



UNDERSTANDING
invasive fungal infection

If your child is at risk for an invasive fungal infection

- Why are they at risk?
- What is it?
- What can we expect?
- What should we do?



Why your child may be at risk

Bacteria, viruses, and **fungi** are all around us. Fungi normally live in the air, soil, plants, and water. Most of the time, for most children, fungi such as **molds** and **yeasts** are harmless. The immune system stops them from causing disease. But sometimes fungi do cause sickness. Some of these sicknesses, such as athlete's foot or a vaginal yeast infection, are not very serious. But sometimes a fungus can get into the body and make a person very sick.

This is more likely if a child is already sick with another illness or has a weakened immune system. An infection that usually only happens to people who are already sick is sometimes called an **opportunistic infection**.

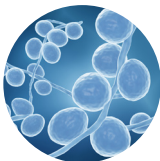
Children who are most at risk for getting an invasive fungal infection (IFI) include those who:

- Have certain blood cancers, such as leukemia, lymphoma, or myeloma
- Have severe aplastic anemia
- Have had a stem cell transplant or an organ transplant
- Have human immunodeficiency virus (HIV)/acquired immunodeficiency syndrome (AIDS)
- Have a weakened immune system due to a genetic disease or premature birth
- Are taking certain kinds of medicines, such as some cancer medicines or steroid medicines
- Are receiving nutrition through an **intravenous (IV)** line in a vein

Having diabetes or extensive burns also can put your child at risk for some types of IFI.

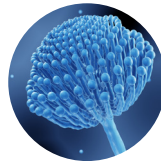
Two of the more common fungi that can cause an IFI are:

Candida (a common yeast)



Source: Stock photo. <https://www.shutterstock.com/image-illustration/pathogenic-fungi-candida-yeast-most-common-2000400392>. Accessed October 24, 2023.

Aspergillus (a common mold)



Source: Stock photo. <https://www.shutterstock.com/image-illustration/mold-fungi-can-cause-dangerous-lung-1993717103>. Accessed October 24, 2023.

What is an IFI?

Invasive fungal infection is called **IFI** for short. It is the name for many serious infections caused by a fungus. IFI is important to understand because it can be very harmful to your child.

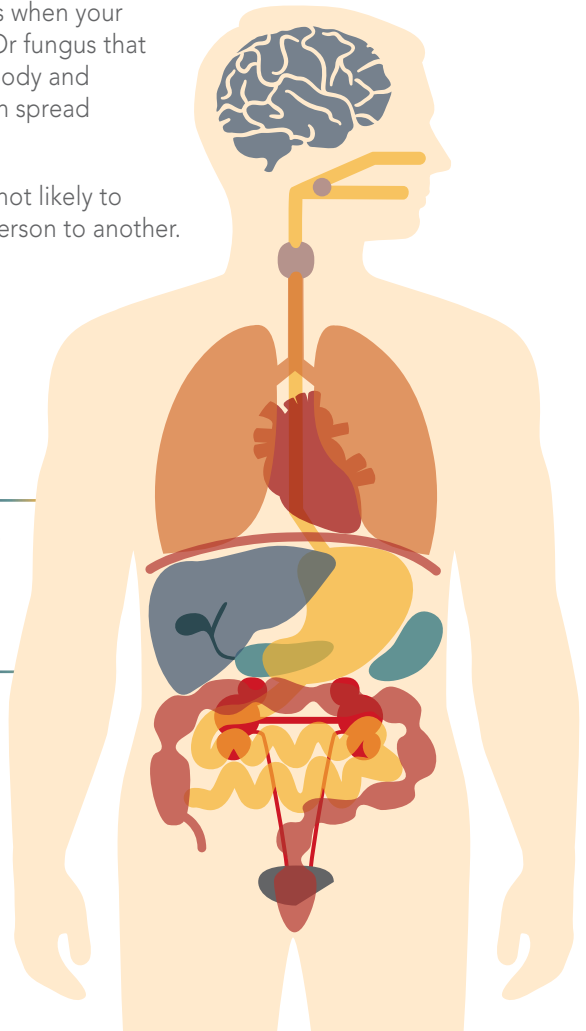
IFI usually affects people (including children) who are already sick or have a weakened immune system. IFI can make getting better much harder.

How fungus can enter the body

Fungus can enter the body through cuts or breaks in the skin. It also can enter the lungs when your child breathes in. Or fungus that is normally in the body and causes no harm can spread to the blood.

Note that an IFI is not likely to spread from one person to another.

Fungi can get into the blood, lungs, sinuses, brain, and other organs



How IFI may affect your child

If your child is already sick, getting an IFI or another infection can make it harder for them to fight their illness. Sometimes, doctors have to stop medicines for the original illness in order to treat an IFI.

IFI can be very dangerous. But there are steps the doctor can take to help reduce your child's risk. You and your family can help, too.

What doctors may do

The doctor might give your child medicine to help prevent an IFI or other infections. This is called **prophylaxis**. Your child may need to take an **antifungal medicine** for weeks or months.

If your child is at risk, the doctors will watch for signs of infection. They will watch for IFI. They also will watch for bacteria and viruses. Fever and changes in blood work are often the first signs of infection.

If your child is in the hospital, a nurse may take their temperature or a blood sample often. If your child is at home, you may need to go to the doctor's office for tests. If there are signs of infection, the doctors may then do other tests. This is to see if there really is an infection, and what kind it is.

To find out more about a possible infection, your child's health care team may take a sample of blood or another body fluid and send it to a lab for testing. They also may look at your child's lungs or other body areas using an x-ray, **ultrasound**, or a **computerized tomography (CT) scan**.

All of these tests together can show what is causing an infection. If a fungus is the cause, the health care team will try to find out exactly what kind it is. Different types of IFI get different treatments.

Medicine for prevention

If antifungal prophylaxis has been prescribed, make sure your child takes it exactly as the doctor says. For example, it is important that your child:

- Takes the medicine as often as prescribed
- Takes the amount of medicine that was prescribed
- Takes the medicine with food, if told to do so
- Avoids taking the medicine with certain other medicines, if told to do so

The prophylaxis (prevention) medicine may cause side effects. Or it may interact with your child's other medicines. Every medicine is different, so ask the doctor about benefits and risks.

Also ask about side effects to watch out for. If you are not sure how a medicine should be taken, ask the doctor right away.

Paying for medicine

The cost of antifungal medicine depends on the medicine prescribed. It also depends on the insurance you have. If you are worried about the cost, you may be able to get help.

Many companies that make these medicines offer special programs to help people in need. Ask your health care team about this. You could also search the internet for the medicine or the drug company, along with the word *assistance* or *support*.

Reducing your child's risk

There are other ways to help reduce your child's risk for an IFI, besides making sure they take their medicine prescribed for prophylaxis. The following are some ways to help reduce your child's exposure to fungi when they are at home. The doctors may explain other ways you can help reduce the risk.

Some ways to help reduce your child's exposure to fungi

Your child should:

- Avoid mold in bathrooms, basements, and other areas
- Avoid indoor swimming pools, hot tubs, and saunas



You should:

- Run a dehumidifier if your home is damp, to limit mold growth
- Run an air conditioner during humid months
- If you can't avoid exposing your child to construction areas or areas with a lot of dust, have them wear an N95 face mask



- Have your child and the people around them wash their hands often



- Make sure your child is careful when handling pets



- Try to keep your child from getting cuts on their skin. Cuts can help germs get into the body. Wash cuts right away with soap, warm water, and an antiseptic



- Limit your child's exposure to plants, mulch, or cut flowers. These may have fungus on them. The soil also may have fungus in it



- Wash raw fruits and vegetables well before your child eats them



- Do not smoke near your child. Exposure to smoke may increase your child's risk for an **invasive mold infection**

Watching for signs of infection

Follow the instructions of the health care team if your child has any of the following, which could be signs of infection:

- Fever of 100.5°F (38°C) or higher
- Chills
- Cough or sore throat
- Diarrhea
- Ear pain, headache or sinus pain, or stiff or sore neck
- Skin rash
- Sores or a white coating in their mouth or on their tongue
- Swelling or redness, especially where a catheter enters their body
- Urine that is bloody or cloudy, or pain when they urinate
- Any other signs of infection



The possible treatment team

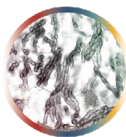
Your child may already have a few doctors caring for them. One of these doctors may focus on infections. Such a doctor is called an **infectious disease specialist**. This doctor is sometimes called an **ID specialist** for short. If your child is at risk for an IFI, an ID specialist may help guide the treatment.

Other health care providers who may help treat a person with IFI include:

- A general medicine doctor, such as a *hospitalist*
- A pharmacist
- A surgeon
- A nurse practitioner or physician assistant
- One or more nurses, case managers, or social workers

Other resources

myIFI Mobile App



A mobile app with useful information on IFI for patients and caregivers. Available for download in the App Store® and Google Play™ store
<https://myifi.thehwpgroup.com/myifi.php>

More IFI Resources

Educational resources to help you learn about IFI and its risk factors, as well as communication tips for the next doctor visit
<https://www.astellasresources.com>

Helpful Websites

The following sources can give you more information about specific types of IFI:

American Academy of Pediatrics: Aspergillosis

Provides information about pediatric infections with the mold *Aspergillus*

<https://www.healthychildren.org/English/health-issues/conditions/infections/Pages/Aspergillosis.aspx>

American Academy of Pediatrics: Fungal Diseases

Reviews a variety of fungal infections that can occur in children, including mucormycosis (formerly zygomycosis)

<https://www.healthychildren.org/English/health-issues/conditions/infections/Pages/Fungal-Diseases.aspx>

Centers for Disease Control and Prevention:

Types of Fungal Diseases

Includes in-depth sections focusing on invasive candidiasis, aspergillosis, and mucormycosis

<https://www.cdc.gov/fungal/diseases/index.html>

Centers for Disease Control and Prevention:

Fungal Infections: Protect Your Health

Explains who may be at risk for a fungal infection, and why

<https://www.cdc.gov/fungal/features/fungal-infections.html>

National Library of Medicine: Fungal Infections

Reviews a variety of topics relating to IFI, including diagnosis, prevention, and risk factors

<https://medlineplus.gov/fungalinfections.html>

(continued on next page)

National Organization for Rare Disorders: Aspergillosis

Features in-depth information on the mold infection aspergillosis, including signs and symptoms, causes, diagnosis, and treatment

<https://rarediseases.org/rare-diseases/aspergillosis>

National Organization for Rare Disorders: Mucormycosis

Features in-depth information on the rare mold infection mucormycosis, including signs and symptoms, causes, diagnosis, and treatment

<https://rarediseases.org/rare-diseases/mucormycosis>

National Organization for Rare Disorders: Systemic Candidiasis

Features information on the yeast infection candidiasis, including signs and symptoms, causes, diagnosis, and treatment

<https://rarediseases.org/gard-rare-disease/systemic-candidiasis>



Access additional *myIFI* resources at
<https://www.astellasresources.com>



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