



Tailgate



Training

Preventing Work-related Valley Fever in Wildland Firefighters

Background

Valley Fever is a fungal infection that usually affects the lungs. It is caused by the fungus *Coccidioides immitis* that lives in soil in many parts of California. When soil that contains this fungus is disturbed through digging by hand or with heavy equipment, or is disturbed by wind, the fungal spores get into the air. When people breathe the spores into their lungs, they may get Valley Fever (also called “coccidioidomycosis” or “cocci”). Often the illness is without any symptoms, but in many cases, a serious disease can develop which can cause a previously healthy individual to be hospitalized, miss more than one month of work, and/or die.



Digging a fire line disturbs soil that may contain cocci spores

Because a potentially serious disease can occur after firefighters inhale dust containing spores, wildland firefighters should implement dust control strategies to the extent feasible to protect crews.

This training outline is designed to assist crew leaders in training crew members on how to minimize dust exposure and protect firefighters from Valley Fever.

Things to Do Before Training

1. Plan do to this training at a time when firefighters or maintenance crews are working in an area of California where Valley Fever is regularly present or “endemic” and/or when their planned work activities will disturb the soil.
 - Recognized endemic regions in California are in or near the Central Valley in the counties of Tehama, Butte, Glenn, Yolo, San Joaquin, Alameda, Stanislaus, Merced, Madera, Fresno, San Benito, Tulare, Kings, Monterey, Kern, San Luis Obispo, Los Angeles, Ventura, Riverside, Imperial, San Bernardino, and the southernmost portion of San Diego County.
 - Counties with the highest rates of Valley Fever (more than 20 cases per 100,000 population in any year) are Fresno, Kern, Kings, Madera, Merced, San Luis Obispo, and Tulare Counties.
 - Using heavy equipment that creates dust, manual digging of trenches or fire lines, and operating helicopters around exposed soil are examples of soil disturbing activities that have previously resulted in Valley Fever.

2. Review symptoms of Valley Fever on pages 2 and 3. Be prepared to provide information on who needs to be contacted and where firefighters can go for medical care, if/when they have or develop symptoms. If symptoms last for more than a week, firefighters should contact a health care provider.
3. Post an information sheet that covers what to do and whom to contact if firefighters have symptoms of Valley Fever (example provided on last page of this outline).

Training Introduction

- In this training we will be talking about Valley Fever, an illness caused by a fungus. The name of the fungus is *Coccidioides immitis* or cocci for short.
- The fungus lives in the upper layers of the soil in many parts of California. It is known to be present in _____ County (*name the county workers are assigned to*).
- When the soil is disturbed by digging, by heavy trucks, helicopters, or by high winds, the spores of the fungus can get into the air and then breathed in by people.
- The fungal spores are so small they cannot be seen with the naked eye.
- The infection is not spread from person to person, only by inhaling dust that contains the spores of the fungus.

Questions to ask for discussion purposes (to help stimulate crew engagement)

1. How many of you have heard of Valley Fever or “cocci”, or know someone who had this disease?
2. Since Valley Fever causing fungal spores may be present in soil or dust, what are the ways our agency / crew can reduce the amount of dust we breathe?
3. What work practices or equipment can be used to minimize the amount of dust we breathe in?

Signs or symptoms of Valley Fever (Coccidioidomycosis)

- Anyone, even healthy, young people, can develop Valley Fever. However, workers who disturb the soil are more likely to breathe in spores and become infected. Wildland firefighters have gotten Valley Fever.
- After breathing in the fungal spores, these things can happen:
 - In about 60% of cases, symptoms are mild or not present.
 - In about 40% of cases, significant symptoms develop.
 - Usually symptoms are those of a flu-like illness that goes away on its own (it may last a month)
 - However, some people develop pneumonia (at times severe).
 - In about 5% of cases, disease spreads outside of the lungs causing very serious illness. Other parts of the body are affected, such as the brain, bone, skin, or other organs. This is called ***disseminated Valley Fever***.

- Most people who have symptoms develop a flu-like illness that can last a month. Symptoms may occur within seven to 21 days after breathing in spores. Symptoms of Valley Fever (coccidioidomycosis) can include:
 - cough
 - fever
 - chest pain
 - headache
 - muscle aches
 - rash on upper trunk or extremities
 - joint pain in the knees or ankles
 - tiredness
- Signs or symptoms of advanced Valley Fever include:
 - skin lesions (such as painful red lumps on lower legs)
 - chronic pneumonia
 - meningitis (an inflammation of the membrane surrounding the brain)
 - bone or joint infection

What to do if you have symptoms

- If you develop symptoms and they last for more than a week, contact your supervisor and arrange to see a health care provider.
- Report these symptoms to medical personnel so that they can evaluate you to see if you have Valley Fever and provide treatment.
- Tell your health care provider that you worked in an area where Valley Fever is known to occur and ask to be tested. When Valley Fever is suspected, health care providers can order an antibody blood test or culture to determine whether you have Valley Fever.
- Treatment may be more effective if it is received early.

What is the treatment for Valley Fever?

Valley Fever is treatable with a variety of oral and injectable anti-fungal drugs. Firefighters who develop severe or chronic infections will need medical treatment and possibly hospitalization.

Some people have a higher risk of serious illness

- Severe disease may develop in anyone. However, some groups of people are at increased risk for disseminated disease and serious illness.
- People at risk for severe disease include those with weakened immune systems such as persons who are HIV-infected or on cancer chemotherapy.
- Also at higher risk for serious illness are the elderly, persons of African or Filipino descent, and pregnant women.

Actions to take to minimize dust exposure and prevent Valley Fever

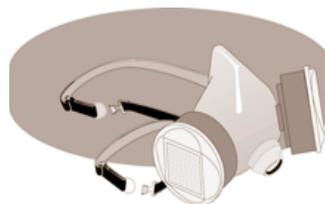
1. When digging a fire line or performing other soil disturbing tasks, reduce the amount of dust inhaled by staying upwind of the fire line.
2. Remove dusty clothing and shoes after work and before entering sleeping quarters to avoid bringing dust into sleeping areas.
3. When soil will be disturbed by heavy equipment or vehicles, continuously wet the soil before disturbing the earth if a source of water is available. Landing zones for helicopters, areas where bulldozers operate, and roadways near camps are good examples where dust should be reduced by wetting the soil.
4. In camp, pitch tents away from sources of dust such as roadways and helipads.
5. When exposure to dust is unavoidable, reduce dust exposure by wearing a well-fitted NIOSH-approved half-mask respirator with N95, N100, or P100 filters. Respirators must be used within a comprehensive respiratory protection program that covers all respirator wearers and includes fit-testing and training on respirators, and medical clearance for personnel.

Wear a respirator to lower the amount of dust you breathe in during the following types of activities:

- | | |
|--|---|
| <ol style="list-style-type: none"> a. mop up b. transport c. brush clearing | <ol style="list-style-type: none"> d. trail maintenance e. road building or grading |
|--|---|



Disposable filtering facepiece respirator



Elastomeric half-mask respirator

6. For those with high risk of exposure to dust such as dozer operators, stay inside vehicles with enclosed, air-conditioned cabs with the windows closed.



7. Clean tools, equipment, and vehicles with water to remove soil before transporting off site so that any spores present won't be re-suspended in air and inhaled at a later time.

Actions for crew leaders to take to minimize dust exposure and prevent Valley Fever

1. Avoid outdoor construction or other activities that disturb soil near firefighter base camps or campsites during unusually windy days.
2. Locate camps, especially sleeping quarters and dining halls, away from sources of dust such as roadways and helipads.

Key points to keep in mind

- There is no vaccine to prevent Valley Fever.
- Where it is safe and does not compromise fire or other emergency operations, persons at risk for Valley Fever should avoid exposure to dust and dry soil in areas where Valley Fever is common.
- Dust from digging, vehicles, and heavy equipment can be suppressed by wetting the soil in some situations.
- Using respiratory protection can further reduce exposures to dust.
- All persons potentially exposed should be alert to the symptoms of Valley Fever and seek prompt medical diagnosis and treatment if symptoms appear.

For more information:

California Department of Public Health, ["Preventing Work-Related Coccidioidomycosis \(Valley Fever\)" fact sheet](https://www.cdph.ca.gov/Programs/CCDPHP/DEODC/OHB/HESIS/CDPH/Document%20Library/CocciFact.pdf) (https://www.cdph.ca.gov/Programs/CCDPHP/DEODC/OHB/HESIS/CDPH/Document Library/CocciFact.pdf) that describes actions employers can take to prevent workers from getting Valley Fever and to respond appropriately if an employee does become ill.

[California Department of Public Health, "Coccidioidomycosis \(Valley Fever\) Fact Sheet"](https://www.cdph.ca.gov/Programs/CID/DCDC/Pages/Coccidioidomycosis.aspx) (https://www.cdph.ca.gov/Programs/CID/DCDC/Pages/Coccidioidomycosis.aspx)
Available in English, Spanish, and Tagalog for firefighters and their families.

[Centers for Disease Control and Prevention, "Coccidioidomycosis, Valley Fever"](https://www.cdc.gov/fungal/diseases/coccidioidomycosis/index.html) (https://www.cdc.gov/fungal/diseases/coccidioidomycosis/index.html)

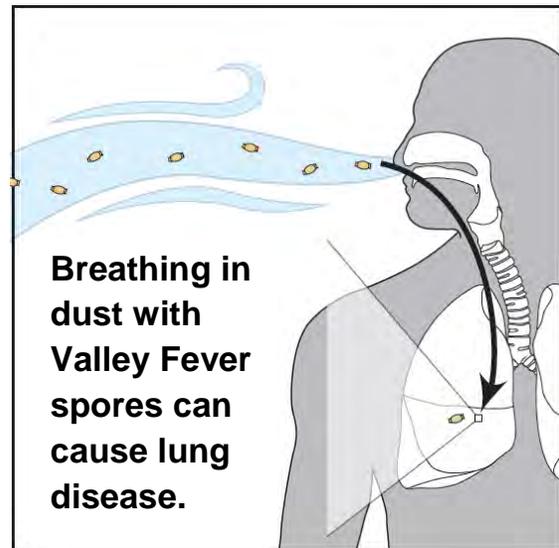
California Department of Public Health, Hazard Evaluation System and Information Service (HESIS). HESIS answers questions about workplace hazards for California workers, employers, and health care professionals. Call (510) 620-5817 or (866) 282-5516 (toll free in CA). HESIS has many free publications available. To request publications, leave a message at (510) 620-5717 or toll free (866) 627-1586, or visit the [OHB website](http://www.cdph.ca.gov/ohb) (www.cdph.ca.gov/ohb).

This training outline was prepared by the California Department of Public Health, Occupational Health Branch, HESIS, with input from CAL FIRE, U.S. Forest Service, and the California Correctional Health Care Services, Medical Services Division.

Report Valley Fever Symptoms

Valley Fever fungus may be present in soil.

Digging or disturbing the soil may release spores.



Source: 

Reduce dust exposure by staying upwind from soil disturbance, wetting the soil if possible, or using a respirator. Ask your crew leader about other dust reduction measures.

Symptoms of Valley Fever may be like the flu:

- cough
- fever
- chest pain
- headache
- muscle aches
- rash on upper trunk or extremities
- joint pain in the knees or ankles
- tiredness.

If you have flu-like illness that lasts more than a week (after working outdoors in an area where Valley Fever occurs*):

- Report symptoms to your crew leader and arrange to see a health care provider for evaluation and treatment, if needed.
- Tell your health care provider that you worked in an area where Valley Fever occurs* and ask to be tested.

*Valley Fever occurs in or near the Central Valley with the highest rates in Fresno, Kern, Kings, Madera, Merced, San Luis Obispo, and Tulare Counties. Other affected counties: Tehama, Butte, Glenn, Yolo, San Joaquin, Alameda, Stanislaus, San Benito, Monterey, Los Angeles, Ventura, Riverside, Imperial, and San Bernardino.