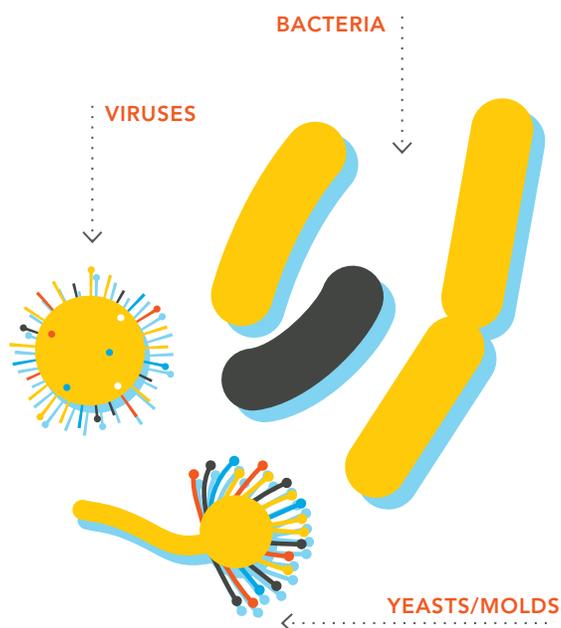


GERMS AND CYSTIC FIBROSIS: **THE FACTS**

People with cystic fibrosis (CF) are at greater risk of getting lung infections because thick, sticky mucus builds up in their lungs, allowing germs to thrive and multiply.

Lung infections are a serious problem for those with CF because they can lead to severe or worsening lung disease.

Fortunately, there are steps that people with CF, their family members and caregivers can take to avoid germs whenever possible.



What Are Germs?

Germs are tiny organisms that can cause infection. They are invisible to the human eye and exist everywhere — including in the air, soil and water, and on food, plants and animals. Some common types of germs are bacteria, viruses, yeasts and molds.

Germs have favorite places they like to live, different ways to spread, and their own unique ways of causing infections. Some can survive in the natural environment, while others prefer living in people or animals. Some thrive in the cold, while others need warmth.

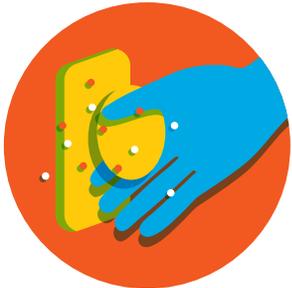
All germs have one thing in common: when they find a place that is good for them to live, they set up a home for themselves and multiply.



People with CF are at particular risk of getting and spreading dangerous germs from each other.

How Are Germs Spread?

There are a number of ways that germs can be spread, but the most common are by direct and indirect contact and through the air.



Germs can be spread through contact:

1. Germs can spread from one person to another through **direct contact** when people shake hands, hug or kiss.
2. Germs can spread from one person to another through **indirect contact** if people touch something with germs already on it, like a doorknob, and then touch their eyes, nose or mouth. Germs can also be spread by sharing items like cups or pens.



Germs can be spread in the air:

1. **Droplets** containing germs are released into the air when people cough or sneeze. These tiny droplets can travel as far as 6 feet and can spread germs by landing on surfaces or in another person's eyes, nose or mouth.
2. In rare instances, **remains of these droplets** can be suspended in the air for hours and may be carried by air currents farther away than larger droplets. Other people can breathe in these droplets.



Why Are Some Germs Particularly Dangerous for People With CF?

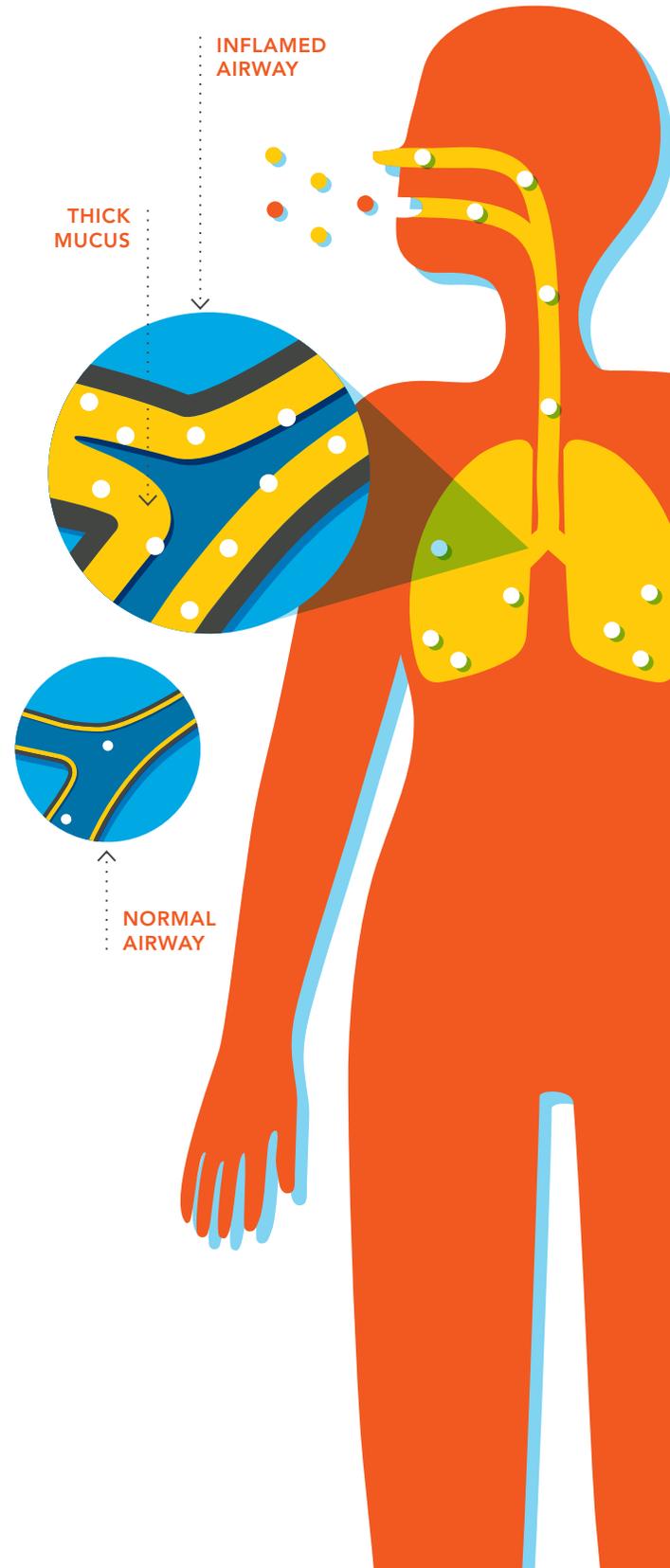
The faulty gene that causes CF affects how salt and water moves in the lungs. This salt imbalance results in thick, sticky mucus that builds up in the lungs, allowing germs to thrive and multiply.

When the body's defense system — white blood cells — attack the germs, the lungs become inflamed. This inflammation spurs the creation of more mucus, which then blocks the airways, and allows more germs to grow. As you can see, it's a vicious cycle.

Despite significant progress treating CF, infections remain a serious problem and can lead to worsening lung disease or death.

Many germs are especially dangerous for people with CF and may lead to a faster decline in lung function. Medical studies show that people with CF are at particular risk of spreading certain germs among others with the disease. Some of these germs include:

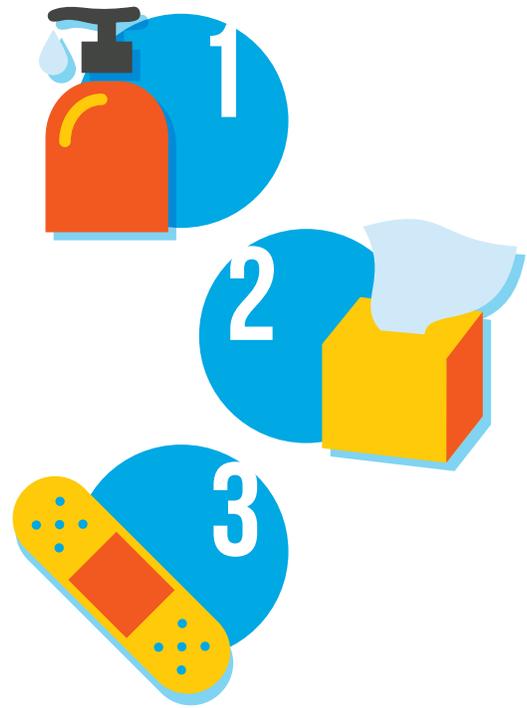
- ***Burkholderia cepacia* complex (*B. cepacia*)**
This group of germs lives in damp or wet places and is often difficult to treat once it infects the lungs.
- **Methicillin-resistant *Staphylococcus aureus* (MRSA)**
MRSA are strains of *Staphylococcus aureus* that are resistant to commonly used antibiotics. MRSA can be spread from one person to another through casual contact — like shaking hands — or by touching objects that have the bacteria on them.
- **Nontuberculous mycobacteria (NTM)**
This group of bacteria live in soil, swamps and water sources, and have been found in growing numbers of people with CF. NTM can survive many disinfectants and severe environmental conditions.
- **Multi-drug-resistant *Pseudomonas aeruginosa* (*P. aeruginosa*)**
P. aeruginosa is a common bacteria that comes in thousands of different strains and is found in many different environments. Medical data show that people with CF may pick up more difficult-to-treat strains of the bacteria from each other.



How Can You Avoid Germs?

While germs cannot be completely avoided, you can help reduce the risk of getting or spreading germs by following three basic best practices.

- 1. Clean your hands.** Do this regularly after coughing, sneezing, chest physiotherapy and before and after your doctor's visit, using soap and water or an alcohol-based hand gel.
- 2. Cover your cough.** Use a tissue whenever you cough or sneeze, then throw it away and clean your hands afterward. If a tissue is not available, cough or sneeze into your upper sleeve or inner elbow, not into your hands.
- 3. Get vaccinated.** Keep up to date on all vaccinations recommended by the Centers for Disease Control and Prevention (CDC). Annual influenza vaccines are especially important for people with CF and their families.



How Can You Lower the Risk of Cross-Infection?

The latest medical data show that people with CF can spread or get particularly dangerous germs from each other, which can lead to worse symptoms and speed decline in lung function.

To reduce the risk of spreading or getting germs, it is recommended that people who have CF keep at least 6 feet away from others with CF and from people who are sick.

It is also recommended that people with CF who do not live together avoid activities that put them in close physical contact with others with CF, including:

- Shaking hands, hugging or kissing
- Sharing common objects like pens, toys and computers
- Being together in enclosed or poorly ventilated places like cars

Talk to your CF care team about what you can do to lower the risk of getting or spreading germs or visit www.cff.org.

To Learn More

■ Cystic Fibrosis Foundation

Watch educational webcasts on germs and infection control:
www.cff.org/LivingWithCF/Webcasts

■ Centers for Disease Control and Prevention

Learn more about the vaccines and immunizations recommended by the CDC: www.cdc.gov/vaccines/

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