

Valley Fever (*coccidioidomycosis*)

PURPOSE

This Safety Advisory provides information on a health and safety concern that may impact the health of workers at Department of Energy (DOE) facilities, particularly those located in the southwestern United States. Specifically, the concern is the recognition and prevention of a serious respiratory infection called Valley Fever (medical name *coccidioidomycosis*), caused by a fungus common in that part of the country.

BACKGROUND

Lawrence Livermore National Laboratory recently reported four cases of occupational *coccidioidomycosis*, also known as Valley Fever, in its workforce in 2006. The affected workers included a firefighter, laborer, senior science associate, and an environmental technician, all of whom conducted tasks outdoors as part of their duties. As a result of this illness, these workers lost an average of 64 workdays. The site has increased efforts to prevent exposure and to educate workers about the risks.

Coccidioidomycosis, also called San Joaquin Fever or Valley Fever, is caused by the inhalation of spores from a fungus [*Coccidioides immitis* (*C. immitis*)] common in soils of the southwestern United States, Mexico, and parts of South America. The fungus thrives in dry conditions in locations with mild winters and long hot seasons. Its spores are released when soil is disturbed by man (for example, by raking or shoveling) or by natural occurrences such as wind. Opportunity for exposure is greatest during the summer months when the soil is dry and dusty. *C. immitis* infection is NOT spread from person to person.

Since the 1990s, the occurrence of Valley Fever has been increasing, particularly in Arizona and California. Recent research also suggests that the disease may be becoming more widespread geographically.

OCCUPATIONAL HAZARDS

- Disturbance of the soil can aerosolize *C. immitis* spores, thereby increasing exposure, which results in Valley Fever outbreaks.
- Working in dusty areas or under windy conditions that spread the spores can increase exposure. In areas where *C. immitis* occurs naturally, windy conditions can spread the spores. Workers should be made aware of the potential for an increased risk of exposure.

- Occupations involving work performed in dusty areas such as construction, road building, landscaping, excavation, mining, geology, and military maneuvers are at higher risk.

OTHER RISK FACTORS

Research has shown that other, non-occupational risk factors also can increase the risk of Valley Fever or more serious health effects from *C. immitis* infection:

- Smokers are at higher risk.
- People of color appear to be at higher risk for Valley Fever than are whites, and are more likely to develop serious illness if infected.
- Pregnant women are more susceptible to infection.
- People with diabetes are more susceptible to infection.
- Anyone with a weakened immune system, such as individuals with HIV/AIDS, and individuals undergoing chemotherapy or organ transplant patients.
- Older individuals are more susceptible than younger people.

COMMON SYMPTOMS

Once inhaled, *C. immitis* spores are able to go deep into the lungs, where they reproduce and cause disease. The severity of disease is, to some extent, related to the number of spores inhaled.

- Valley Fever symptoms are often described as “flu-like.”
- Common symptoms of infection include:
 - > Difficulty breathing
 - > Fever
 - > Dry cough
 - > Fatigue
 - > Shortness of breath
 - > Muscle aches
 - > Skin rash
 - > Weight loss
- Symptoms may appear 1 to 3 weeks after infection

- About 60 percent of individuals infected with *C. immitis* experience no noticeable symptoms.
- In about 1 percent of those infected, the spores spread beyond the lungs and can produce more serious disease.

TREATMENT

- A diagnosis of Valley Fever can be confirmed by blood tests measuring the level of antibodies to *C. immitis*. Chest X-rays are also useful.
- Most cases of acute Valley Fever resolve on their own and do not require treatment.
- For more serious cases, antifungal medications treat fungal infections throughout the body by slowing the growth of the fungi that are causing the infection.
- Hospitalization or bed rest may be necessary in serious cases.
- No vaccine is available to prevent the disease, but *C. immitis* infection confers long-term immunity to subsequent infection.

CONTROLLING VALLEY FEVER

Given the widespread occurrence of *C. immitis* in much of the southwestern U.S. and the ease with which the spores can become airborne, complete prevention of exposure is not feasible. Prevention of *C. immitis* infection is desirable; an acute infection can result in an average absence from work of over 30 days. A number of actions can be taken on the worksite to reduce the risk of infection, including:

- Minimizing soil disturbance
- Wetting down soil in work areas prior to initiating tasks, and repeated wetting as needed to minimize dust
- Wearing NIOSH-approved N95 respirators or equivalent respiratory protection at the work site to reduce inhalation risk
- Establishing an appropriate respiratory protection program that meets the OSHA Respiratory Protection Standard ([29 CFR 1910.134](#))
- Increase health surveillance in high-risk areas to enhance the likelihood of early detection
- Holding employee informational briefings and posting warnings/reminders to raise worker awareness
- Including the consideration of wind and dust conditions in work planning and hazard assessment

ADDITIONAL SOURCES OF INFORMATION

- Your site occupational medicine clinic
- Morgan J. [Coccidioidomycosis](#). Atlanta GA: Centers for Disease Control. Available at CDC website.

SUMMARY

- *C. immitis* and Valley Fever are endemic in the southwestern United States.
- Taking action to minimize soil disturbance and dust inhalation may reduce exposure.
- Increased employee awareness is a goal.
- Evaluation of environmental conditions before conducting work and use of proper respiratory protection are recommended.