

Infection

Imagine it's wintertime. This is a time you or someone you know gets a cold. You cough and sneeze and feel terrible. Maybe you go to bed for a couple of days or keep going – just! What's going on inside you at this time?

It's a busy time for microorganisms. The pathogenic microorganisms (commonly called germs or bugs) have got past the first line of the body's defense (skin, tears and mucus) and have entered the body. Your immune system kicks in and fights back to destroy the pathogens causing the infection.

Spreading infection

People transmit infection by spreading microorganisms (germs) from one person to another.

Some germs can be spread through the air (such as the common cold). Tiny water droplets loaded with microorganisms shoot out of our mouths and noses when we sneeze or cough. If these land on someone else and get into their eyes, nose or mouth, they can easily get infected with pathogenic microorganisms.

Other microorganisms are spread through physical contact. This can happen either directly from one person to another or by touching something that the infected person has also touched (a door handle or water bottle, for example).

Some places harbor more harmful bacteria and viruses than others. Watch out for places where there are lots of people, like cafeterias and classrooms, and for things that people touch a lot, like door handles, cell phones and computer keyboards. You should wash your hands more when in places that are potentially dangerous or when handling items that people are touching all the time.

Controlling infection

We have learned to control our environment to help prevent being infected by these pathogens, but this has only happened in recent years.

During the American Civil War (1861–1865), more soldiers died of infection than any other cause. This is where we learned about the importance of personal hygiene, like washing our hands with soap and water. We also learned about sanitation, disinfectants, antiseptics and vaccines.

Discovery of cures for pathogenic diseases began in 1928, when Alexander Fleming discovered penicillin (the mold that killed bacteria).

Vaccination (developed in the 1800s) is a way to prevent infection. Doctors and public health officials recommend being vaccinated (immunized) against certain diseases to stop us catching them and infecting others.

Eating healthy food, keeping physically fit and getting enough sleep help to keep us healthy, which is important because that strengthens our immune systems to fight off pathogenic microorganisms.

Preventing infection

There are a number of simple steps you can take every day to help prevent spreading cold and flu viruses:

- Wash and dry your hands. Wash for at least 20 seconds using soap, which kills the germs.
- Wash your hands before you eat, every time. This is to stop germs spreading to your food, which you then eat.
- Use tissues for sneezing or coughing into and throw them away immediately.
- If you don't have a tissue, cough or sneeze into the crook of your arm so the germs are not sprayed out into the air for others to breathe in.
- Avoid touching your eyes, nose and mouth to stop you spreading your germs when you touch other things.

Fighting infection

When you get an infection, your body's immune system responds to fight it. You probably remember getting a runny or stuffy nose and maybe a fever last time you were sick. These are just a few ways your body fights off infection. Your airways always produce mucus, which we call snot or boogers when it gets into the nose. Mucus is sticky, and

it helps us by causing dust or other particles in the air to get stuck before they get to our lungs. When the mucus gets full of debris, we either cough it up or swallow it. This is why smokers cough a lot. When we are sick, our body produces extra mucus to help get the pathogens out faster. However, sometimes there is too much mucus, and you have to blow your nose!