

Coccidioidomycosis

Coccidioidomycosis (kok-sid-ee-oi-doh-my-koh-sis) is an infection from a fungus found in the southwestern United States and parts of North and South America. Coccidioidomycosis, also known as “Valley Fever”, is often called “cocci”.

What is Coccidioidomycosis?

Coccidioidomycosis is an infection usually caused by inhaling the spores (“seeds”) of either *Coccidioides immitis* or *Coccidioides posadasii* fungi. These spores are found in the soil in certain geographic areas (called **endemic**), and get into the air when the soil is disturbed. This can happen with construction, gardening, farming, windy weather, dirt biking or driving all-terrain vehicles (ATV’s) in these areas. Coccidioidomycosis cannot be passed from person-to-person. The most common states for people to be infected with coccidioidomycosis are Arizona and California, followed by Nevada, New Mexico, Texas, and Utah (see map).

What are the different forms of Coccidioidomycosis?

Each year, about 100,000 people are infected with the *Coccidioides* spores. Over 60% never develop symptoms or mistake their symptoms for a mild flu that will resolve without treatment. If you are infected, the severity of your symptoms may depend on two factors: the intensity of your exposure and the “strength” of your immune system. There are three forms of Coccidioidomycosis; *acute pulmonary coccidioidomycosis*, *chronic pulmonary coccidioidomycosis* and *disseminated coccidioidomycosis*. The acute form starts one to three weeks after exposure to the fungus and is usually mild and goes away without treatment or it might leave behind a small lesion that will turn into a cavity (hollow area). The chronic form sometimes develops years after getting infected. *Disseminated coccidioidomycosis*, is the most severe form of the disease and occurs in about 1% of all cases, usually in people who have a poor immune system or pregnant women. This form can spread to your nervous system, bones, joints or skin.



What are symptoms and signs of Coccidioidomycosis?

You may have any of several symptoms with Coccidioidomycosis. Because none of these symptoms are only seen with this disease, diagnosing it can be difficult. The most common symptoms are; cough (sometimes producing phlegm/mucus or blood), fatigue (tiredness), fever, headache, muscle aches, rash, joint pain and/or swelling (tender bumps usually on your leg). Severe forms of the disease can cause confusion, neck stiffness, or sensitivity to light. Some people will have problems that last a long time, like frequent pneumonias. Sometimes a chest X-ray (CXR) can show a spot or pneumonia in your lung. These spots (nodules) in your lungs can be mistaken for lung cancer or tuberculosis.

How is Coccidioidomycosis diagnosed?

The most common way to diagnose Coccidioidomycosis is to collect a sample of your sputum (phlegm), blood or other fluid to find out if the fungus is present. The sputum can sometimes show the fungus under a microscope or be cultured (grown in a lab) from the sputum. A sample of your blood can also be taken

to check for infection. If there is difficulty getting a diagnosis from your sputum or blood, a biopsy of lung tissue or spinal fluid may be needed. A biopsy of lung tissue can be done either by a bronchoscopy or a surgical procedure to cut out a piece of your lung tissue. (For more information on Flexible Bronchoscopy see ATS Patient Information handout at www.thoracic.org/patients.) If you have symptoms that get worse, a biopsy of your lung tissue, lymph nodes or examining fluid from swollen joints may be needed.

Who is at risk for developing Coccidioidomycosis?

People who live in, or have recently visited, one of the areas endemic to Coccidioidomycosis (especially older people) are at a higher risk. This is a special risk to those who do outdoor activities and during periods with sandstorms. People who have weakened immune systems because of severe lung disease, diabetes, HIV, organ transplant (lung, kidney, heart, etc), pregnancy, or taking certain medications (such as steroids or TNF inhibitors for arthritis) are at a higher risk of developing the more serious form of the disease. Certain ethnic groups are at increased risk for more severe forms of Coccidioidomycosis, such as Filipinos and African Americans.

How is Coccidioidomycosis treated?

Most people who develop symptoms from Coccidioidomycosis do not need treatment because symptoms are mild and go away. If your symptoms last for more than six weeks, are very severe, or you have a weakened immune system, treatment may be needed. Treatment includes taking an anti-fungal drug like fluconazole or itraconazole (both are pills). The treatment plan for people with *disseminated Coccidioidomycosis* (spread outside of the lung) is different for every person, but you will most likely be treated with amphotericin B (a medication given into your vein) followed by fluconazole for at least one year. If you develop cavities in your lung or abscesses in your bones or joints, you may need to have surgery.

What can I do to prevent myself from getting Coccidioidomycosis?

It is difficult to avoid being exposed to the spores if you live in or are visiting the southwestern United States. If you have a weak immune system, you should avoid activities that stir up the soil in areas endemic to Coccidioidomycosis. If your occupation requires that you dig in areas where this fungus is endemic,

wearing a disposable respirator mask and wetting the soil before digging may help. (For more information on use of a Disposable Respirator Mask, see ATS Patient Information handout at www.thoracic.org/patients.)

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Rx Action Steps

If you have a low immunity, you should avoid:

- traveling to/living in areas where Coccidioidomycosis is common
- smoking
- working outside in areas of high dust levels
- being outside during dust storms (wear a respirator mask when you cannot avoid dust exposure)

Call your healthcare provider if you live in or visited areas endemic to Coccidioidomycosis and you have:

- a cough that will not go away
- blood in your sputum
- fever or chills that do not 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

Healthcare Provider's Contact Number:

Resources

American Thoracic Society

- <http://www.thoracic.org/patients>
 - Sand and Dust Storms
 - Disposable Respirator

Centers for Disease Control and Prevention (CDC)

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

US National Library of Medicine

- <https://medlineplus.gov/valleyfever.html>

Valley Fever Center for Excellence

- <http://www.vfce.arizona.edu/>

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