

## Histoplasmosis

### Fungal Disease Series #3

Histoplasmosis is the most common endemic fungal infection in North America that affects the lungs. Each year, up to 250,000 people in the U.S. are found to have histoplasmosis.

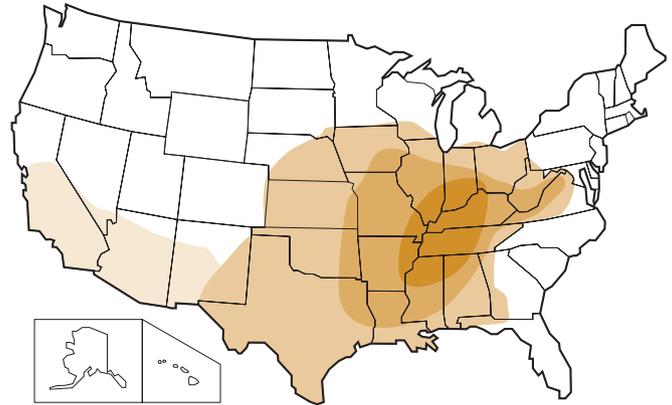
#### What is Histoplasmosis?

Histoplasmosis is an infection caused by inhaling a fungus called *Histoplasma capsulatum*. Histoplasmosis mainly affects your lungs but can also affect your bone marrow, adrenal glands, gastrointestinal tract (stomach, intestines), brain and joints. Histoplasmosis can be found in bird and bat droppings (feces) as well as damp soil rich in decayed material. This material is often found in chicken coops, abandoned buildings and around large trees and shrubs. Histoplasmosis is also called the *Ohio River Valley Fever* because many people in this area of the U.S. get this infection. The darkest area on the map above shows the area where most people get histoplasmosis. The lighter areas on the map shows where people have also been diagnosed with histoplasmosis, but at a much lower rate than southern Ohio and Missouri.

#### What are the Signs & Symptoms of Histoplasmosis?

After inhaling the fungus, it can take anywhere from a few days to a couple of weeks to develop symptoms after inhaling the fungus. However, most healthy people exposed to this fungus recover from the infection with minimal or no symptoms. Even if you do *not* have symptoms, you may be left with small spots (scars) on your lungs or calcium in the lymph nodes in your chest. If you do have symptoms, these can vary and include: fever, chills, a dry cough, a cough that brings up sputum (phlegm), sharp chest pain, muscle pain, swollen joints, joint pain, headache and loss of appetite. These symptoms are similar to those you would have with the flu. You may also develop reddish, painful areas on your skin, on the back of your scalp, elbows or on your shins. In severe cases, you may become confused, have neck stiffness, be sensitive to light or have severe vomiting.

Simplified Map of the Distribution of Histoplasmosis in the United States



Histoplasmosis has a world-wide distribution. In the United States, it is principally found in southern Ohio, southern Illinois, Missouri, Kentucky, Tennessee, and Arkansas. But, it is also found in many other areas. This map is a simplified version of the one presented in Edwards LB, Acquaviva FA. *Am Rev Respir Dis* 99 (Suppl.): 1-132, 1969

If you have a poor immune system, your chance of developing severe symptoms is greater. Histoplasmosis is not contagious; therefore, you will not spread it to other people.

#### How is Histoplasmosis Diagnosed?

Histoplasmosis can be very difficult to diagnose. The most commonly used test looks for histoplasma antigens (part of the fungus) in your blood or urine. This test is often used to make a rapid diagnosis of the disease in patients who are very ill. A chest X-ray (CXR) may show that you have an infection, but histoplasmosis can look like many other conditions such as pneumonia, lung cancer or tuberculosis. A sample of your blood, sputum (phlegm) or other body fluids can be cultured to see if the fungus grows in the sample. However, it can take up to 4 weeks for the fungus to “grow.” Therefore, cultures are not a fast way to find out if you are infected with histoplasmosis. If you are having severe symptoms, a biopsy of lung tissue might be done because it is the fastest and most certain way of finding out if you have histoplasmosis. A biopsy of lung tissue can be done either by a bronchoscopy (see [Fiberoptic Bronchoscopy at http://patients.thoracic.org/information-series/en/resources/fiberoptic-bronchoscopy.pdf](http://patients.thoracic.org/information-series/en/resources/fiberoptic-bronchoscopy.pdf)) or a surgical procedure to remove a small sample of your lung tissue.

#### Who is at Risk for Developing Histoplasmosis?

If you work in an occupation or have a hobby that

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exposes you to bird or bat droppings in the air you breathe (for example tree-cutting, demolition, remodeling buildings or old structures, and exploring caves, called *spelunking*), you are at risk for getting histoplasmosis. You are also at risk if you live in or have traveled to areas of the United States or certain river valleys in Central America where histoplasmosis can be in the soil (see map for areas in the U.S. where histoplasmosis is common). People who are at the highest risk for developing severe forms of histoplasmosis (*disseminated histoplasmosis*) are infants and those with poor immunity (such as if you have HIV, have received an organ transplant, or if you take medications like steroids or TNF inhibitors used for rheumatologic conditions). If you smoke cigarettes and have emphysema, you are at risk for developing a form of histoplasmosis that can look like tuberculosis. This type of histoplasmosis (called *chronic* or *cavitary histoplasmosis*) is often difficult to treat.

## How is Histoplasmosis Treated?

The type of treatment will depend on the severity of your infection. If you have mild symptoms, the infection may go away in a few weeks without needing any treatment. If your symptoms become worse or last more than a month, you may need an anti-fungal drug like itraconazole (a pill) or Amphotericin-B (given in your vein or “intravenously”). If you have a weakened immune system, you may get “disseminated histoplasmosis”. This means the disease has spread throughout your body and may infect your brain, liver or bone marrow. This is treated using intravenous Amphotericin-B and other drugs for many months.

## What can I do to Prevent Myself from Getting Histoplasmosis?

It is difficult to avoid exposure to histoplasmosis if you live in a region of the U.S. where this fungus is common. However, if your immunity is weak, you should limit your exposure by controlling the dust from infected soil. For example, if you are gardening or cleaning bird droppings, spray the area first to settle the dust. Paper masks may help when there is only limited exposure to this dust. The National Institute for Occupational Safety and Health (NIOSH) however, suggests a special mask, the Part 84 particulate respirator (see also ATS Disposable Respirators at <http://patients.thoracic.org/information-series/en/resources/disposable-respirators.pdf>), for those who are frequently exposed, or those at high risk (e.g. people with weakened immune systems) for getting this disease.

There is also a chemical that can be sprayed over the contaminated soil to reduce exposure (see the NIOSH website under Resources for details)

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### Resources

#### Centers for Disease Control (CDC)

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

#### Mayo Clinic

<http://www.mayoclinic.org/diseases-conditions/histoplasmosis/basics/definition/con-20026585>

#### National Institute for Health (NIH)

<http://www.nlm.nih.gov/medlineplus/ency/article/001082.htm>

#### National Institute for Occupational Safety and Health (NIOSH)

<http://cdc.gov/niosh/docs/2005-109/pdfs/2005-109.pdf>

## Rx Action Steps

Contact your health care provider if you develop chest pain, cough, fever, and you live in a region where histoplasmosis is common. Also contact your health care provider if you develop these problems and you work or have a hobby that exposes you to materials that may contain histoplasmosis.

1. If you have risk factors that are known to lower your immunity, you should avoid:
  - traveling to areas where histoplasmosis is common
  - smoking
  - exploring caves
  - cleaning bird cages
2. Call your health care provider if you have:
  - a cough that will not go away
  - blood in your sputum (phlegm)
  - fever or chills that don't go away
  - chest pain that gets worse when you take a deep breath
  - tiredness that lasts for more than a couple of days, especially if you also have neck stiffness or vomiting
3. If you have HIV, take your medications as directed and follow-up regularly with your health care provider because this helps to reduce your risk of getting histoplasmosis.

**Doctor's Office Telephone:**

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