

Coccidioidomycosis

Fungal Disease Series #2

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 areas (called **endemic**), and gets 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 and signs & symptoms of Coccidioidomycosis?

Each year, about 100,000 people are infected with the *Coccidioides* spores. Of those 100,000 people, over 60% never develop symptoms or mistake their symptoms for a mild flu that goes away. If you are infected, the severity of your symptoms may depend on two factors: the type of Coccidioidomycosis you have 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. The chronic form sometimes develops years after first 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. 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. Or, you may develop spots (nodules) in your lungs that 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 blood, sputum (phlegm), or other fluid to find out if the fungus is present. A sample of your blood

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is the most common way to check for infection. This fungus can sometimes be seen in the sputum (using a microscope) or be cultured from the sputum. If there is difficulty getting a diagnosis from your blood or sputum, a biopsy of lung tissue or spinal fluid may be needed. 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>) or a surgical procedure to cut out a piece of your lung tissue. Sometimes a chest X-ray (CXR) can show a spot or pneumonia in your lung. 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 that live in, or have recently visited, one of the areas endemic to Coccidioidomycosis (especially older individuals) are at a higher risk. People that have weakened immune systems because of severe lung disease, diabetes, HIV, organ transplant (kidney, heart etc), pregnancy, or taking certain medications (such as steroids or biologics for arthritis) are at a higher risk of developing the more serious form of the disease. Certain racial or ethnic groups are at increased risk for more severe forms of Coccidioidomycosis, such as Filipinos and African Americans.

How is Coccidioidomycosis treated?

Most people that 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 prevent from 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 mask and wetting the soil before digging may help.

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Resources

Centers for Disease Control and Prevention (CDC)

<http://www.cdc.gov/nczved/divisions/dfbmd/diseases/coccidioidomycosis/>

Mayo Clinic

<http://www.mayoclinic.com/health/valley-fever/DS00695>

PubMed Health

<http://www.ncbi.nlm.nih.gov/pubmedhealth/PMH0002299/>

Valley Fever Center for Excellence

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

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

Call your health care 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

Doctor's Office Telephone: