



TAILGATE TRAINING

Preventing Work-Related Valley Fever in Wildland Firefighting

When to provide this training

Valley fever (also called “coccidioidomycosis” or “cocci”) is a disease caused by the *Coccidioides* fungus that grows in the soil in some areas of California, especially the Central Valley and Central Coast. When soil that contains this fungus is disturbed or stirred up by digging, heavy equipment, or the wind, the fungus can get into the air. If people breathe in the fungus from dust in the air, they can get Valley fever. Valley fever is a disease that can have no symptoms or mild respiratory symptoms but, in rare cases, can cause severe disease or even death.

Wildland firefighters and firefighters responding to fires in the wildland-urban interface (WUI) can be at risk for Valley fever illness whenever they dig or disturb soil in high Valley fever areas.

To help prevent this illness, the California Department of Public Health strongly recommends that Incident Commanders and Safety Officers include Valley fever as a potential hazard on their **ICS 215A Form** (Incident Action Plan Safety Analysis) and **provide this training** to firefighter crews in-person and through a safety message/plan (ICS 208) whenever they will be deployed to counties with the highest rates of Valley fever. These are defined as counties with 20 or more cases per 100,000 people and currently include Fresno, Kern, Kings, Madera, Merced, Monterey, San Joaquin, San Luis Obispo, Tulare, and Ventura counties.

Valley Fever Rates, California, 2019



*Rates of Valley fever cases reported per 100,000 population.
Darkest colored counties had the highest rates of Valley fever.*



Preventing Work-Related Valley Fever in Wildland Firefighting

Background

Valley fever (also called “coccidioidomycosis” or “cocci”) is a disease caused by the *Coccidioides* fungus that grows in the soil in some areas of California, especially the Central Valley and Central Coast. When soil that contains this fungus is disturbed or stirred up by digging, heavy equipment, or the wind, the fungus can get into the air. If people breathe in the fungus from dust in the air, it can infect the lungs causing cough, difficulty breathing, fever, and fatigue. Most people who breathe in the Valley fever fungus don’t have symptoms but, in rare cases, the fungus can spread to other parts of the body and cause severe disease. People with severe Valley fever may need to be hospitalized, causing weeks or months of missed work. In very rare cases, severe Valley fever can be fatal.



Digging a fire line disturbs soil that may contain cocci fungus

Common outdoor work activities including digging and disturbing soil in certain areas of California can put firefighters at risk of inhaling the Valley fever fungus from dust in the air. Dust control strategies should be implemented whenever possible to protect crews.

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

Determine if a fire crew needs Valley fever prevention training: Find out if crews will be deployed to counties with high Valley fever rates (20/100,000 cases or higher). See “*When to provide this training*” (cover page) for a map and the current list of California counties with Valley fever rates that meet this criteria.

Things to Do Before Training

1. Plan to do this training just before firefighters or maintenance crews will be working in an area of California where Valley fever has been commonly reported, especially when planned work activities will include disturbing the soil.
2. Review symptoms of Valley fever on pages 3 and 4. It’s important to note that Valley fever and COVID-19 share many of the same symptoms.
 - Crew members with symptoms of COVID-19 should isolate themselves from others and contact a health care provider immediately. Lab tests are needed to know whether symptoms are caused by COVID-19 or Valley fever.

- Be prepared to provide information to crew members on who needs to be contacted and where firefighters can go for medical care if/when they have or develop symptoms. If Valley fever symptoms last for more than a week, firefighters should contact a health care provider.
- Post contact information for the employer's medical provider if possible.

Trainer Instructions: Use the questions provided to help stimulate crew discussion and engagement. After asking each question, allow participants to respond; then add to their answers by reading the training points that follow.

Training Introduction

In this training we will be talking about Valley fever, a disease caused by a fungus. The name of the fungus is *Coccidioides* or "cocci" for short.

Question: How many of you have heard of Valley fever or "cocci," or know someone who has had this disease?

- This fungus lives in the soil in many parts of California. Cases of Valley fever have been reported in _____ County (*name the county workers are assigned to*).
- When soil is disturbed or stirred up by digging, heavy trucks, helicopters, or high winds, the fungus can get into the air and can be breathed in by people.
- The fungus in the soil is too small to see, and there is no reliable way to test for it in the soil.
- Valley fever is not spread from person to person. You get Valley fever by breathing in dust from outdoor air that contains the Valley fever fungus.

Question: Who is at risk for Valley fever?

- Anyone, even healthy, young people, can develop Valley fever. However, outdoor workers who disturb the soil in areas of California where Valley fever is common are more likely to breathe in the fungus from dust in the air and become infected. Wildland firefighters have been known to get Valley fever after exposure at work.
- Examples of firefighter activities that may cause exposure to Valley fever fungus include:
 - Using heavy equipment that creates dust
 - Manual digging of trenches or fire lines; especially using McLeod or similar tool and generating dust in air
 - Mop up (i.e., extinguishing hot spots by smothering with dirt)
 - Working frequently in a dust cloud

- Travelling in a vehicle with open windows going to or from a fire
- Operating helicopters around bare soil

Signs or symptoms of Valley fever (Coccidioidomycosis)

Question: What are the symptoms of Valley fever?

After breathing in the Valley fever fungus from dust in the air, a few different things can happen:

- Most people (about 6 in 10) have no symptoms, and their bodies will fight off the infection naturally.
- People who do get sick with Valley fever can have respiratory symptoms or pneumonia because the Valley fever fungus usually infects the lungs. Common symptoms that may develop **1 to 3 weeks after breathing in the fungus** include:



Most symptoms will get better on their own. Some people may need treatment, but a doctor will determine what's best.

- In rare cases (about 1 in 100), Valley fever can cause severe infections in the lungs or in other parts of the body (called disseminated disease). This form of Valley fever can be very serious, and some people may need treatment for the rest of their lives.

Disseminated Valley fever usually causes infections in the skin, bones, joints, or brain, and severe symptoms can include:

- Skin lesions
- Bone or joint pain
- Severe headaches

Remember, some of these symptoms are similar to those of other common illnesses (including COVID-19 and the flu), but Valley fever symptoms can last a month or more. Lab tests are needed to know whether symptoms are caused by Valley fever or something else.

What to do if you have symptoms

Question: What should you do if you have symptoms?

- If you develop symptoms of Valley fever that last for more than a week, especially if you test negative for COVID-19, contact your supervisor and arrange to see a health care provider.
- Tell a doctor or medical provider about your symptoms so that they can evaluate you to see if you have Valley fever and determine if you need treatment.
- Tell the health care provider that you worked outdoors in an area where Valley fever is common, especially if you were digging in the soil or were in dusty areas. When Valley fever is suspected, a health care provider can order a blood test to determine whether you have Valley fever. The test might have to be repeated a while later if your results are initially negative.

What is the treatment for Valley fever?

Question: What is the treatment for Valley fever?

If you are diagnosed with Valley fever, the doctor will determine if you need treatment. There are medications to treat Valley fever called “antifungals,” but not everyone needs them. People who have severe Valley fever disease or certain health conditions that weaken the immune system may need to take antifungal medication (sometimes for months or even years).

Some people have a higher risk of getting severe Valley fever

- Some people are more likely to get very sick with Valley fever if they are infected.
- People at risk for severe disease include those with weakened immune systems, such as people with certain health conditions, including cancer or HIV, or who are being treated with chemotherapy or other medications that affect the immune system.
- Others at higher risk for severe disease include: older adults (60+ years of age), people who are Black or Filipino, people with diabetes, and pregnant women.

Actions to take to minimize dust exposure and prevent Valley fever

Question: Since the fungus that causes Valley fever may be present in soil or dust, what are the ways our agency or the crew can reduce the amount of dust we breathe in? What work practices can help?

Actions employers can take

1. Locate camps, especially sleeping quarters and dining halls, away from sources of dust, such as roadways and helipads.
2. Avoid outdoor construction or other activities that disturb soil near firefighter base camps or campsites during unusually windy days.
3. Make sure heavy equipment is equipped with enclosed, positively pressurized cabs having air filtration systems with filter efficiency ratings of 95% or higher (e.g., MERV-16).
4. Wherever possible, minimize mop up where Valley fever risk is present.
5. Determine when respirators should be worn and encourage crew members to wear them. Respirators must be used within a comprehensive respiratory protection program that covers all respirator wearers and includes medical clearance, fit testing, and training on respirator use for personnel, and direction on when respirators are to be worn.
6. Whenever possible, 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.

Crew leaders and members

1. When digging a fire line or performing other soil disturbing tasks, reduce the amount of dust inhaled by staying upwind of where dust is being generated whenever possible.
2. 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 or construction sites are good examples of where dust should be reduced by wetting the soil.
3. During mop up, whenever feasible, use water with hand tools to keep dust down. Use mop-up kits and wands, sprinkler kits, bladder bags, backpack pumps, or other water delivery methods if water is available.
4. Remove dusty clothing and shoes after work and before entering sleeping quarters to avoid bringing dust into sleeping areas.

5. When exposure to dust is unavoidable and it is safe to do so, reduce dust exposure by wearing a well-fitted NIOSH-approved half-mask respirator with N95, N100, or P100 filters.

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

- | | |
|----------------------------------|-----------------------------|
| a. digging or cutting fire lines | d. brush clearing |
| b. mop up | e. trail maintenance |
| c. transport in dusty areas | f. road building or grading |



Disposable filtering facepiece respirator (N95)



Elastomeric half-mask respirator

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



Wrap up: Key points to keep in mind

- There is no vaccine to prevent Valley fever.
- Where it is safe and does not compromise emergency operations, avoid activities that result in 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 tell their employer and seek prompt medical diagnosis if symptoms appear. It's important to keep in mind that some symptoms of Valley fever are similar to those of other common illnesses (including COVID-19 and the flu), but Valley fever symptoms can last a month or more.

Does anyone have any questions?

For more information

[Preventing Work-Related Valley Fever](#) – California Department of Public Health (CDPH) web page with training guides, posters, factsheets, and more information to assist employers to take action to prevent Valley fever and to respond appropriately if a worker does become ill. (www.cdph.ca.gov/workrelatedvalleyfever)

[Protection from Valley Fever](#) – Cal/OSHA guidance on employer responsibilities for preventing Valley fever and what to do if workers get sick. Includes guidance on respirator programs. (www.dir.ca.gov/dosh/valley-fever-home.html)

[Could Be Valley Fever](#) – CDPH web page with data and multilingual resources for the public. (www.cdph.ca.gov/valleyfever)

[Valley Fever Data and Publications](#) - most recent rates of reported Valley fever illness by county, CDPH (<https://www.cdph.ca.gov/Programs/CID/DCDC/Pages/ValleyFeverDataPublications.aspx>)

[Valley Fever \(Coccidioidomycosis\)](#) – Centers for Disease Control and Prevention (www.cdc.gov/niosh/topics/valleyfever/)

Call or email your local health department’s communicable disease contact for information on Valley fever in areas where fire crews will be working. Find your local health department on the [CDPH list of local health departments](#) (www.cdph.ca.gov/Pages/LocalHealthServicesAndOffices.aspx)

Workplace Hazard Helpline: (866) 282-5516 (toll free in CA) | **(510) 620-5817**
Hazard Evaluation System and Information Service (CDPH-HESIS). Answers questions about workplace hazards for California workers, employers, and health care professionals

This training outline was prepared by the California Department of Public Health, Occupational Health Branch, Hazard Evaluation System and Information Service.

Valley fever posters for the worksite

The CDPH Occupational Health Branch has several posters that can be used to raise awareness at worksites or firefighter gathering places. We recommend the [Valley fever informational poster](#), shown below. See our [Preventing Work-Related Valley Fever web page](#) (www.cdph.ca.gov/workrelatedvalleyfever) for other posters and Valley fever awareness materials.

ARE YOU AT RISK FOR VALLEY FEVER?

VALLEY FEVER CAN BE PREVENTED. YOU JUST HAVE TO KNOW WHAT TO DO.



Valley fever is an illness caused by a fungus found in the soil in many parts of California, especially the Central Valley and Central Coast. For some, it can be serious and even fatal. Construction workers and others who work outdoors are especially at risk for Valley fever if they dig or disturb soil, operate heavy machinery, or work under windy conditions.

Valley fever is bad news! It can cause weeks or months of missed work. Some people get sick enough to need lifelong treatment.

KNOW THE SYMPTOMS

Common symptoms can be mistaken for a cold, influenza, or pneumonia but last longer than one week. People who get sick usually develop symptoms one to three weeks after breathing in the fungus.

If you have Valley fever symptoms for a week or more, tell your supervisor. The company should send you to a doctor for evaluation.

 FATIGUE	 COUGH	 TROUBLE BREATHING	 FEVER
 NIGHT SWEATS	 MUSCLE OR JOINT PAIN	 CHEST PAIN	 WEIGHT LOSS

PROTECT YOURSELF AND OTHERS

- Use enough water to keep dust down.
- Stay upwind of digging and dumping soil, drilling, or blasting.
- In vehicles, keep windows closed and use air conditioning on recirculate.
- Change into clean clothes and shoes before leaving a dusty jobsite.
- Use NIOSH-approved respirators with particulate filters if controlling dust is not possible.



Know the symptoms.
Protect yourself.

COULDBEVALLEYFEVER.ORG



Poster web link:
www.cdph.ca.gov/Programs/CCDPPH/DEODC/OHB/CDPH%20Document%20Library/VfInformationalPoster.pdf