses, bacteria, fungi, parasites and, rarely, prions. You can get infectious diseases from other people, bug bites and contaminated food, water or soil.

What's the difference between infectious diseases and noninfectious diseases?

Infectious diseases are caused by harmful organisms that get into your body from the outside, like viruses and bacteria. Noninfectious diseases aren't caused by outside organisms, but by genetics, anatomical differences, getting older and the environment you live in. You can't get noninfectious diseases from other people, by getting a bug bite or from your food.

The flu, measles, HIV, strep throat, COVID-19 and salmonella are all examples of infectious diseases. Cancer, diabetes, congestive heart failure and Alzheimer's disease are all examples of noninfectious diseases.

What are the types of infectious diseases?

Infectious diseases can be viral, bacterial, parasitic or fungal infections. There's also a rare group of infectious diseases known as transmissible spongiform encephalopathies (TSEs).

- **Viral infections.** Viruses are a piece of information (DNA or RNA) inside of a protective shell (capsid). Viruses are much smaller than your cells and have no way to reproduce on their own. They get inside your cells and use your cells' machinery to make copies of themselves.
- **Bacterial infections.** Bacteria are single-celled organisms with their instructions written on a small piece of DNA. Bacteria are all around us, including inside of our body and on our skin. Many bacteria are harmless or even helpful, but certain bacteria release toxins that can make you sick.
- **Fungal infections.** Like bacteria, there are many different fungi. They live on and in your body. When your fungi get overgrown or when harmful fungi get into your body through your mouth, your nose or a cut in your skin, you can get sick.
- **Parasitic infections.** Parasites use the bodies of other organisms to live and reproduce. Parasites include worms (helminths) and some single-celled organisms (protozoa).
- **Transmissible spongiform encephalopathies (TSEs/[prion diseases](#)).** TSEs are caused by prions — faulty proteins that cause other proteins in your body, usually in your brain, to become faulty as well. Your body is unable to

use these proteins or get rid of them, so they build up and make you sick. Prions are an extremely rare cause of infectious diseases.

What are common infectious diseases?

Infectious diseases are extremely common worldwide, but some are more common than others. For instance, each year in the United States, 1 out of every 5 people is infected with the influenza virus, but less than 300 people are diagnosed with prion diseases.

Some of the most common infectious diseases are listed here by type.

Common infectious diseases caused by viruses:

- [Common cold.](#)
- [The flu \(influenza\).](#)
- [COVID-19.](#)
- [Stomach flu \(gastroenteritis\).](#)
- [Hepatitis.](#)
- [Respiratory syncytial virus \(RSV\).](#)

Common infectious diseases caused by bacteria:

- [Strep throat.](#)
- [Salmonella.](#)
- [Tuberculosis.](#)
- [Whooping cough \(pertussis\).](#)
- [Chlamydia, gonorrhea](#) and other [sexually transmitted infections](#) (STIs).
- [Urinary tract infections \(UTIs\).](#)
- [E. coli.](#)
- [Clostridioides difficile \(C. diff\).](#)

Common infectious diseases caused by fungi:

- [Ringworm](#) (like [athlete's foot](#)).
- Fungal nail infections.
- [Vaginal candidiasis](#) (vaginal yeast infection).
- [Thrush.](#)

Common infectious diseases caused by parasites:

- [Giardiasis.](#)
- Toxoplasmosis.
- [Hookworms.](#)
- [Pinworms.](#)

Who is most at risk for getting infectious diseases?

Anyone can get an infectious disease. You may be at an increased risk if your immune system is weakened or if you travel to areas with certain highly transmissible diseases.

People at higher risk of infectious disease include:

- Those with suppressed or compromised immune systems, such as those receiving cancer treatments, living with HIV or on certain medicines.
- Young children, pregnant people and adults over 60.
- Those who are unvaccinated against common infectious diseases.
- Healthcare workers.
- People traveling to areas where they may be exposed to mosquitoes that carry pathogens such as [malaria](#), [dengue virus](#) and [Zika viruses](#).

What complications are associated with infectious diseases?

Many infectious diseases resolve without complications, but some can cause lasting damage.

Serious and life-threatening complications of various infectious diseases include:

- [Dehydration](#): Fever, vomiting, diarrhea.
- [Pneumonia](#): Respiratory illness (viral or bacterial).
- [Sepsis](#): Bacterial infections.
- [Meningitis](#) (swelling of the brain): Multiple causes, including bacterial, viral, fungal and parasitic infections.
- **AIDS**: [HIV](#).
- [Liver cancer](#): [Hepatitis B](#), [hepatitis C](#).
- [Cervical cancer](#): [Human papillomavirus \(HPV\)](#).

Symptoms and Causes

What are the symptoms of infectious diseases?

Symptoms of infectious diseases depend on the type of illness. Fungal infections usually cause localized symptoms, like rash and itching. Viral and bacterial infections can have symptoms in many areas of your body, like:

- Fever.
- Chills.
- Congestion.
- Cough.
- Fatigue.

- Muscle aches and headache.
- Gastrointestinal symptoms (diarrhea, nausea, vomiting).

It's important to see a doctor if you have any chronic (ongoing) symptoms or symptoms that get worse over time.

What causes infectious diseases?

Infectious diseases are caused by a variety of agents that invade your body from the outside. These include:

- Viruses.
- Bacteria.
- Fungi.
- Parasites.
- Prions.

You may develop symptoms when your cells are damaged or destroyed by the invading organism and as your immune system responds to the infection.

How do infectious diseases spread?

Depending on the type of infection, there are many ways that infectious diseases can spread. Fortunately, in most cases, there are simple ways to prevent infection.

Your mouth, your nose and cuts in your skin are common places for pathogens to enter your body. Diseases can spread:

- From person to person when you cough or sneeze. In some cases, droplets from coughing or sneezing can linger in the air.
- From close contact with another person, like kissing or oral, anal or vaginal sex.
- By sharing utensils or cups with other people.
- On surfaces like doorknobs, phones and countertops.
- Through contact with poop from a person or animal with an infectious disease.
- Through bug (mosquito or tick) or animal bites.
- From contaminated or improperly prepared food or water.
- From working with contaminated soil or sand (like gardening).
- From a pregnant person to the fetus.
- From [blood transfusions](#), [organ/tissue transplants](#) or other medical procedures.

Diagnosis and Tests

How are infectious diseases diagnosed?

Your healthcare provider usually diagnoses infectious diseases using one or more lab tests. Your provider can look for signs of disease by:

- Swabbing your nose or throat.
- Getting blood, pee (urine), poop (stool) or spit (saliva) samples.
- Taking a biopsy or scraping a small sample of skin or other tissue.
- Getting imaging ([X-rays](#), [CT scans](#) or [MRIs](#)) of affected parts of your body.

Some test results, like from a nose swab, come back quickly, but other results might take longer. For instance, sometimes bacteria has to be grown in a lab (cultured) from a sample before you can get your test result.

Management and Treatment

How are infectious diseases treated?

Treatment depends on what causes the infection. Sometimes your healthcare provider will recommend monitoring your symptoms rather than taking medication.

- Bacterial infections can be treated with [antibiotics](#). The right antibiotic depends on what bacteria causes the infection.
- You can manage most viral infections with over-the-counter medications for your symptoms until you feel better. If you have the flu, your healthcare provider may prescribe oseltamivir phosphate (Tamiflu®) in some cases. Certain viral infections have special medications to treat them, like antiretroviral therapy for HIV.
- Fungal infections can be treated with antifungal medications. You can take them orally, like [fluconazole](#) (Diflucan®) or put them on your skin just where the fungus is, like [clotrimazole](#) (Lotrimin®).
- Parasites can be treated with antiparasitic drugs, such as [mebendazole](#) (Emverm®).
- There are no treatments for prion diseases.

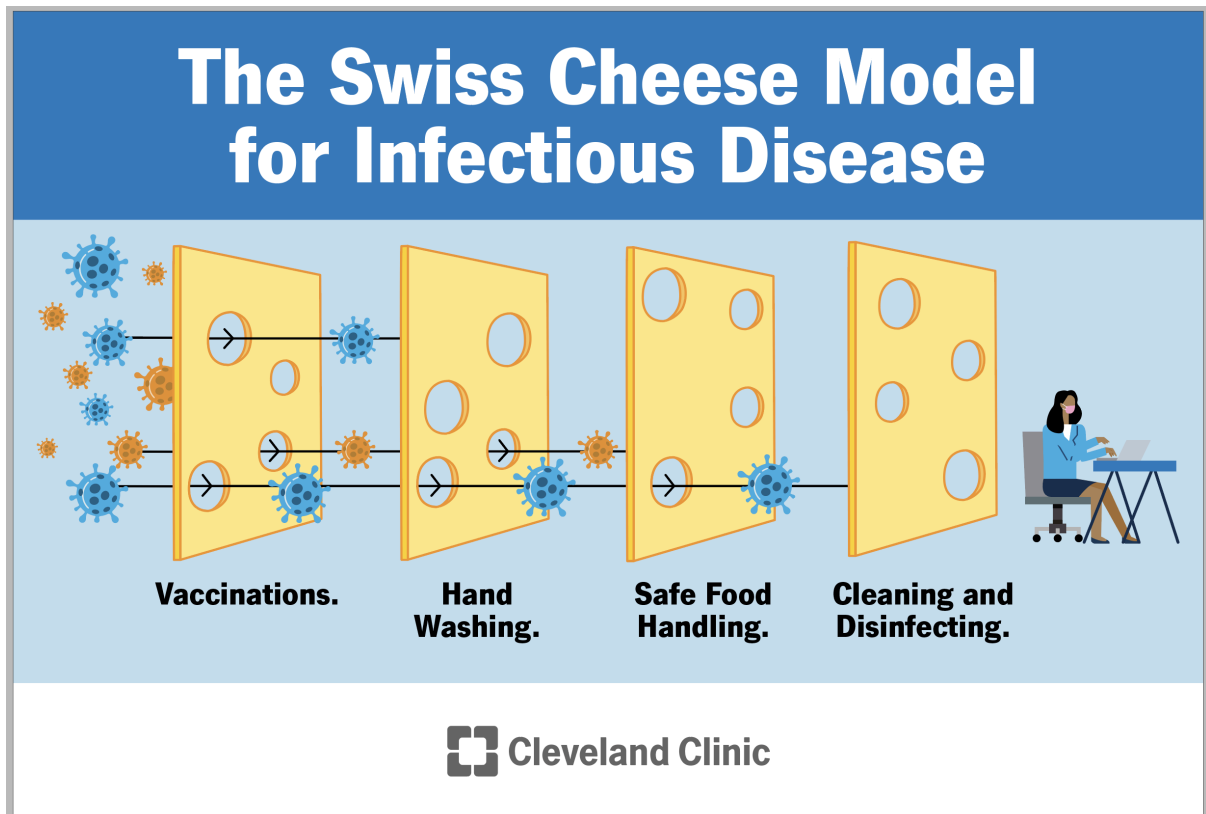
What is antibiotic resistance?

Antibiotic resistance is when bacteria develop mutations that make it harder for our medicines to destroy them. This happens when antibiotics are overused, such as for minor infections that your body could fight off on its own.

Antibiotic resistance makes some bacterial infections very difficult to treat and more likely to be life-threatening. [Methicillin-resistant Staphylococcus aureus \(MRSA\)](#) is an example of a bacterial infection that has become antibiotic-resistant.

Healthcare providers are working to reduce antibiotic resistance. You can help — and protect yourself — by finishing all of your antibiotic medication as prescribed. This helps to make sure all of the bacteria are destroyed and can't mutate.

Prevention



James Reason's Swiss Cheese Model applied to infectious diseases. Even if the protection isn't perfect, the more layers of protection ("slices of cheese") you add — getting vaccinated, washing your hands, safe food handling, cleaning and disinfecting — the lower your risk of getting and spreading infectious diseases.

Can infectious diseases be prevented?

There are many simple ways to reduce your risk of infectious disease and even prevent certain illnesses altogether. While each of these helps to reduce your risk of getting and spreading infectious diseases, often there's no single way that's 100% effective at preventing disease. That's why it's important to have many habits for reducing your risk.

You can think of it as lining up slices of Swiss cheese, a model suggested by James Reason, PhD. Where some slices have holes, other slices give protection. Getting recommended vaccinations, and simple habits like practicing safe food handling and washing your hands, work together to give you layers of protection.

Vaccines

Vaccines reduce your risk of getting an infectious disease by training your immune system to recognize and fight off infections from harmful invaders. While people sometimes do still get sick with a disease after getting vaccinated for it, your symptoms are usually less severe than they would've been without the vaccination.

Usually given as a shot or series of shots (or, less commonly, as a nasal spray), vaccines are available for many common infectious diseases, including:

- [Chickenpox.](#)
- [COVID-19.](#)
- [Diphtheria, tetanus and pertussis \(whooping cough\).](#)
- [Hepatitis A.](#)
- [Hepatitis B.](#)
- [Human papillomavirus \(HPV\).](#)
- [Influenza.](#)
- Malaria.
- [Measles, mumps and rubella.](#)
- [Polio.](#)
- [Rotavirus.](#)
- [Rabies.](#)
- [Shingles.](#)
- Tuberculosis.

The CDC has up-to-date recommendations for vaccinations for children, adolescents and adults. If you're traveling, make sure you have all of the recommended vaccinations for your destination before you go.

Safe food handling

Safe food handling habits help prevent certain infectious diseases.

- Wash your hands thoroughly with soap and water before, during and after food preparation.
- Peel or thoroughly wash all fruits and vegetables.
- Freeze meats at 0°F (-18°C) until ready to thaw.
- [Cook meats to a safe temperature](#) before eating.
- Wash food preparation surfaces and utensils with soap and water after use.
- Don't eat uncooked or undercooked seafood.
- Don't drink untreated water.
- Don't drink unpasteurized milk.

Other ways to help prevent infectious disease

In addition to vaccines and safe food handling habits, you can reduce your risk of coming down with or spreading an infectious disease with a few everyday practices.

- [Wash your hands](#) with soap and water. Thorough hand-washing is particularly important before preparing a meal or eating, after using the bathroom, after contact with poop (animal or human) and after gardening or working with dirt.
- Cover your nose and mouth when you sneeze or cough.
- Disinfect frequently touched surfaces in your home and workplace.
- Avoid contact with people who are sick with an infectious disease or sharing personal items with them.
- Avoid contact with others while you are sick with an infectious disease.
- Don't drink from or swim in water that could be contaminated.
- Wear a mask around others when you are sick or as recommended by the CDC.
- Use a condom during any kind of sex.
- To reduce the risk of tick or mosquito bites, use bug repellent approved for ticks and mosquitos, cover as much exposed skin as you can with clothing and check for ticks after being in the woods or areas with long grass.