

## What is aspergillosis?

Aspergillosis is an infection caused by the fungus *Aspergillus*. These fungi are very common and can often be found in compost heaps, air vents and airborne dust. The primary cause of aspergillosis is inhaling *Aspergillus* spores.

Aspergillosis may occur in different forms. A “pulmonary aspergilloma” occurs when aspergillosis develops in the sinuses or the lungs and forms a tangled ball of fungus fibres and blood cells. This kind of aspergillosis usually doesn’t spread to other parts of the body.

Less often, aspergillosis becomes very aggressive and rapidly spreads throughout the lungs and often through the bloodstream to the brain, the heart, the liver and the kidneys. This is called “invasive aspergillosis” and occurs most often in people with a weakened immune system.

## How common is aspergillosis?

Because aspergillosis doesn’t always cause symptoms, it’s difficult to know how many people are affected by it. Invasive aspergillosis, however, has been found to occur in up to 11% of bone marrow transplant patients,<sup>1</sup> and nearly 6% of patients in an intensive care unit (ICU).<sup>2</sup>

## Who gets aspergillosis?

Pulmonary aspergillomas most often affect people who have open spaces in their lungs due to another disease, such as tuberculosis.

Invasive aspergillosis usually affects people with severely weakened immune systems due to organ transplants, chemotherapy, advanced AIDS or other conditions. People with healthy immune systems who develop invasive aspergillosis are almost always critically ill or have severe lung disease.

Middle-aged or elderly people with mildly weakened immune systems and/or chronic lung disease may develop aspergillosis that spreads through the lungs but doesn’t invade other parts of the body. This is called “chronic necrotizing aspergillosis” or CNA.

## How to prevent aspergillosis

The risk of invasive aspergillosis can often be reduced in hospitals by making sure that patients at risk of the disease are kept away from construction areas and that their room air is filtered.

## What are the symptoms of aspergillosis?

An aspergilloma (a ball of fungus in the lungs) often causes no symptoms and is discovered only when a chest x-ray is taken for another reason. However, sometimes it causes coughing up of blood and occasionally it may cause severe internal bleeding. Aspergillosis of the sinuses primarily produces a feeling of congestion and sometimes causes pain or a discharge. Aspergillosis can also affect the ear canal, causing itching and sometimes pain.

CNA, which is also called “semi-invasive aspergillosis,” usually causes a productive cough that may include blood, as well as more general symptoms such as fever, tiredness and weight loss. Occasionally it causes no symptoms at all.

If aspergillosis begins to spread rapidly through the lungs, it can cause cough, fever that doesn't respond to antibiotics, chest pain and difficulty breathing. Without treatment, this kind of aspergillosis is fatal.

If aspergillosis spreads to other organs, it can cause fever, chills, shock, delirium and blood clots. It may lead to kidney failure, liver failure or breathing problems, and death can occur quickly.

## How is aspergillosis diagnosed?

Doctors often suspect the diagnosis based on symptoms, although an x-ray or other scan of the infected area can also help. X-rays of the lungs are particularly useful in identifying pulmonary aspergillomas and CNA.

When possible, doctors will send a sample of infected material to a laboratory to be grown and examined. A viewing tube (bronchoscope or rhinoscope) may be used to obtain this material from the lungs or sinuses, and this is the most accurate way to diagnose aspergillosis. However, in people whose immune systems are weakened, a test of their sputum can show whether *Aspergillus* fungi are present; if so, they almost always have invasive aspergillosis.

## How is aspergillosis treated?

Aspergillosis that affects only the sinuses or one area in the lungs is not immediately dangerous, since it tends to grow slowly. It usually requires treatment only if it is causing symptoms. However, a widespread or severe infection must be treated immediately. Invasive aspergillosis is treated with antifungal drugs, alone or in combination.

Surgery is occasionally required to remove fungi in the sinuses or fungus balls in the lungs that are endangering nearby blood vessels.

## References

1. Metcalf SC, Dockrell DH. Improved outcomes associated with advances in therapy for invasive fungal infections in immunocompromised hosts. *J Infect* 2007;55:287-99.
2. Meersseman W, Lagrou K, Maertens J, Van Wijngaerden E. Invasive aspergillosis in the intensive care unit. *Clin Infect Dis* 2007;45:205-16.

## Other Sources

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