

Preventing Valley Fever in Outdoor Workers



February 11, 2020

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California Department of Public Health



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



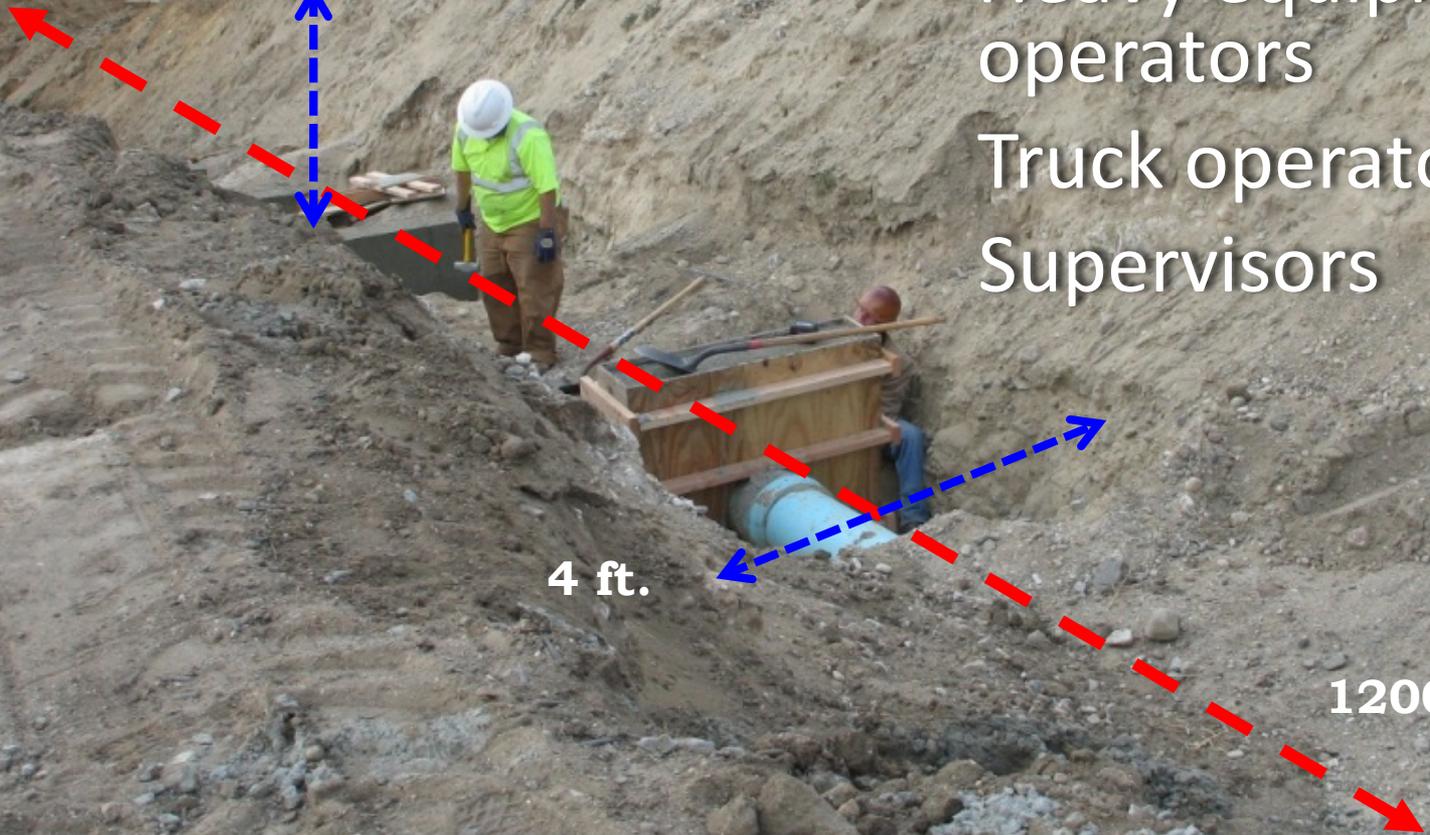
2-5 ft.



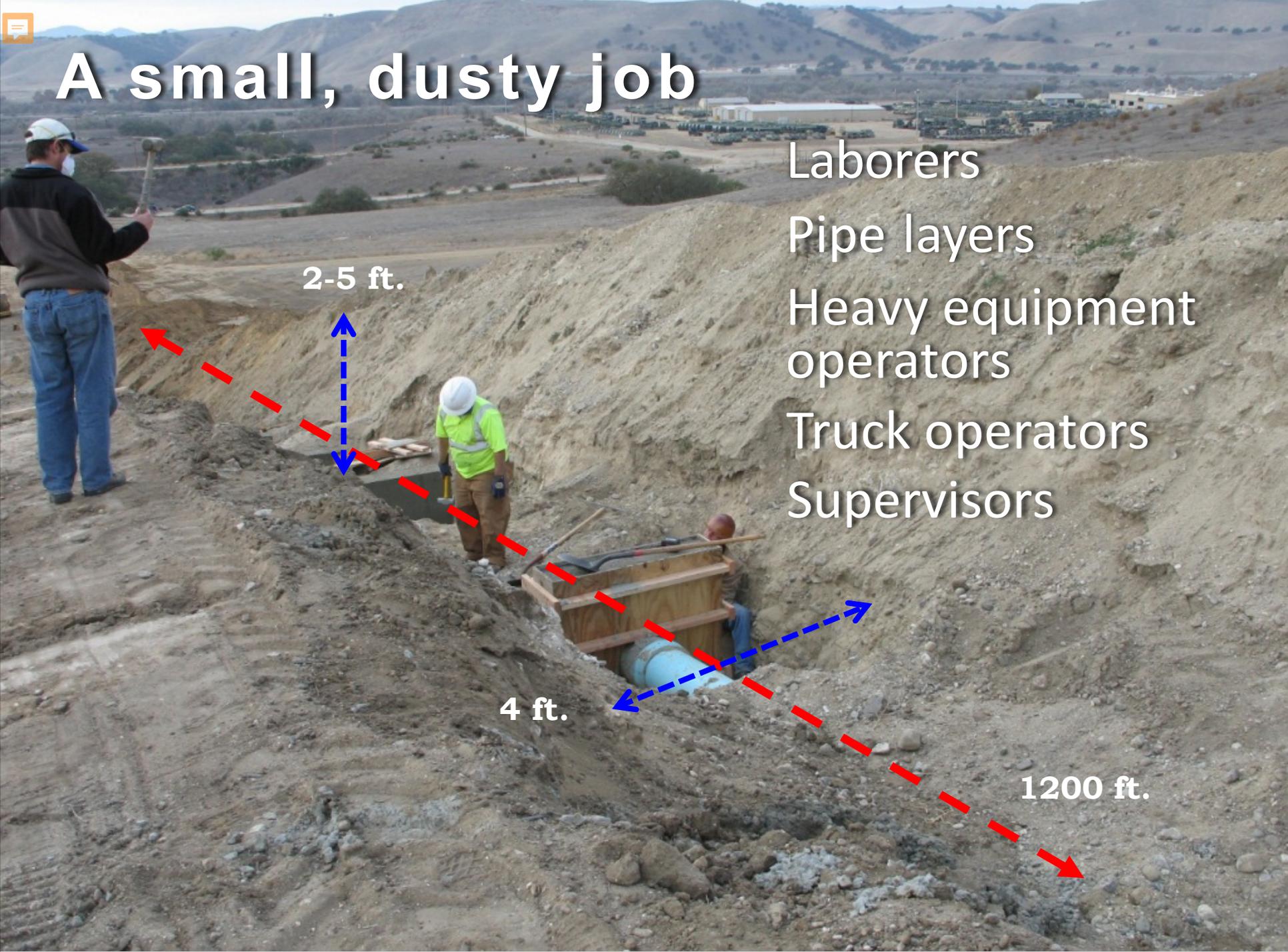
4 ft.



1200 ft.



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





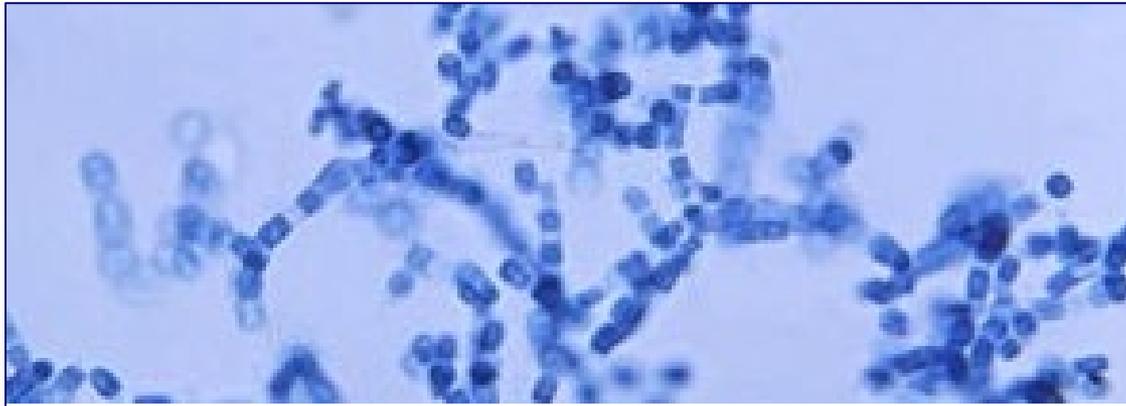
10 of 12 workers sick with Valley fever!

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



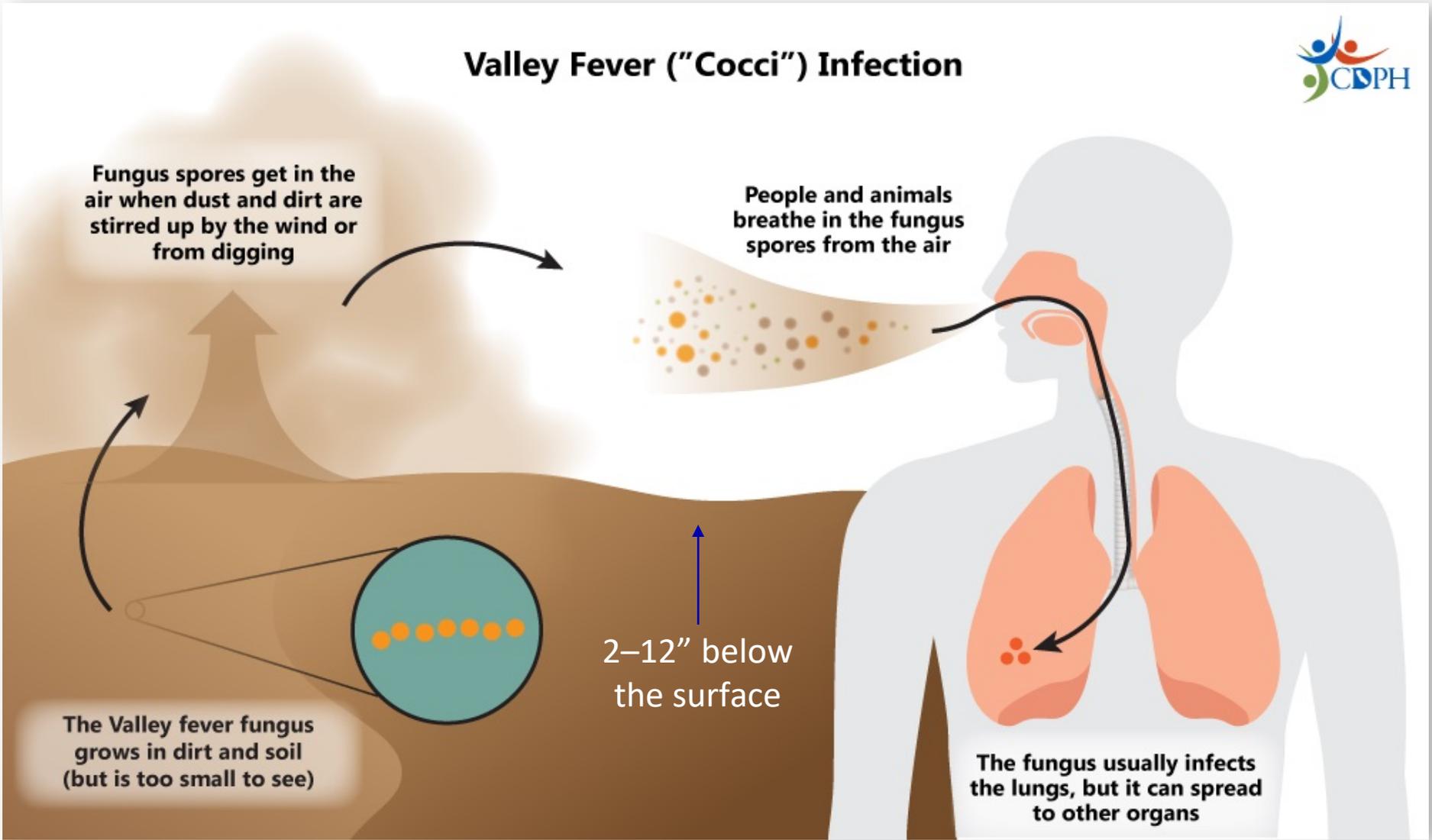
Fungus spores get in the air when dust and dirt are stirred up by the wind or from digging

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





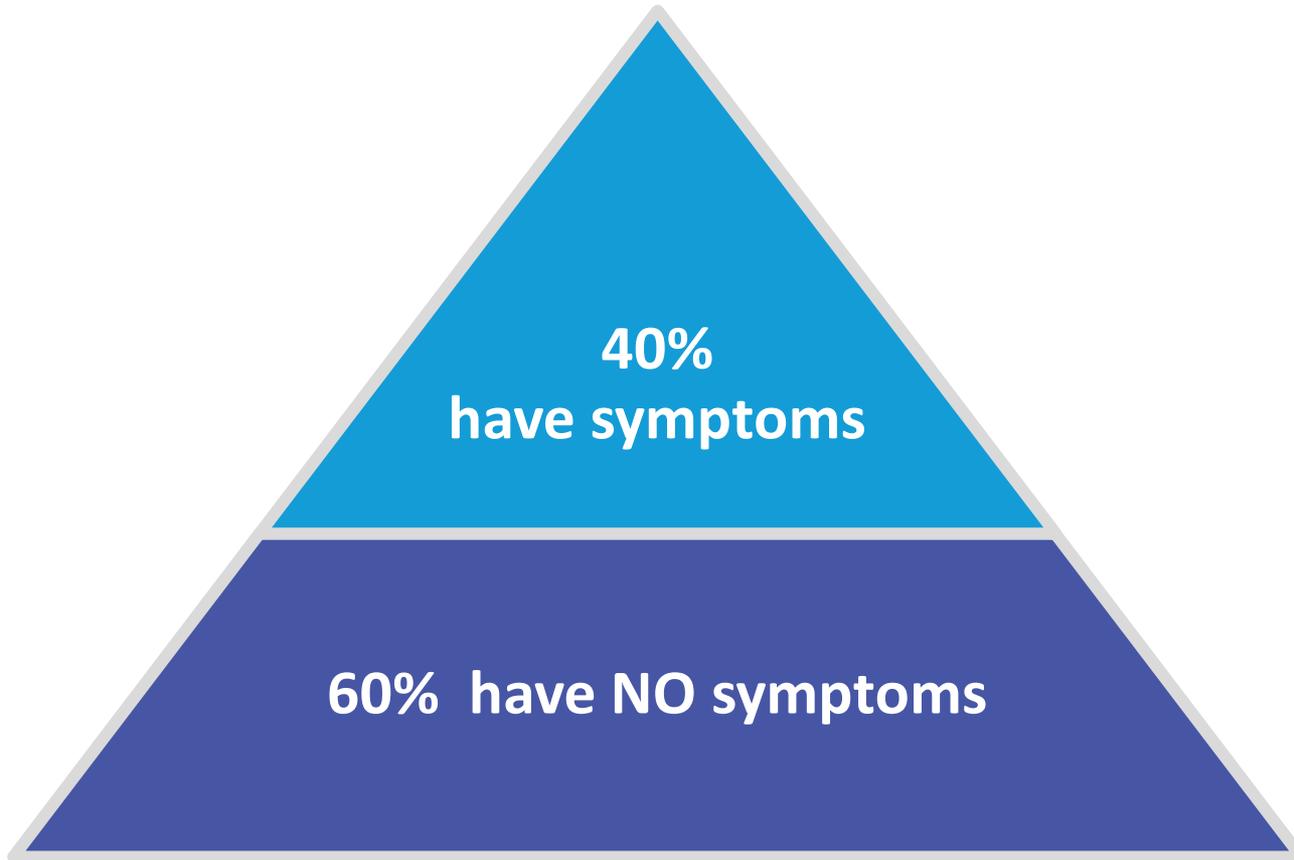
Valley fever symptoms

- 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

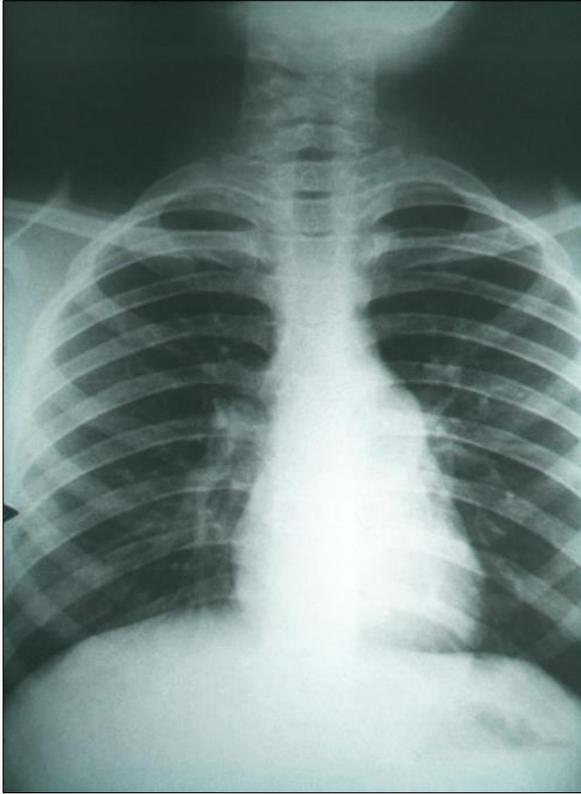
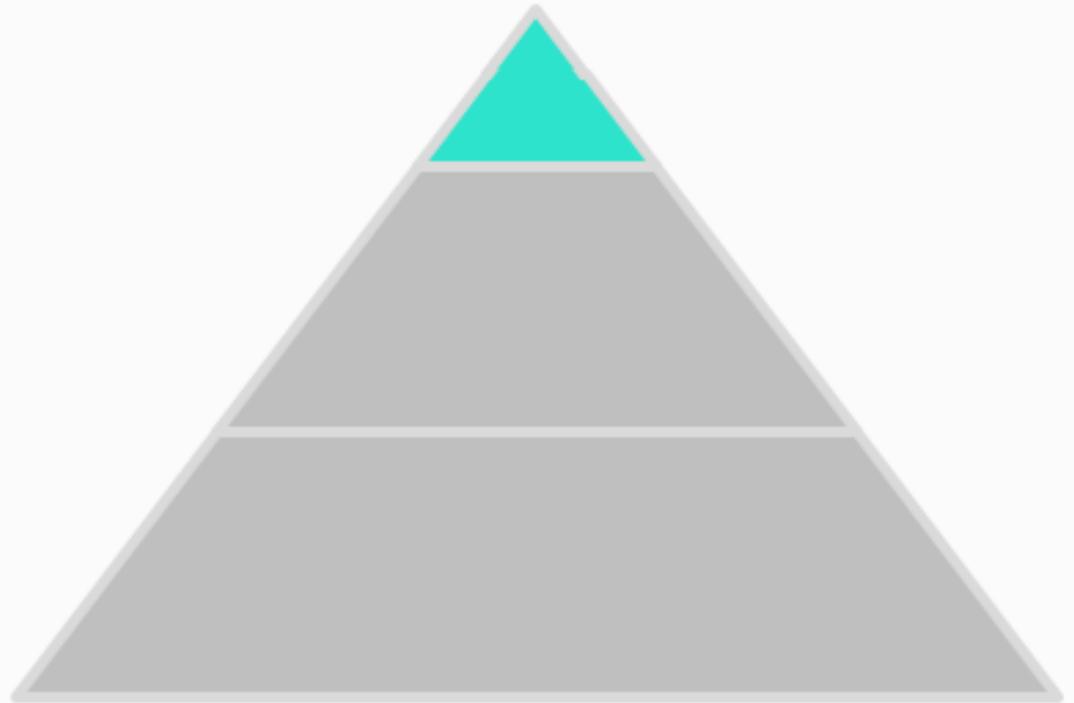


Photo: CDC/ Dr. Lucille K. Georg

5–10%:
Pneumonia, chronic lung infection

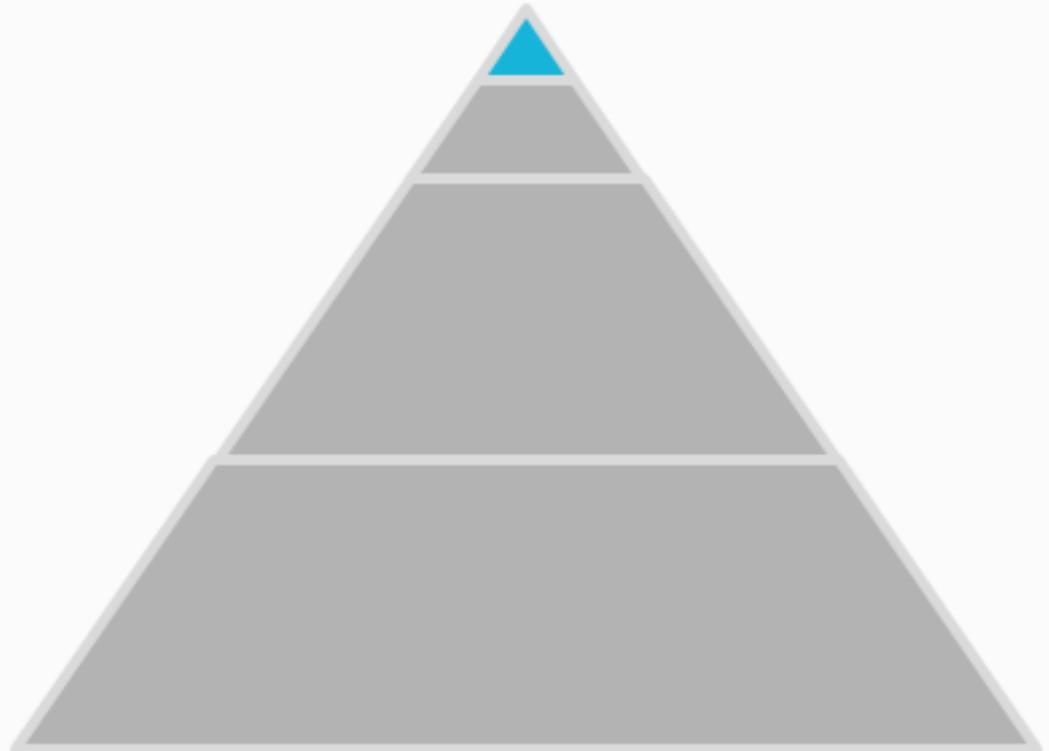


Very severe Valley fever illness



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

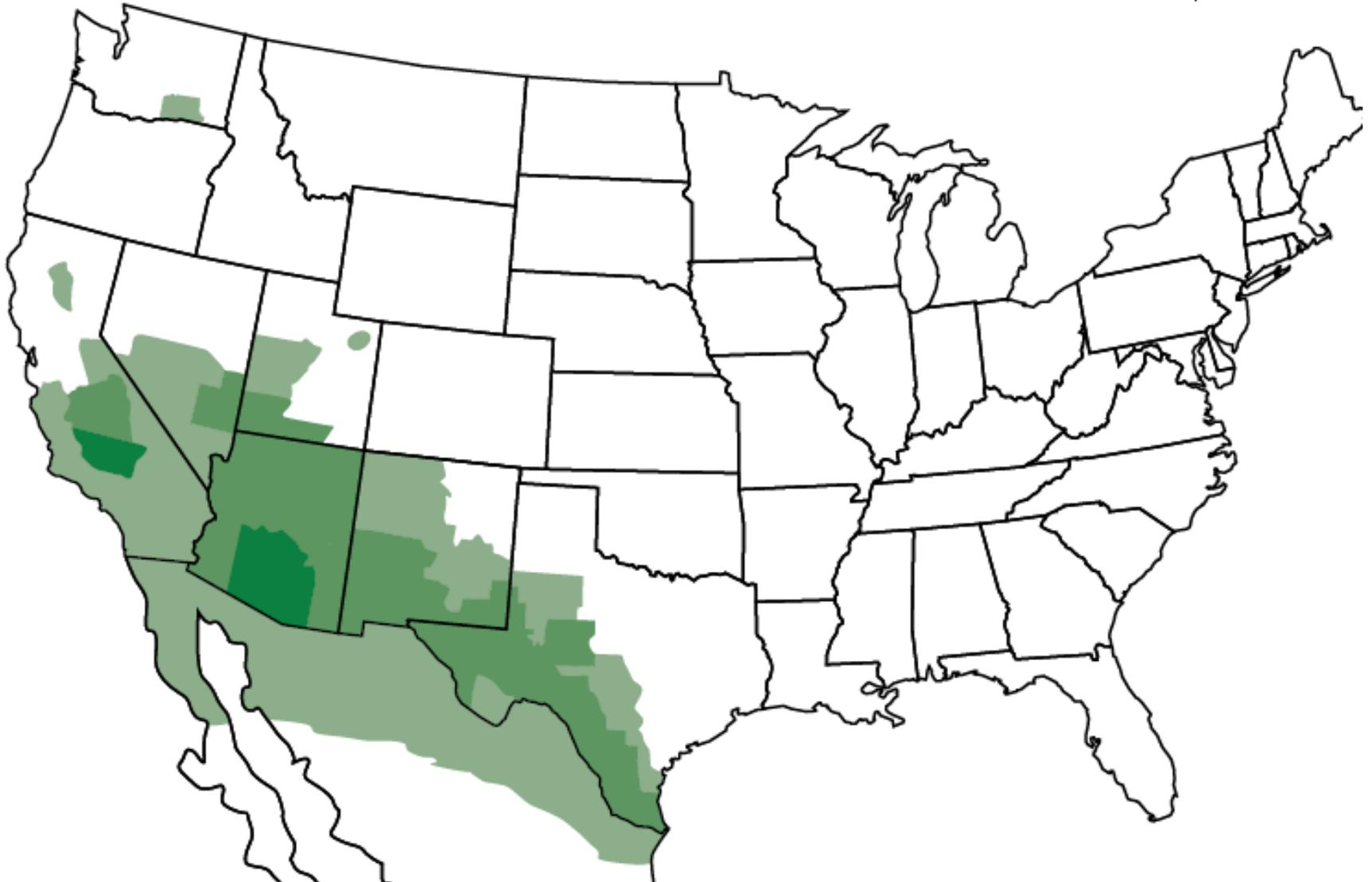
Anyone exposed can develop severe disease

Diagnosing Valley fever



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

Where is the fungus that causes Valley fever?

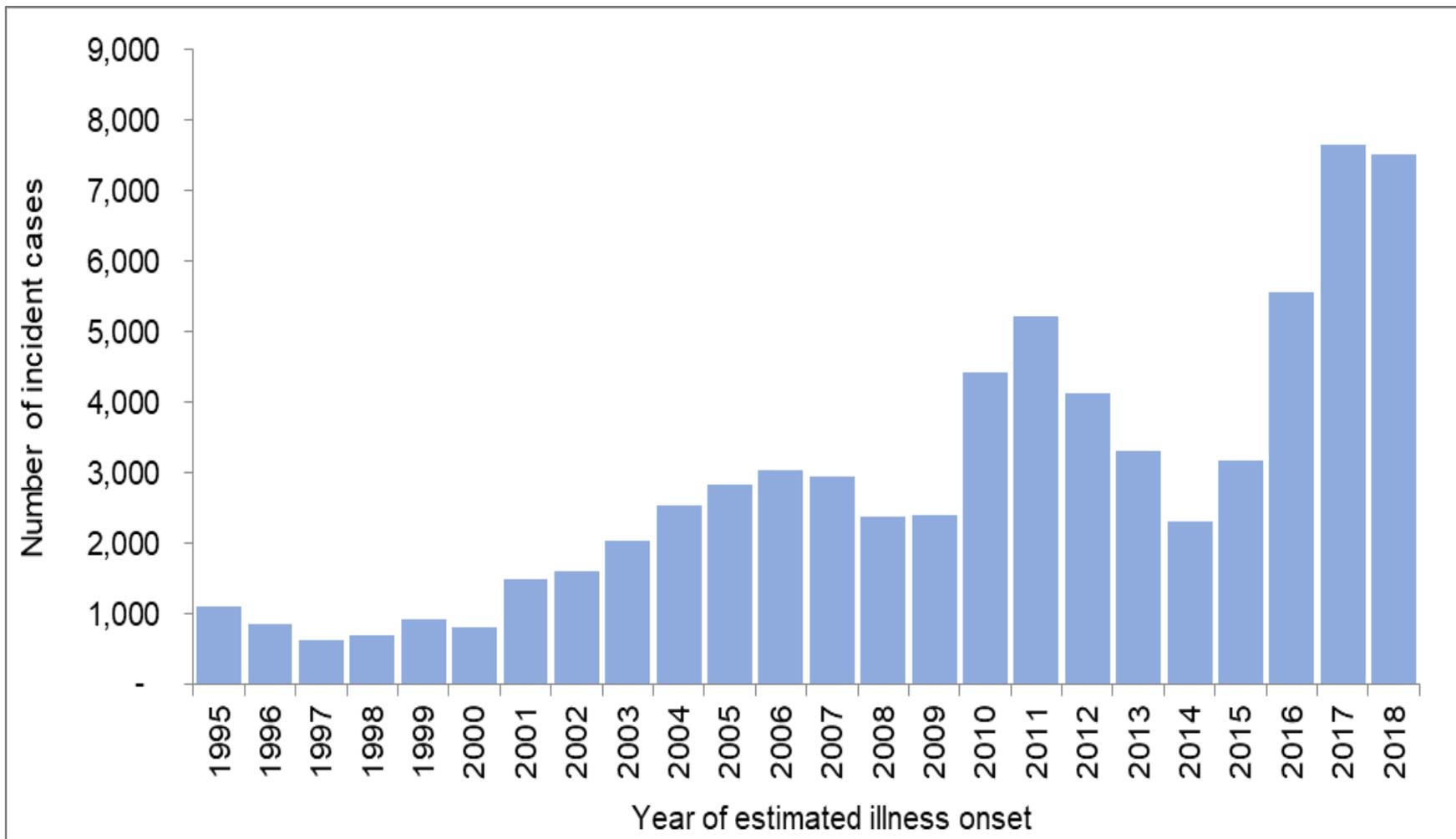


No effective way to test for the fungus ahead of time

- 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

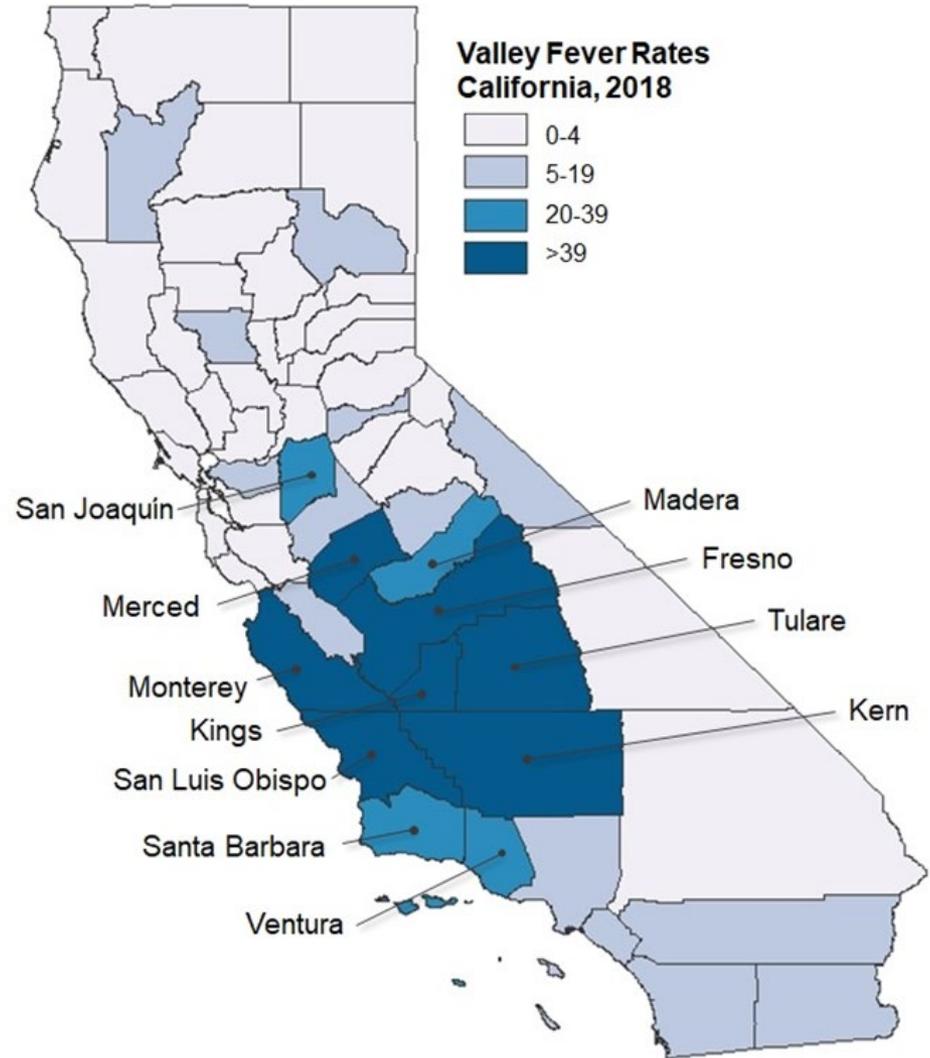
- Drought, climate, and environment
- Increase in population in areas where the fungus is common
- Construction and other dust-generating activities





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

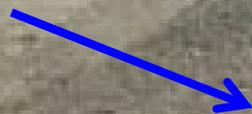


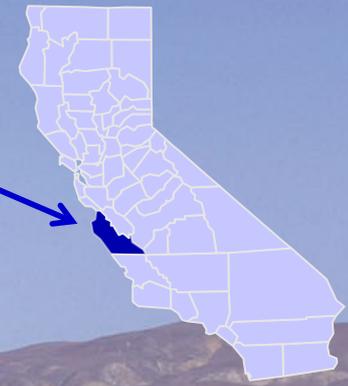
Photo: San Luis Obispo County Planning Department



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

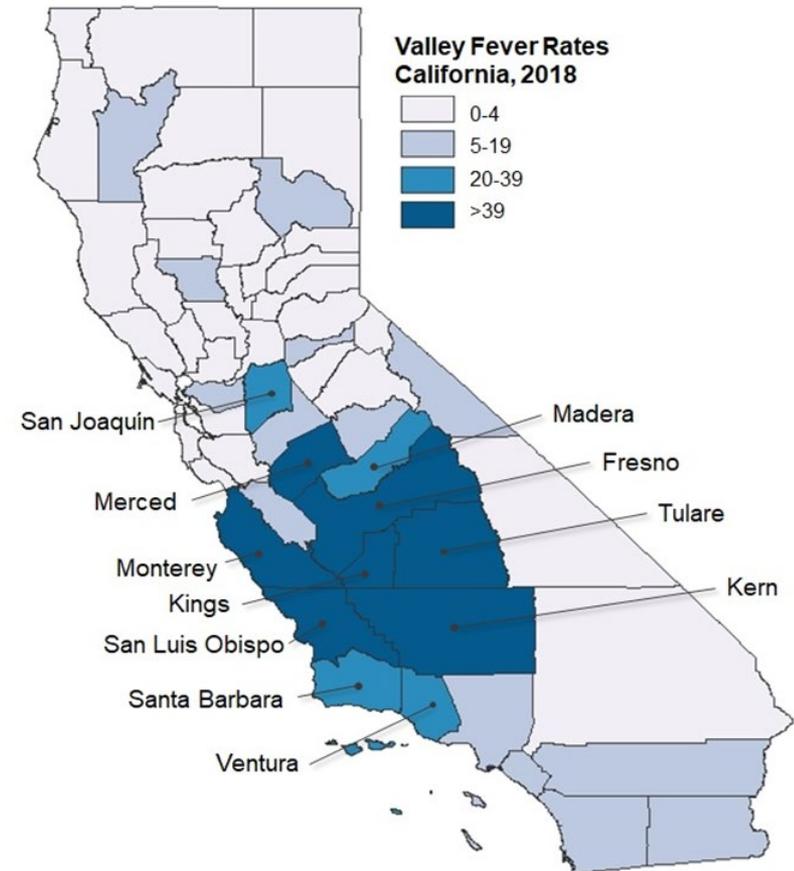


Plan ahead for Valley fever

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

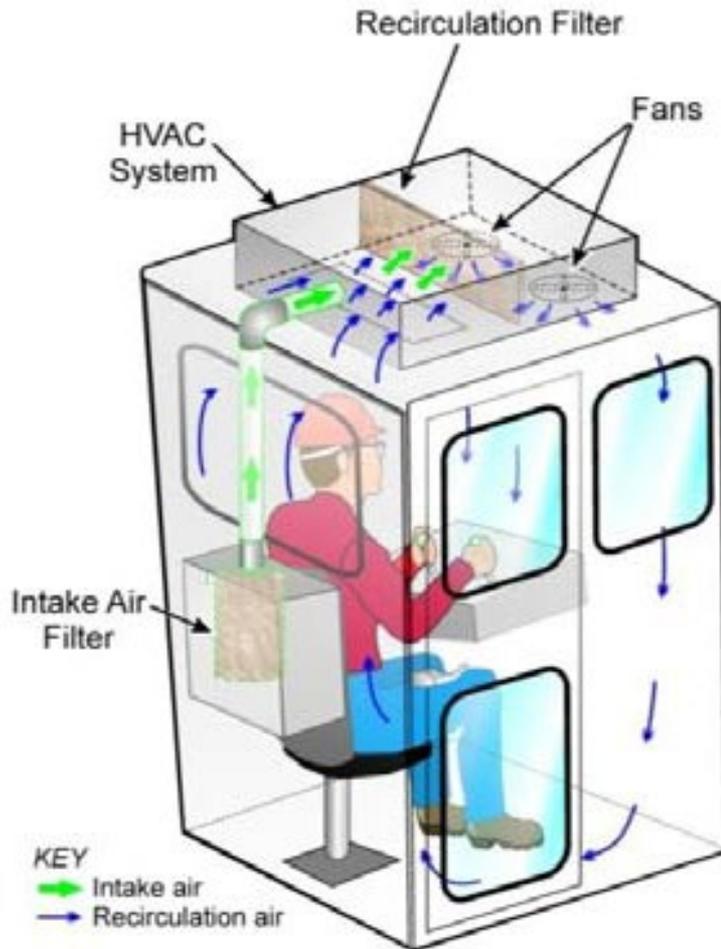
- Cover bare soil with vegetation, tarps, etc.
- Stay upwind of digging

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

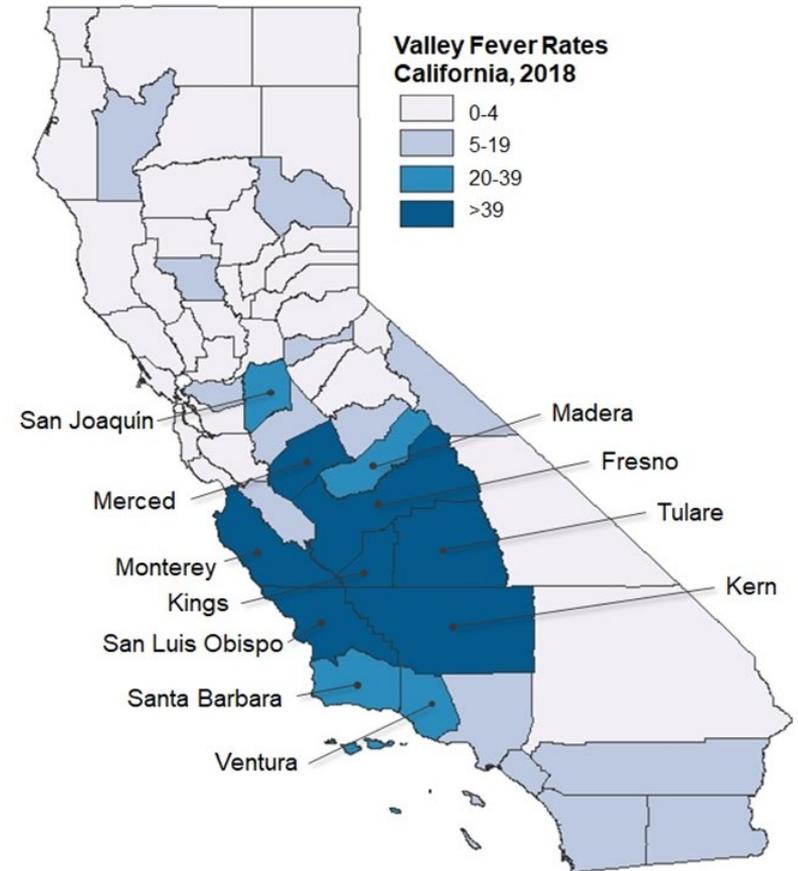
- supervisors
- employees
- subcontractors



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**



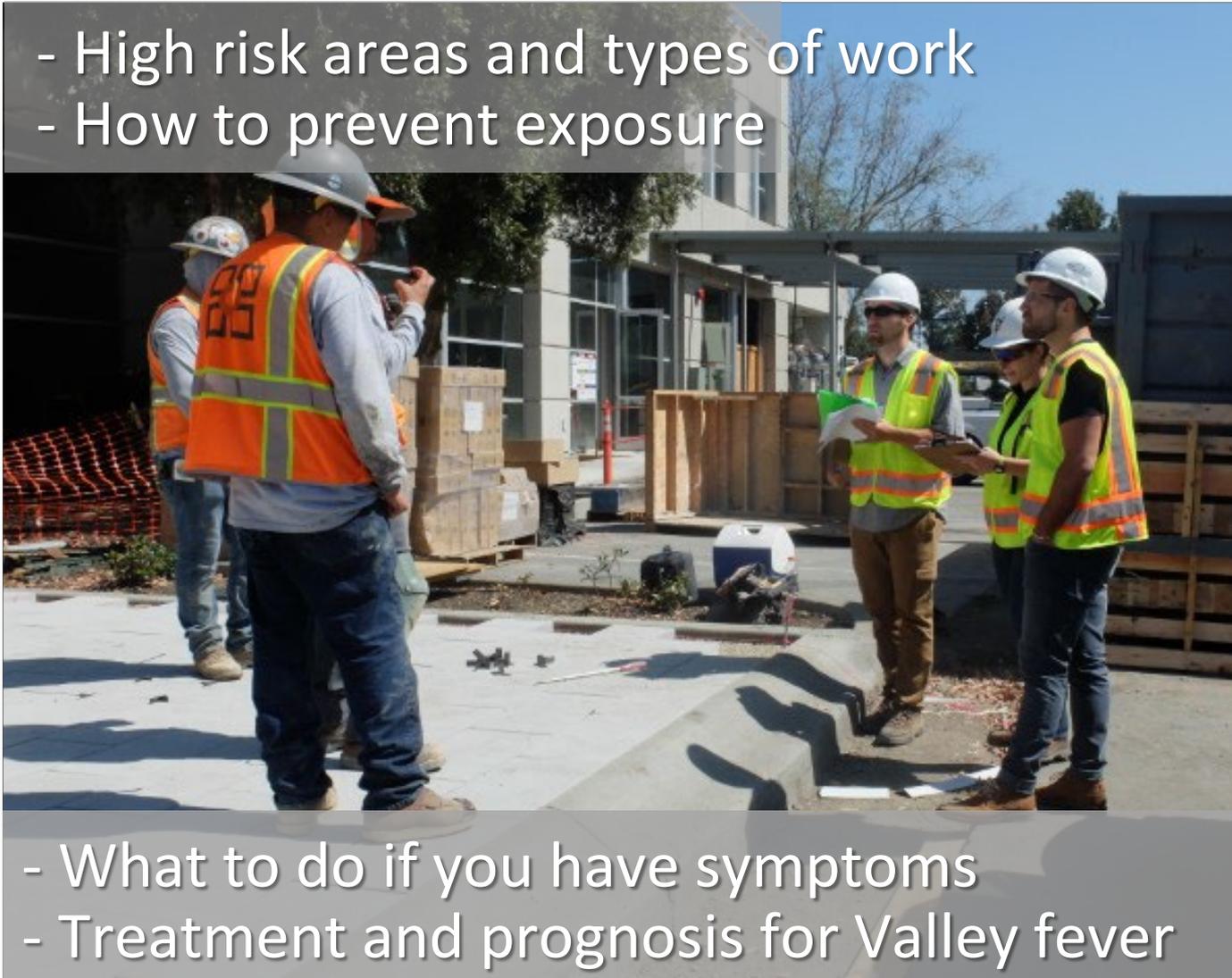
Training content required by AB 203

- 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

I am looking for | I am a | Programs | A-Z Index

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

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
- Tailgate training guide
- Fact sheet
- Free online continuing education course for health care providers
- CDPH Valley fever web page
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
555 Marina Bay Parkway, Building 2, 2nd Floor, Richmond, CA 94804
510 420-5157 • 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.

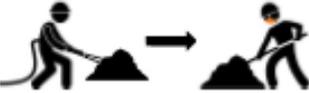
ANYONE can get Valley Fever. Even healthy people. People who work outdoors in dirt or dusty areas where the Valley Fever fungus grows may be at more risk of getting sick, especially those who do activities such as:

- 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:

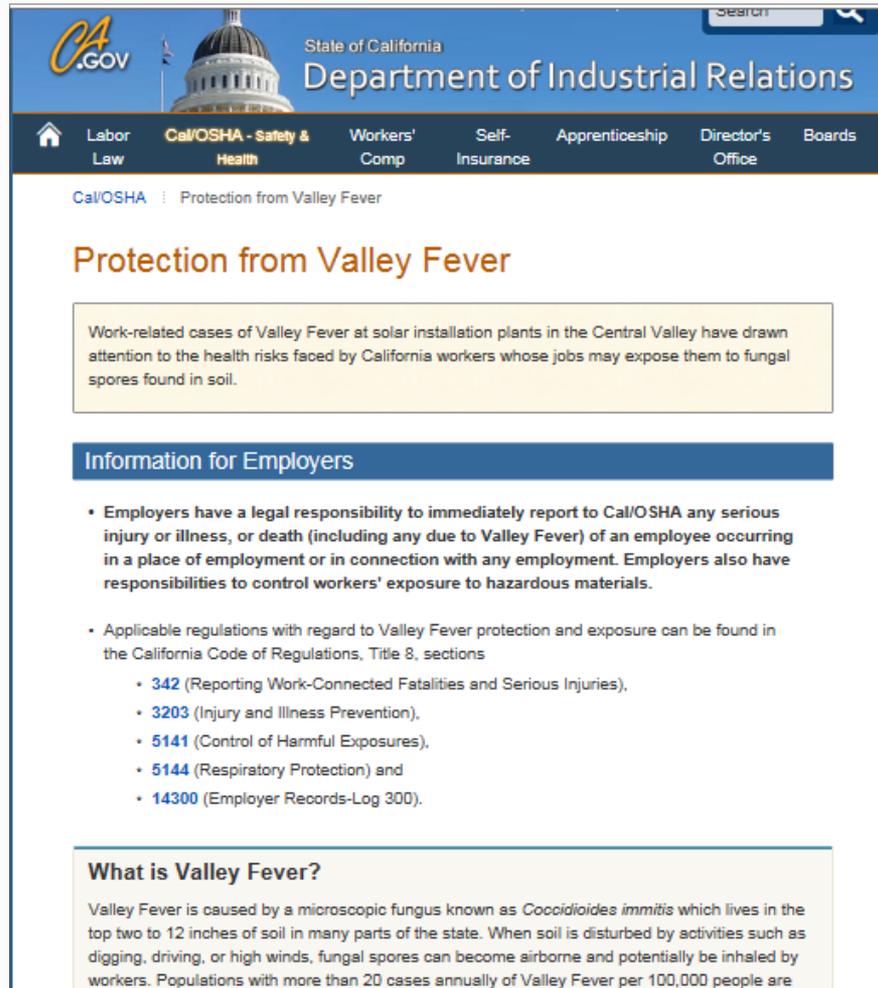
- Manténganse alejado del viento de donde se altera la tierra
- Moje la tierra antes de excavar
- Use una mascarilla (un respirador) o
- Pregunte a su empleador sobre otras formas de reducir el polvo



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

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



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
- Workplace Hazard Helpline (866) 282-5516
Toll-free in California
- OHB website 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

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)