

# Preventing Valley Fever in Outdoor Workers



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# Overview

- One company's story
- Valley fever basics
- Findings from investigations
- Ways to minimize exposure
- New CA law requiring Valley fever training & resources to help

# One company's story: San Luis Obispo County, 2007





# A small, dusty job



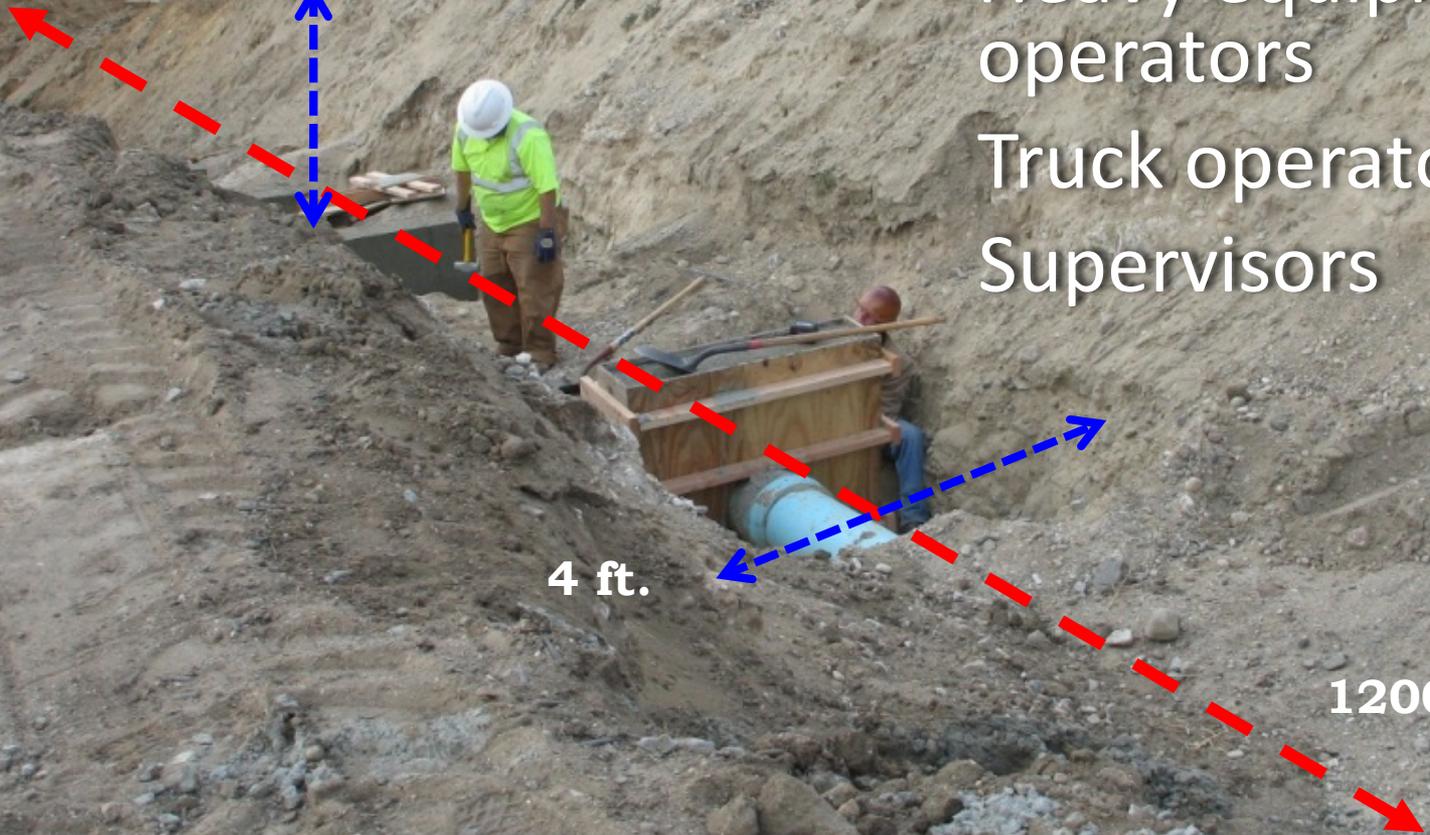
2-5 ft.



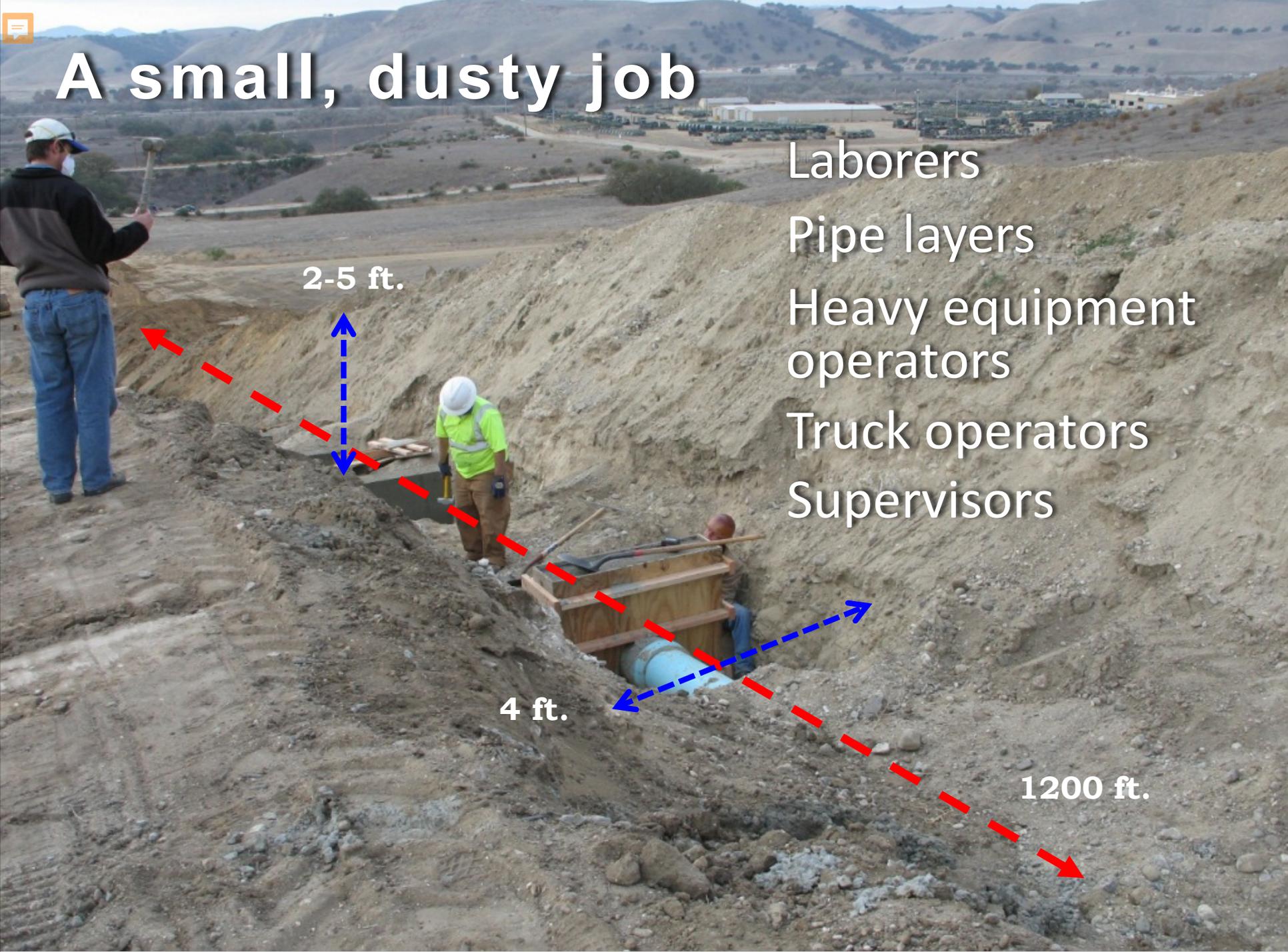
4 ft.



1200 ft.



- Laborers
- Pipe layers
- Heavy equipment operators
- Truck operators
- Supervisors





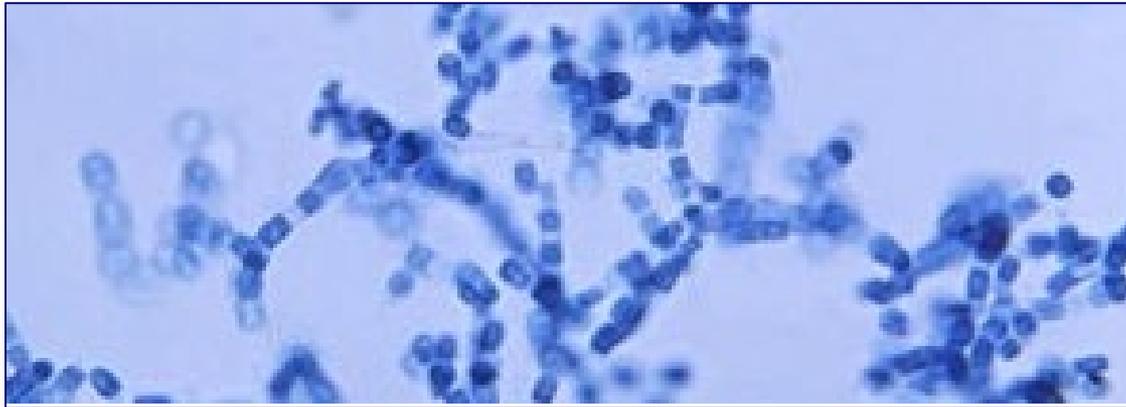
# 10 of 12 workers sick with Valley fever!

## High toll of illness on this crew

- 10 ill workers sought care from 21 physicians
- 7 had abnormal chest X-rays (pneumonia)
- 1 had disease that spread from the lungs
- Over 200 lost work-days for entire crew
- 2 workers on disability at least 5 months

# What is Valley fever?

An infection caused by inhaling spores of a fungus in the soil



Scientific name of fungus: *Coccidioides*

Illness also known as “coccidioidomycosis” or “cocci”

# How people get Valley fever

## Valley Fever ("Cocci") Infection



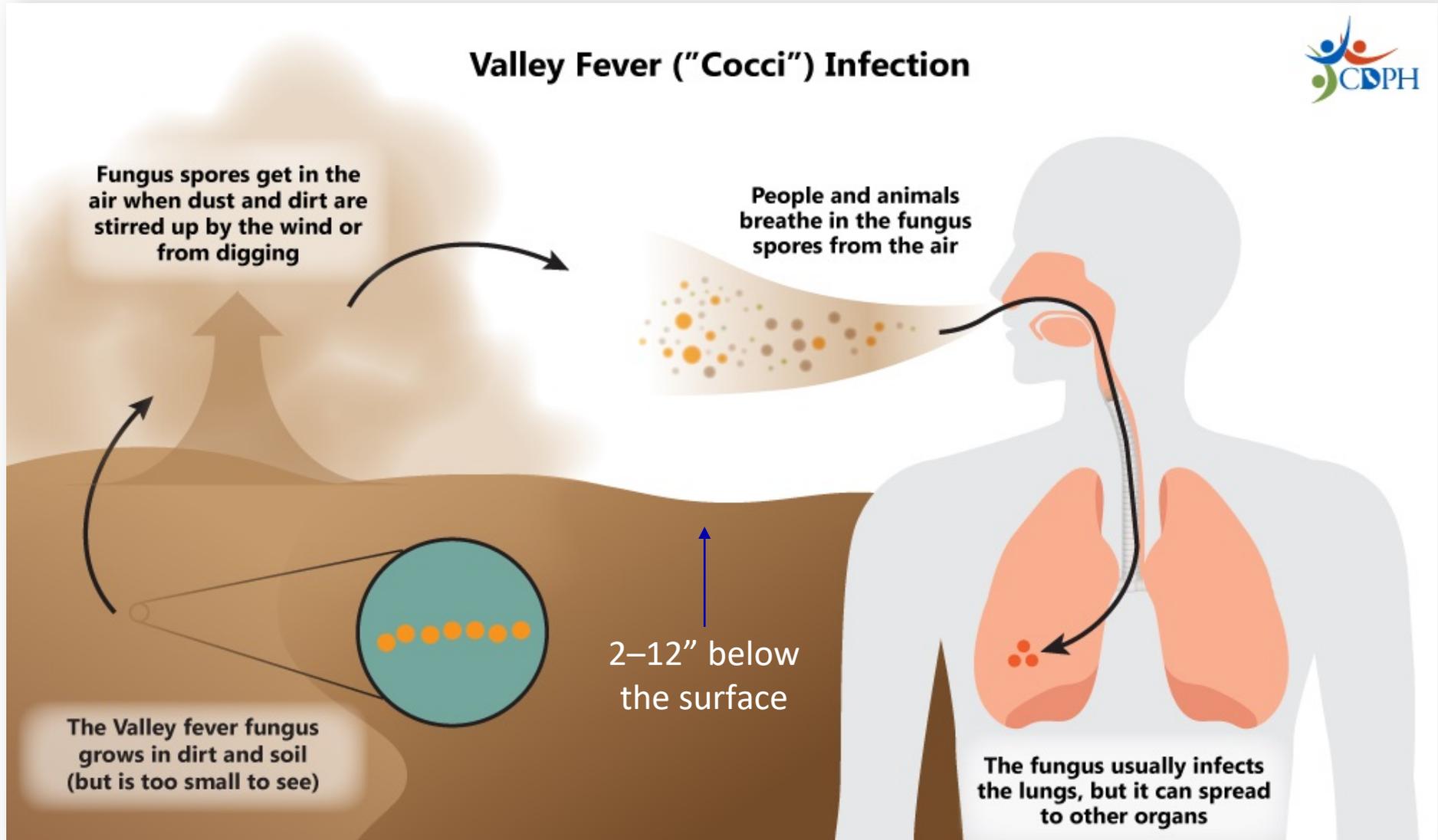
Fungus spores get in the air when dust and dirt are stirred up by the wind or from digging

People and animals breathe in the fungus spores from the air

The Valley fever fungus grows in dirt and soil (but is too small to see)

2–12" below the surface

The fungus usually infects the lungs, but it can spread to other organs





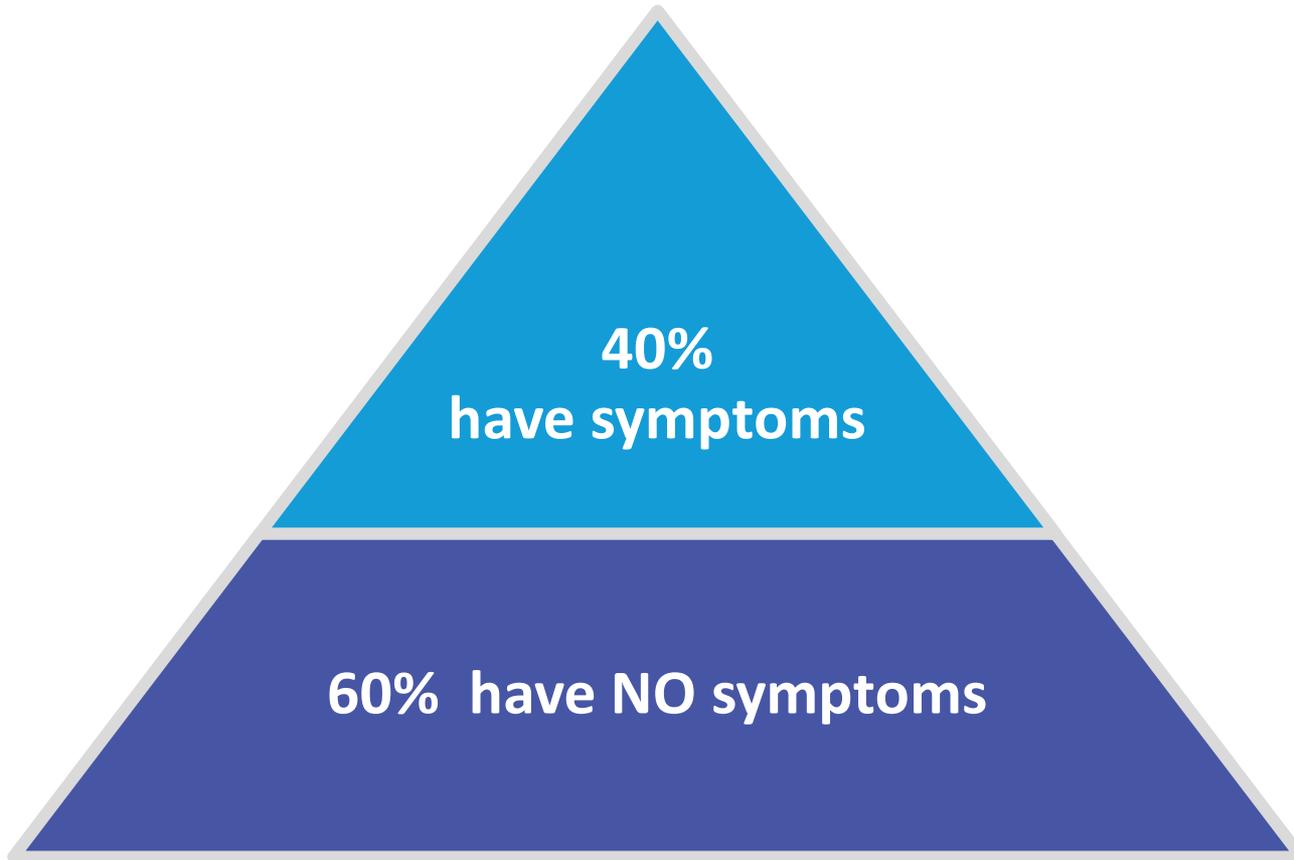
# Valley fever symptoms

- Similar to common respiratory infection
  - Cough, fever, muscle aches, headache
- Fatigue
- Difficulty breathing
- Rash
- Joint pain

Symptoms can last **weeks or months**



# Valley fever illness



Symptoms begin 1–3 weeks after exposure

# Severe Valley fever illness

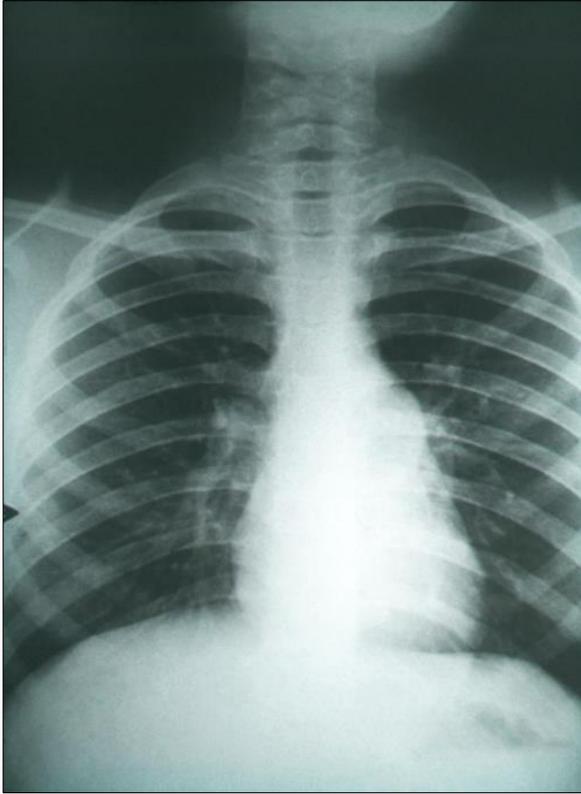
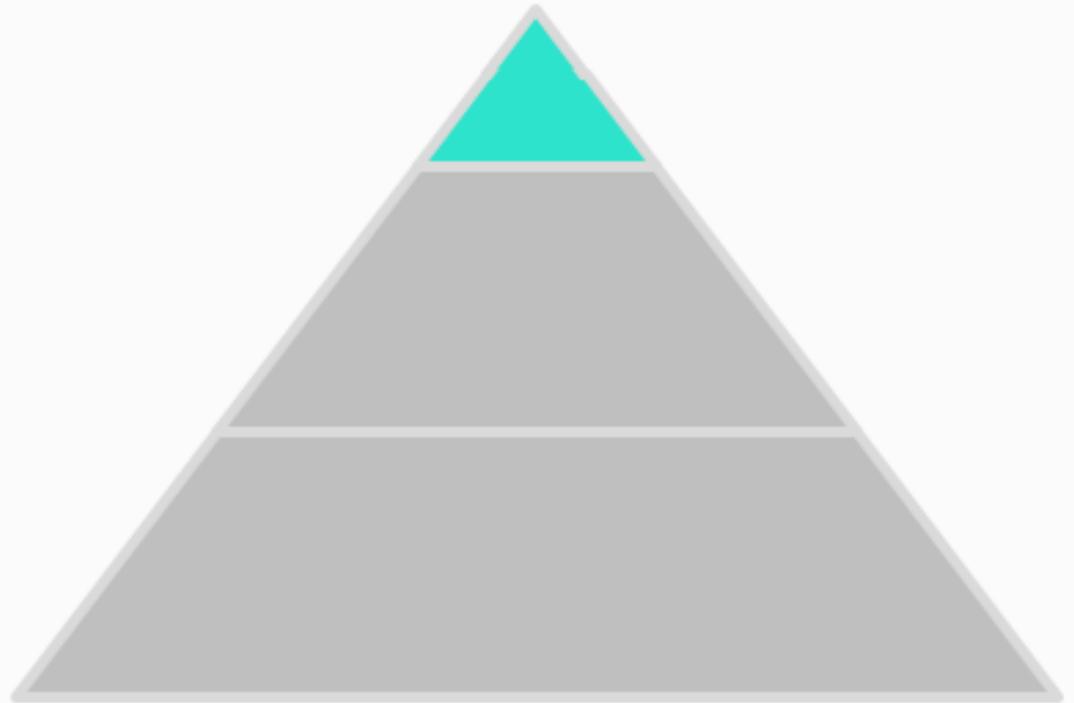


Photo: CDC/ Dr. Lucille K. Georg

5–10%:  
Pneumonia, chronic lung infection

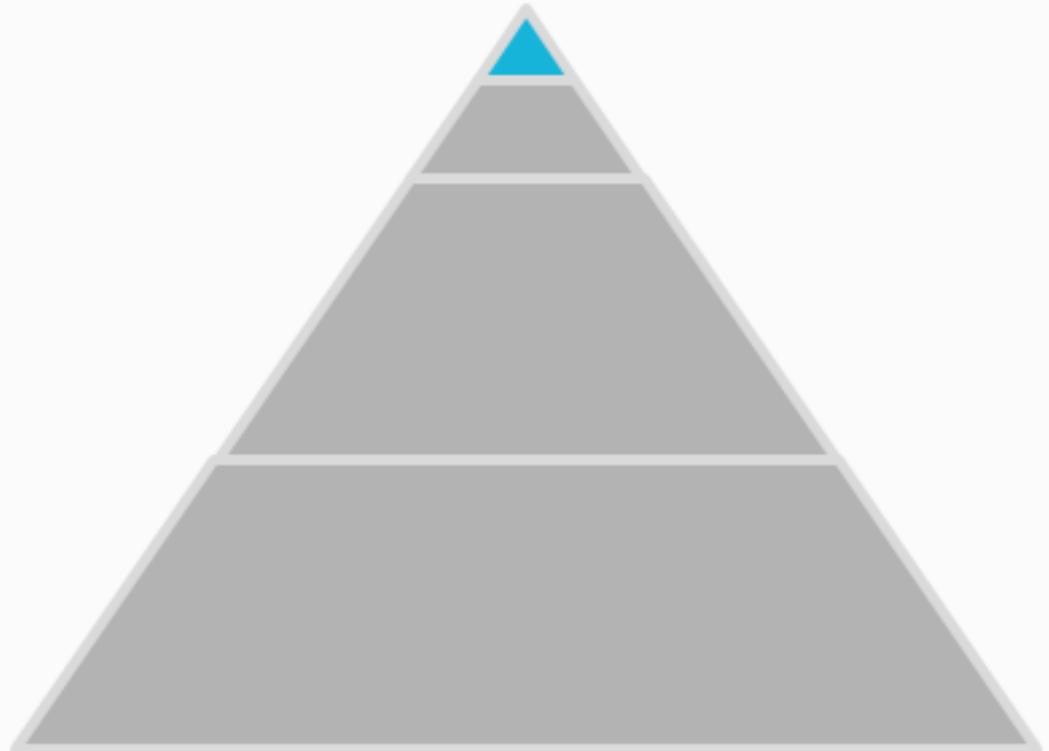


# Very severe Valley fever illness



Photo: CDC/ Dr. Lucille K. Georg

1%: Spreads outside the lungs





# Who is at greatest risk for severe illness?

- Age 60 years or older
- African Americans, Filipinos
- Pregnant women
- Diabetes
- Weakened immune systems

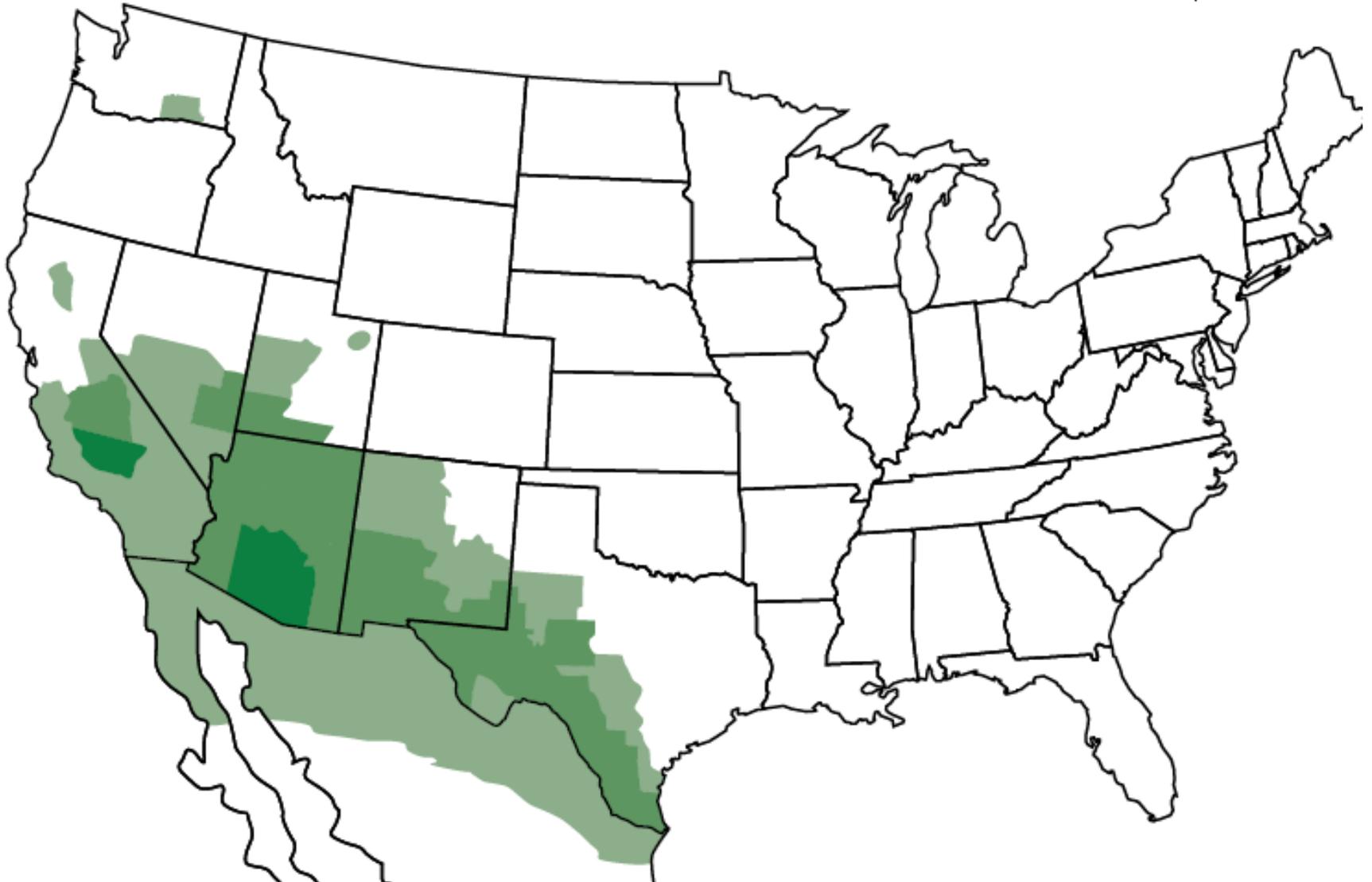
Anyone exposed can develop severe disease

# Diagnosing Valley fever



Can only be diagnosed by a clinician  
Lab tests (usually blood) are needed

# Where is the fungus that causes Valley fever?

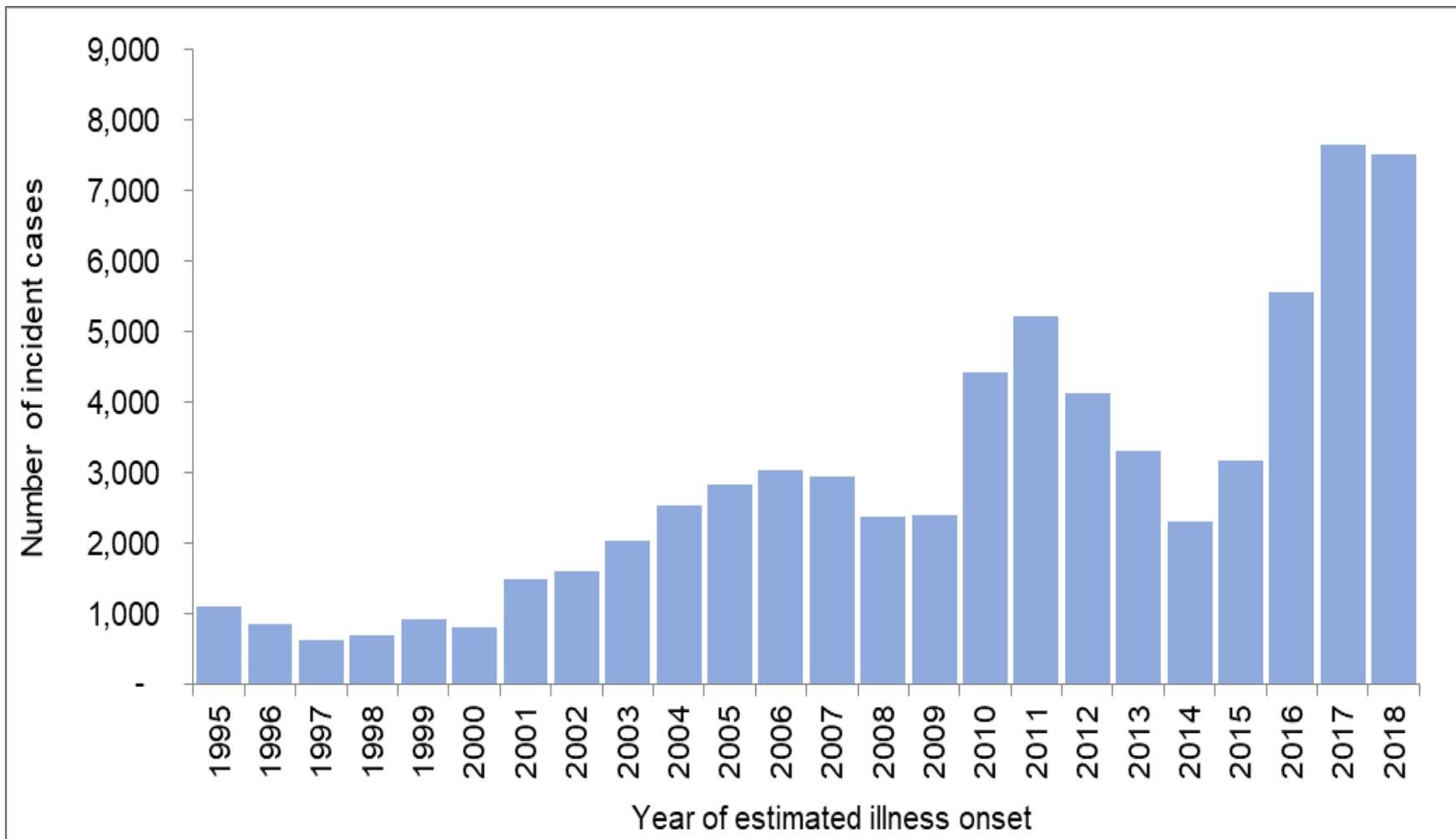


# No effective way to test for the fungus ahead of time

- Fungus has spotty distribution in soil
- No reliable soil or air testing methods
- Just a few (<10) spores can cause disease



# Valley fever is increasing in CA





# Possible reasons for rise in Valley fever

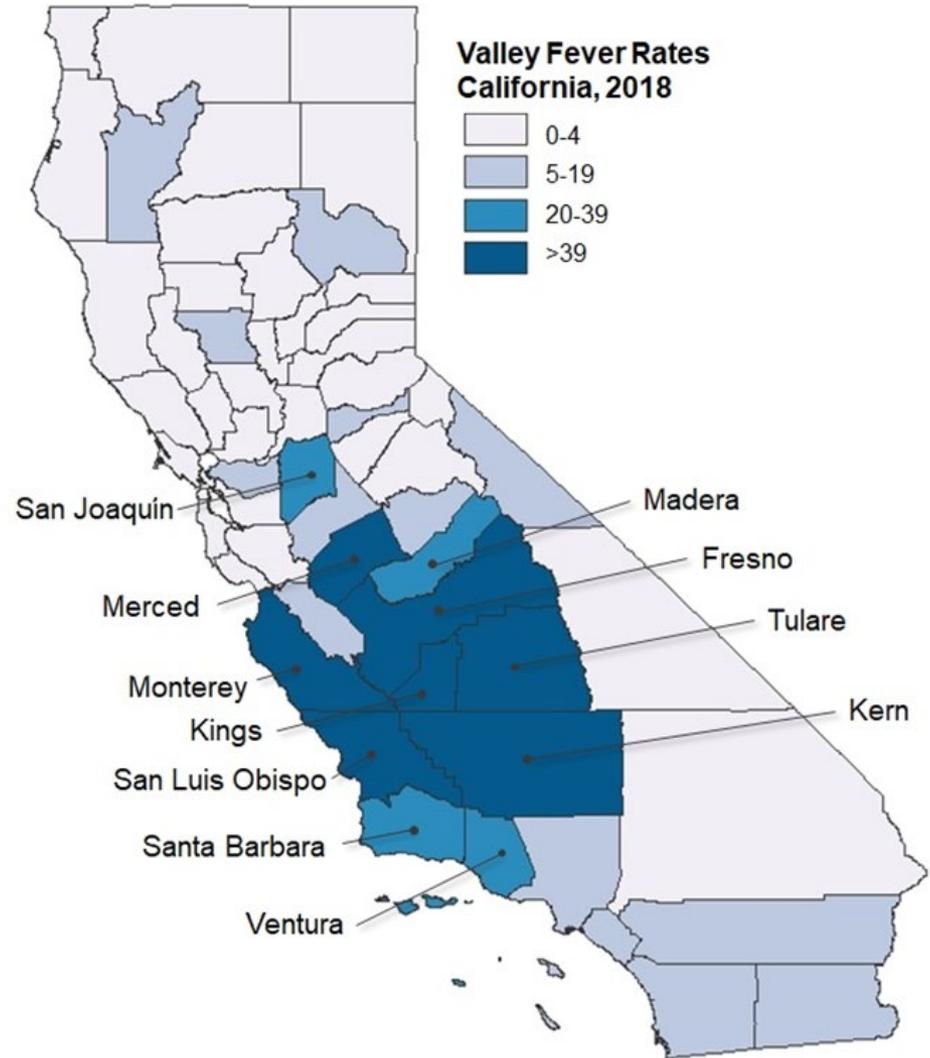
- Drought, climate, and environment
- Increase in population in areas where the fungus is common
- Construction and other dust-generating activities





# County rates of Valley fever (2018)

- Darker color = higher rate
- Highest in the Central Valley and Central Coast



# Valley fever is an occupational disease

Workers disturbing soil in areas where Valley fever is common are at highest risk

- Construction workers
- Archeologists
- Wildland firefighters
- Military personnel
- Mining, quarrying, oil & gas extraction jobs
- Agricultural workers





# Identifying Valley fever cases among workers



Workers,  
unions,  
employers



Occupational  
Health Branch



Local health  
departments



Doctors'  
reports

# Investigations of Valley fever at construction sites



Photo: San Luis Obispo County Planning Department

# San Luis Obispo County, 2007

## 10 of 12 workers ill



Ineffective dust suppression  
Equipment windows open  
No respiratory protection



# San Luis Obispo County, 2011–2014



44 workers ill

Most (27/44) did not live in areas  
where Valley fever was common











Photo: San Luis Obispo County Planning Department



# Severity of disease (44 ill workers)

Visited emergency room	17 (39%)
Hospitalized	9 (20%)
Spread outside the lungs	2 (5%)
Missed work	34 (77%)
Range	1 day to >1.5 years
Average	22 days



# Job titles of ill workers\*

Electrician/lineman/wireman	13 (31%)
Equipment operator	11 (26%)
Laborer	6 (14%)
Carpenter/ironworker/millwright/mechanic	5 (12%)
Manager/superintendent	4 (10%)
Other	3 (7%)

\*42 of the 44 patients were interviewed



**Spoils Piles**

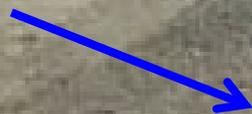


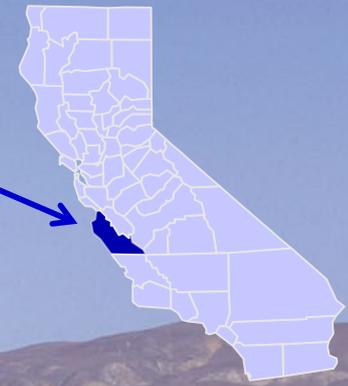
Photo: San Luis Obispo County Planning Department



# Follow-up survey of solar workers

- Found 89 more workers with Valley fever symptoms
- Risk factors for illness
  - Being in a dust cloud or storm
  - Working in a trench
  - Operating heavy equipment without enclosed cab
  - Not wearing respirator frequently
- Protective factor
  - Using water frequently

# Monterey County, 2016–2017



“I’ve never seen so much dust. It was out of control.”

“There was visible dust every hour of the day.”

“There were not enough water trucks to control dust on 3,000 acres so we would start work without wetting the soil.”

# Ventura County, 2012



✓ Actor

✓ Camera operator

And today we found out that their “music festival” included a headlining act, **Train!**

Below are a few photos of the band hitting the stage for the special episode of *90210* which is set to air this spring on The CW.



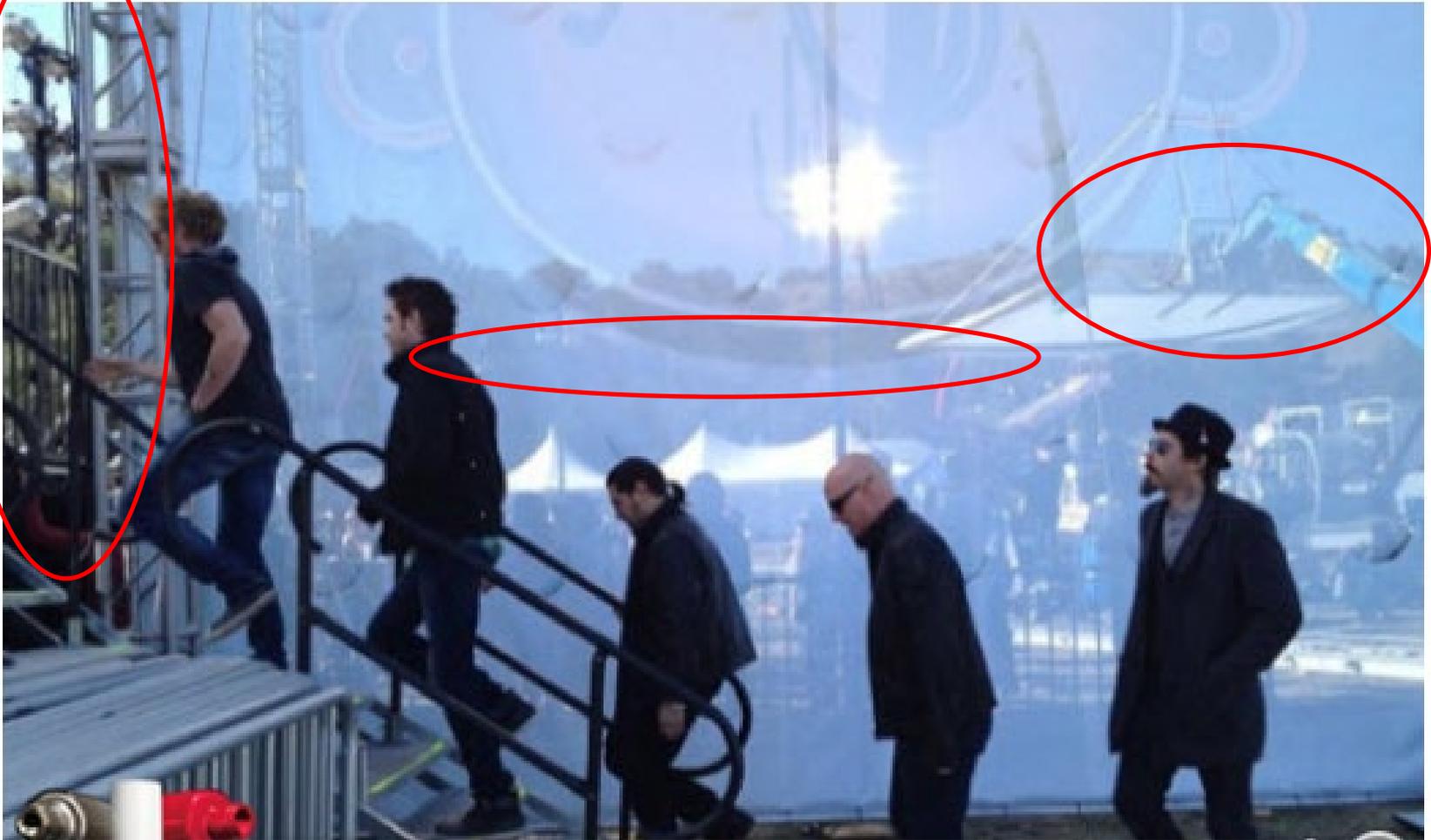
**“It is something like pneumonia... it’s called Valley Fever... I’ve been in the hospital for the last 3 weeks... I can’t wait till I come back to set”**



# Valley fever in 10 film crew employees

Hospitalized	2 (20)
Days spent at site	<u>no. (%)</u>
≤3	9 (90)
5	1 (10)
Job Title	
Actor	4 (40)
Camera/sound/production assistant	3 (30)
Construction/set maker	2 (20)
N/A (visiting family)	1 (10)

# Exposure assessment



# Potential exposures

- Grading of a dirt parking lot
- Digging the mud pit
- Equipment, stage, and amusement park set-up
- Vehicle traffic on dirt roads



# Cal/OSHA citations for not protecting workers at solar farms

Citations for failure to:

- Address Valley fever as a hazard in the IIPP
- Control dust exposure
- Provide & ensure use of respirators
- Report hospitalized cases



## N E W S   R E L E A S E

**News Release No.:** 2017-108

**Date:** November 20, 2017

**Cal/OSHA Cites Six Employers over \$240,000 for Exposing Workers to Valley Fever**

**Bakersfield** — Cal/OSHA has cited six employers \$241,950 for workplace safety and health violations after reports that workers contracted Valley Fever on a solar project construction site in Monterey County.



# True burden on workers?

- Number of cases in workers is unknown
- Most people with milder disease do not see a doctor
- Some may not tell their employer
- Valley fever often misdiagnosed
- Difficult to identify in workers travelling in from other counties or states

# Preventing Valley fever illness



Photo: Morgan Zavertnik and Hoar Construction/elcosh.org



# Basis for prevention recommendations

- Published studies from several decades
- Our worksite investigations
- Good industrial hygiene practice
  - Spores act like any airborne particles
  - Use proven methods to control dust

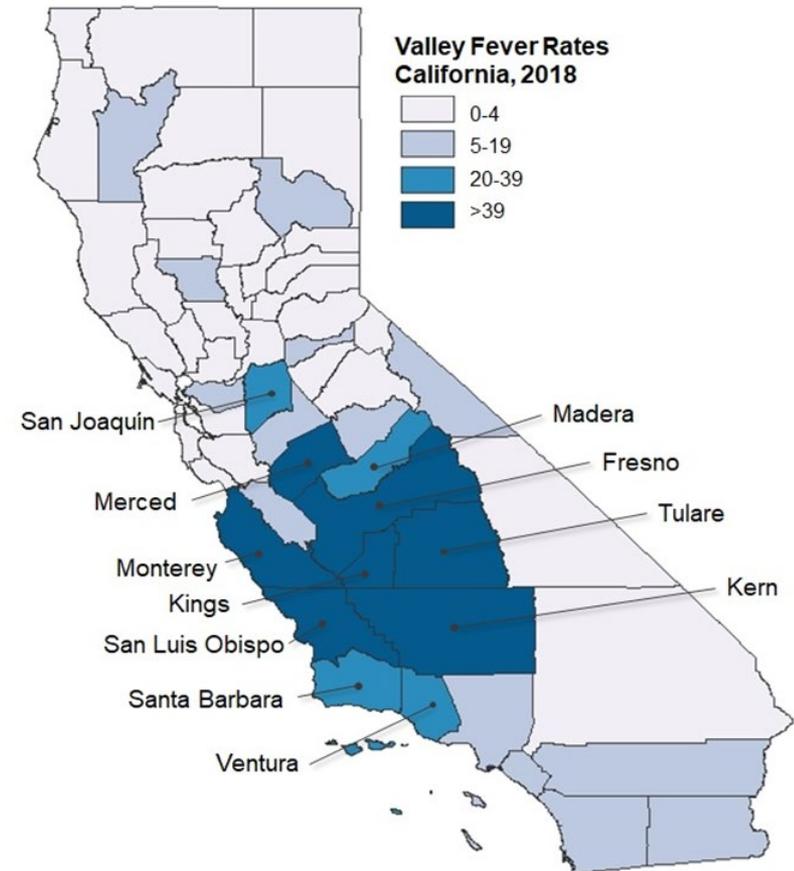


# Plan ahead for Valley fever

Know if your job is in an area where the fungus is found.

Top 11 counties in 2018:

- Fresno
- Kern
- Kings
- Madera
- Merced
- Monterey
- San Joaquin
- San Luis Obispo
- Santa Barbara
- Tulare
- Ventura



Address Valley fever in your  
**Injury and Illness Prevention Program (IIPP)**



# Multi-employer jobs

Cities and counties should use permits or contract specs to:

- Highlight Valley fever risk
- Clarify roles & responsibilities for Valley fever prevention
- Ensure all employees are trained and prevention measures consistently used

# Minimize soil disturbance through job design

- Avoid digging if possible
- Reduce grading
- Maintain vegetation

Photo: Wiring is installed in above-ground trays instead of below-ground trenches





# Limit dust generation and exposure

- Wet the soil before & while digging



Uncovered spoils piles

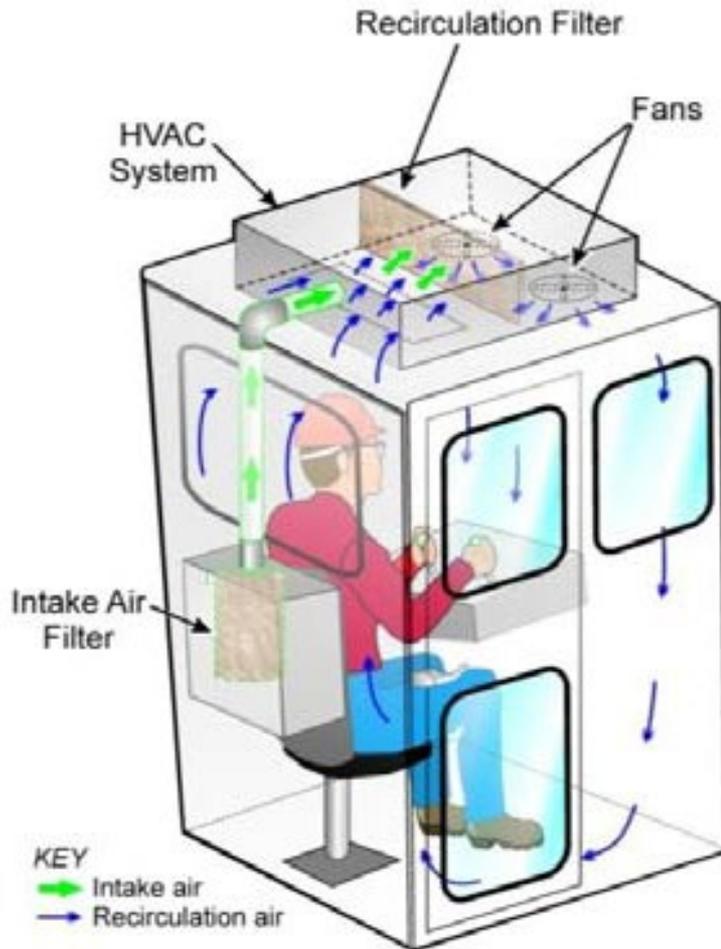
- Cover bare soil with vegetation, tarps, etc.
- Stay upwind of digging

# Protect operators with enclosed cabs



- Air conditioned with HEPA air filtration
- Windows closed & 2-way radio for communication
- Wet-clean inside cabs

# Maintain effective cab pressurization and filtration



- Positive pressure
- Cab integrity
  - Tight door seals, gaskets
  - Holes sealed up
- Replace clogged filters
- Provide cooling and heating

# Get employees respirator-ready



# Use respirators with N95 or P100 (HEPA) filters



Half-mask respirator with HEPA filters



Filtering facepiece respirator



Powered air purifying respirator (PAPR)

# Respiratory protection program

- Program coordinator
- Medical clearance
- Fit testing
- Training
- Written policy on when to use respirators
  - Disturbing soil
  - Near soil-disturbing work
  - When dust is uncontrolled



Respirator fit testing

# Plan to take action when dust cannot be controlled

- Have rules for stopping work for excess dust or wind
- Monitor conditions
- Move indoors or into vehicles with HEPA-filtered A/C
- Don respirators quickly if conditions get worse



# Valley fever prevention training

Train is needed for all

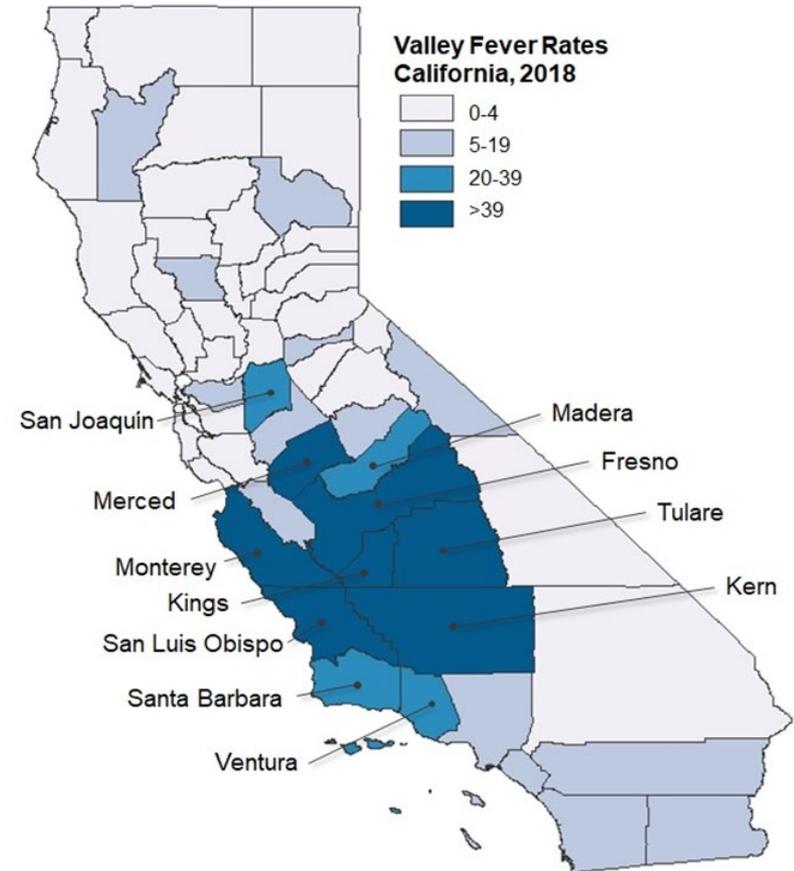
- supervisors
- employees
- subcontractors



# New California law – AB 203

## Requires construction worker training

- “Highly endemic” = 20 cases per 100,000
- Currently 11 counties
- 8 areas of training
- **Must train by May 1, 2020**



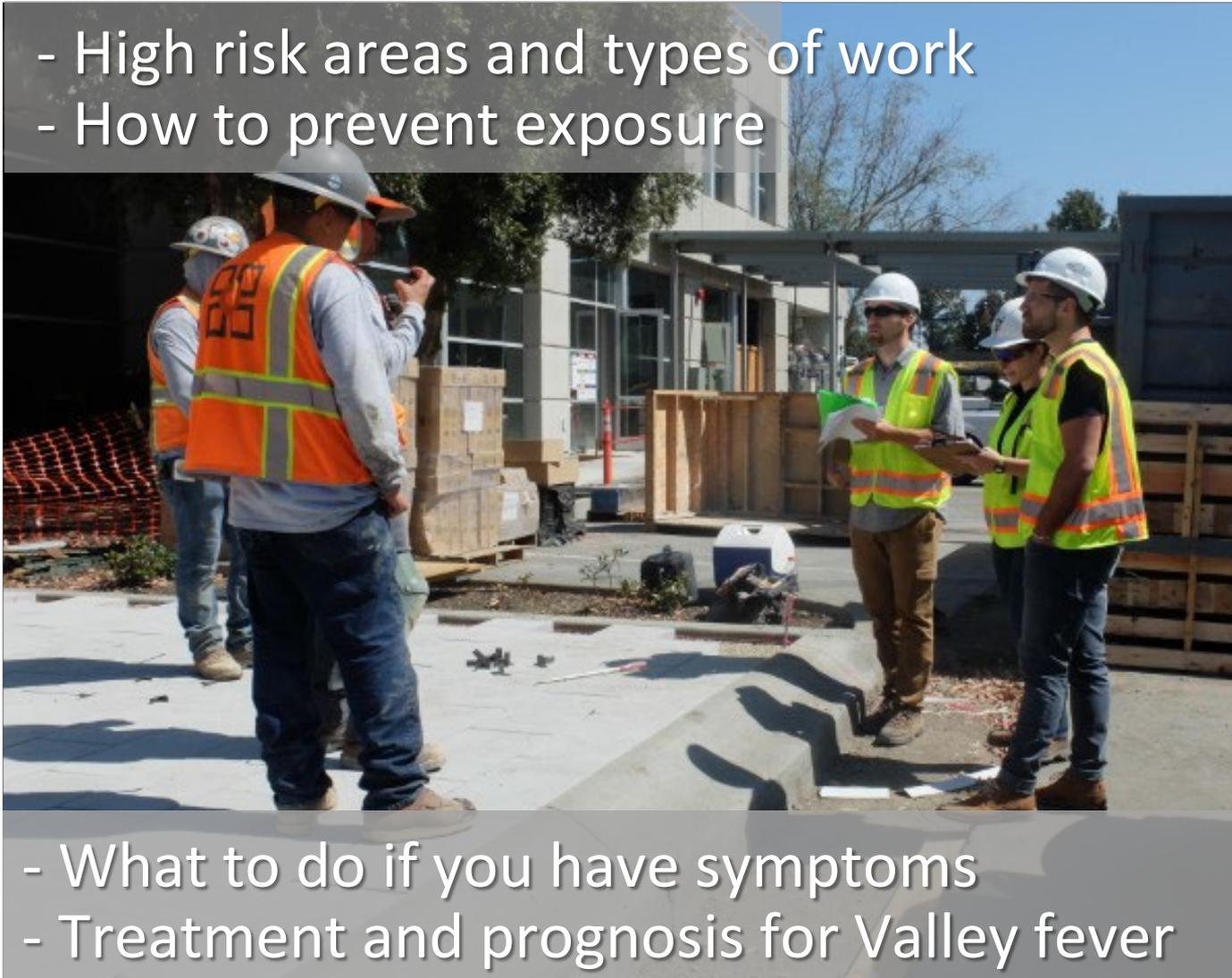
# Training content required by AB 203

- Valley fever—What it is, how you get it
- Groups at greater risk of severe illness
- Symptoms
- Importance of early detection and care



# AB 203 required training, con't.

- High risk areas and types of work
- How to prevent exposure



- What to do if you have symptoms
- Treatment and prognosis for Valley fever

# CDPH tailgate training guide

- Covers 8 required training areas
- Interactive, easy to use
- Valley fever prevention resources



California Department of Public Health

Search this site

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Home | Programs | Center for Infectious Diseases | Division of Communicable Disease Control | Coccidioidomycosis (Valley Fever)

## COCCIDIOIDOMYCOSIS (VALLEY FEVER)

VALLEY FEVER IS ON THE RISE IN CALIFORNIA

COULDBEVALLEYFEVER.ORG

[www.cdph.ca.gov/workrelatedvalleyfever](http://www.cdph.ca.gov/workrelatedvalleyfever)

# Preventing "take-home" dust

Taking contamination offsite exposes workers & others



Wash-up station

- Provide clean area to wash up (showers if possible)
- Require change of clothing
- Provide boot cleaning stations
- Wet-clean tools and equipment



# What should workers do if they're sick?

- Inform supervisors
- Get medical evaluation
  - Tell doctor about your work duties and if you think it might be Valley fever
- File workers' compensation claim



# What should employers do if workers become ill?

Refer sick workers to physicians familiar with Valley fever

Track illnesses on

- Employers' Report of Occupational Injury or Illness (5020)
- OSHA 300 logs



# Work-related Valley fever training and prevention resources

- Valley fever website  
[www.cdph.ca.gov/workrelatedvalleyfever](http://www.cdph.ca.gov/workrelatedvalleyfever)
- Tailgate training guide
- Fact sheet
- Free online continuing education course for health care providers
- CDPH Valley fever web page  
[www.cdph.ca.gov/valleyfever](http://www.cdph.ca.gov/valleyfever)

**Preventing Work-Related Coccidioidomycosis (Valley Fever)**

Valley Fever is an illness that usually affects the lungs. It is caused by the fungus *Coccidioides immitis* that lives in soil in many parts of California. When soil containing the fungus is disturbed by digging, vehicles, or by the wind, the fungal spores get into the air. When people breathe the spores into their lungs, they may get Valley Fever.

**Is Valley Fever a serious concern in California? YES!**

Often people can be infected and not have any symptoms. In some cases, however, a serious illness can develop which can cause a previously healthy individual to miss work, have long-lasting and disabling health problems, or even result in death.

This fact sheet describes actions employers can take to prevent workers from getting Valley Fever and to respond appropriately if an employee does become ill.



➤ In October 2007, a construction crew excavated a trench for a new water pipe. Within three weeks, 10 of 12 crew members developed coccidioidomycosis (Valley Fever), an illness with pneumonia and flu-like symptoms. Seven of the 10 had abnormal chest x-rays, four had rashes, and one had an infection that had spread beyond his lungs and affected his skin. Over the next few months, the 10 ill crew members missed at least 1650 hours of work and two workers were on disability for at least five months.

**FACT SHEET**  
**HESIS**

HAZARD EVALUATION SYSTEM & INFORMATION SERVICE  
California Department of Public Health, Occupational Health Branch  
505 Marina Bay Parkway, Building 2, 2nd Floor, Richmond, CA 94804  
510 420-5157 • [www.cdph.ca.gov/program/oh](http://www.cdph.ca.gov/program/oh)

www.cdph.ca.gov  
California Department of Public Health • California Department of Industrial Relations

# English and Spanish posters

## VALLEY FEVER

Coccidioidomycosis or "cocci"

**Do you work outdoors?  
Have you had a cough, fever, or painful breathing for more than two weeks?**

**REPORT SYMPTOMS TO YOUR EMPLOYER  
AND SEE A DOCTOR ABOUT VALLEY FEVER**

Valley Fever is caused by a fungus that lives in soil or dirt in some areas of California. You can get it by breathing in dust where the fungus grows.

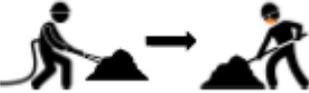
**ANYONE** can get Valley Fever. Even healthy people. People who work outdoors in dirt or dusty areas where the Valley Fever fungus grows may be at more risk of getting sick, especially those who do activities such as:

- Digging
- Truck driving
- Construction work
- Operating heavy machinery



**If you work outdoors in such areas:**

- Stay upwind of dirt disturbance
- Wet soil before digging
- Wear a respirator or
- Ask your employer about other ways to keep dust down



For more information, visit <http://bit.ly/ValleyFeverWork> or call the CDPH Workplace Hazard Helpline (866) 282-5516

## FIEBRE DEL VALLE

coccidioidomycosis o "cocci"

**¿Trabaja al aire libre?  
¿Ha tenido tos, fiebre o dolor al respirar por más de dos semanas?**

**INFORME A SU EMPLEADOR SOBRE CUALQUIER SÍNTOMA  
Y CONSULTE A SU DOCTOR SOBRE LA FIEBRE DEL VALLE**

La Fiebre del Valle es causada por un hongo que vive en el suelo o la tierra de ciertas zonas de California. Usted la puede contraer al respirar polvo donde crece el hongo.

**CUALQUIERA** puede contraer la Fiebre del Valle. Aun las personas sanas.

Las personas que trabajan al aire libre en la tierra o las zonas polvorientas donde crece el hongo de la Fiebre del Valle pueden correr mayor riesgo de infectarse, especialmente si hacen actividades como:

- Excavar
- Conducir camiones
- Trabajar en la construcción
- Operar maquinaria pesada



**Si trabaja al aire libre en estas áreas:**

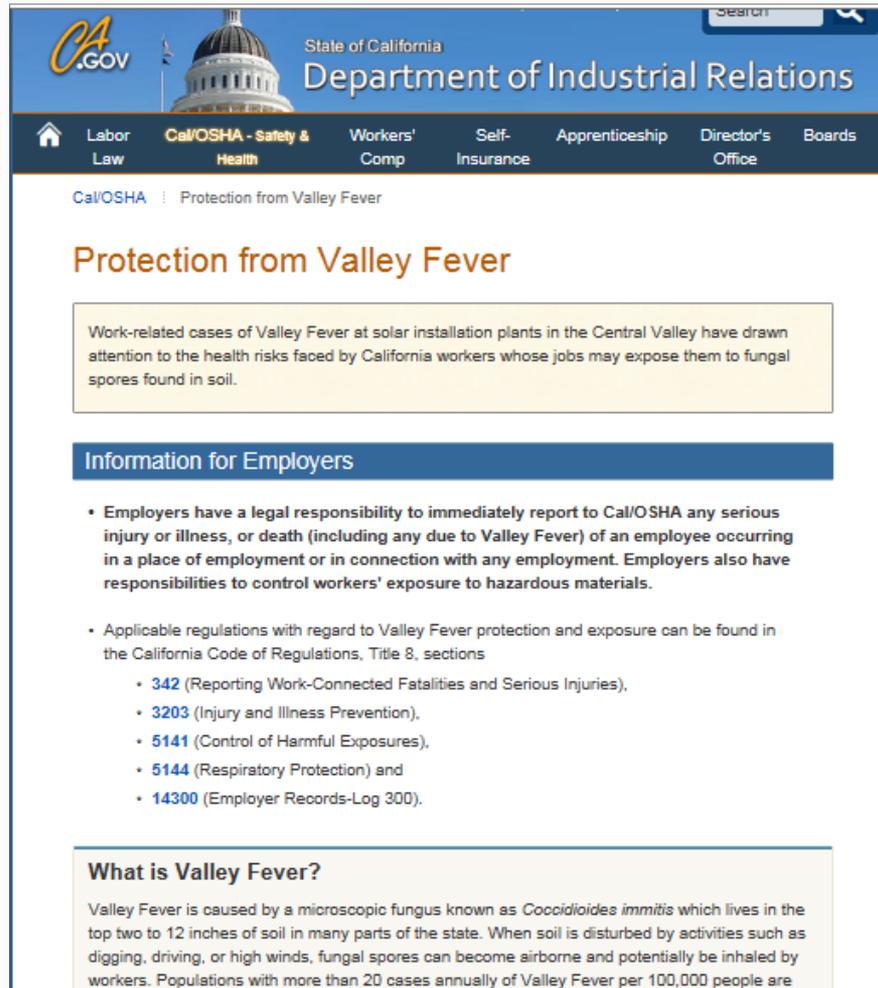
- Manténganse alejado del viento de donde se altera la tierra
- Moje la tierra antes de excavar
- Use una mascarilla (un respirador) o
- Pregunte a su empleador sobre otras formas de reducir el polvo



Para más información, visite (en inglés): <http://bit.ly/ValleyFeverWork> o llame a la línea de ayuda de riesgos laborales (866) 282-5516

Departamento de Salud Pública de California  
[www.cdph.ca.gov](http://www.cdph.ca.gov)

# Cal/OSHA Valley fever web page has important guidance



The screenshot shows the Cal/OSHA website page for Valley Fever protection. The header includes the State of California Department of Industrial Relations logo and a search bar. The main navigation menu includes Labor Law, Cal/OSHA - Safety & Health, Workers' Comp, Self-Insurance, Apprenticeship, Director's Office, and Boards. The page title is "Cal/OSHA : Protection from Valley Fever". The main heading is "Protection from Valley Fever". A text box states: "Work-related cases of Valley Fever at solar installation plants in the Central Valley have drawn attention to the health risks faced by California workers whose jobs may expose them to fungal spores found in soil." Below this is a section titled "Information for Employers" with two bullet points: "Employers have a legal responsibility to immediately report to Cal/OSHA any serious injury or illness, or death (including any due to Valley Fever) of an employee occurring in a place of employment or in connection with any employment. Employers also have responsibilities to control workers' exposure to hazardous materials." and "Applicable regulations with regard to Valley Fever protection and exposure can be found in the California Code of Regulations, Title 8, sections" followed by a list of sections: 342 (Reporting Work-Connected Fatalities and Serious Injuries), 3203 (Injury and Illness Prevention), 5141 (Control of Harmful Exposures), 5144 (Respiratory Protection) and 14300 (Employer Records-Log 300). At the bottom is a section titled "What is Valley Fever?" with text: "Valley Fever is caused by a microscopic fungus known as *Coccidioides immitis* which lives in the top two to 12 inches of soil in many parts of the state. When soil is disturbed by activities such as digging, driving, or high winds, fungal spores can become airborne and potentially be inhaled by workers. Populations with more than 20 cases annually of Valley Fever per 100,000 people are

[www.dir.ca.gov/dosh/valley-fever-home.html](http://www.dir.ca.gov/dosh/valley-fever-home.html)



# Summary

- Valley fever can be serious and cause permanent harm
- Exposure to spores in dust and soil puts workers at risk
  - Public jobs may also pose a risk



Photo: Workers dig a trench to replace a pipe



# Valley fever is preventable

- Plan for Valley fever ahead of jobs in endemic areas
- Train supervisors, employees, & subcontractors
- Minimize soil disturbance & dust generation
- Control exposures
- Stop work to increase protection when necessary
- Get any workers with symptoms a medical evaluation



# Stay in touch with OHB

- Work-related Valley fever website  
[www.cdph.ca.gov/workrelatedvalleyfever](http://www.cdph.ca.gov/workrelatedvalleyfever)
- Workplace Hazard Helpline (866) 282-5516  
Toll-free in California
- OHB website [www.cdph.ca.gov/OHB](http://www.cdph.ca.gov/OHB)
- Sign up for monthly e-newsletter  
<http://bit.ly/SubscribeOHW>



# CDPH publications

Occupational coccidioidomycosis in California: Outbreak investigation, respirator recommendations, and surveillance findings. *JOEM*, 2012

Coccidioidomycosis Among Cast and Crew Members at an Outdoor Television Filming Event. *MMWR (Morb Mortal Wkly Rep)*, 2014

Coccidioidomycosis among workers construction solar power farms, California, USA, 2011-2014. *Emerg Inf Dis*, 2015

Dust exposure and coccidioidomycosis prevention among solar farm construction. *Am Journal of Public Health*, 2017

Coccidioidomycosis outbreak among workers constructing a solar power farm—Monterey County, California, 2016-2017. *MMWR*, 2018

Epidemiologic Summary of Coccidioidomycosis in California, 2018. CDPH, 2019.

[www.cdph.ca.gov/Programs/CID/DCDC/CDPH%20Document%20Library/CocciEpiSummary2018.pdf](http://www.cdph.ca.gov/Programs/CID/DCDC/CDPH%20Document%20Library/CocciEpiSummary2018.pdf)

*Full journal references available upon request.*



# Thank You

- Sedgwick
- Occupational Health Branch staff
- Infectious Diseases Branch, CDPH
- California Conference of Local Health Officers
- California local public health departments and communicable disease coordinators
- California Division of Occupational Safety and Health (Cal/OSHA)