



Preventing Valley Fever among Outdoor Workers

Jason Wilken, PhD, MPH

Environmental and Occupational Emergency Preparedness Team

Center for Healthy Communities

California Department of Public Health

California Industrial Hygiene Council

Professional Development Seminar

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A small, dusty job

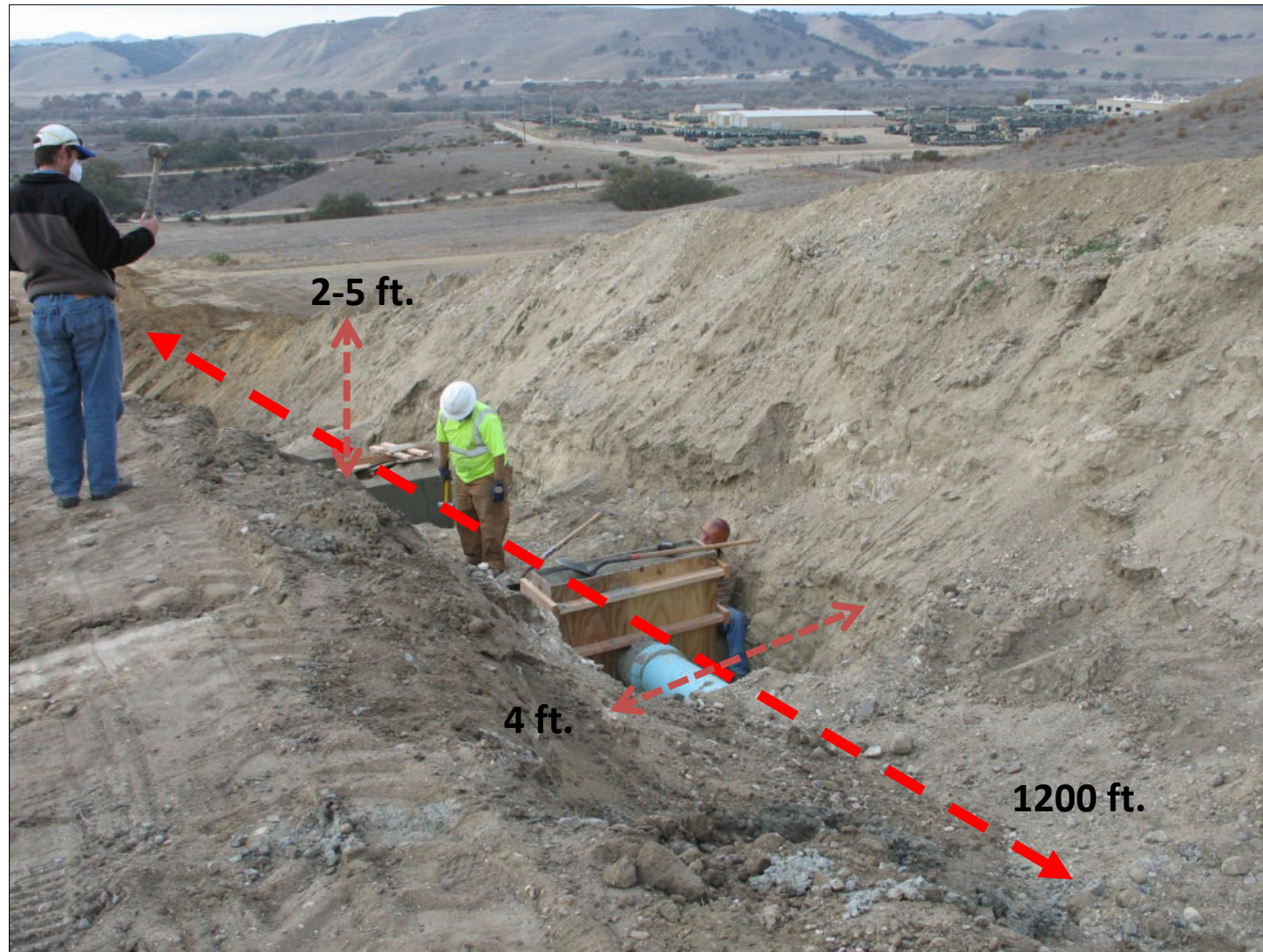


Photo credit: California Department of Public Health, Occupational Health Branch

10 of 12 workers sick with Valley fever

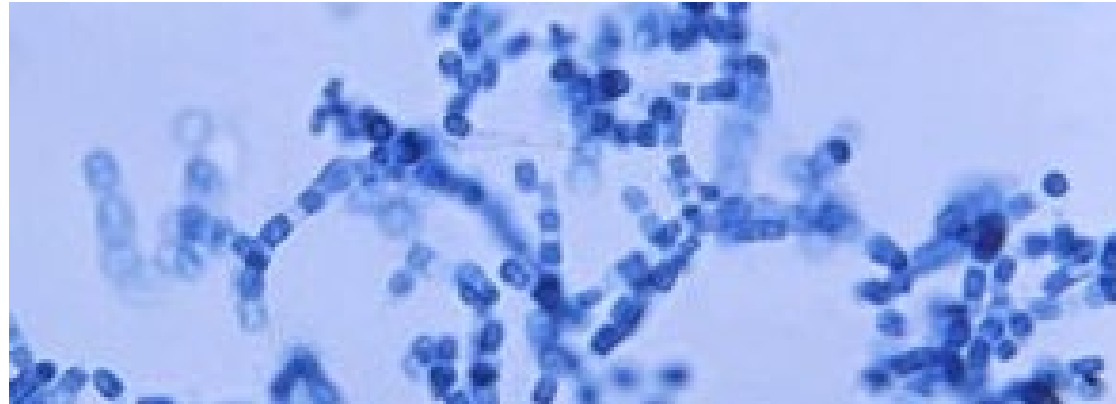


High toll of illness

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

What is Valley fever?

An infection caused by inhaling spores of the *Coccidioides* fungus

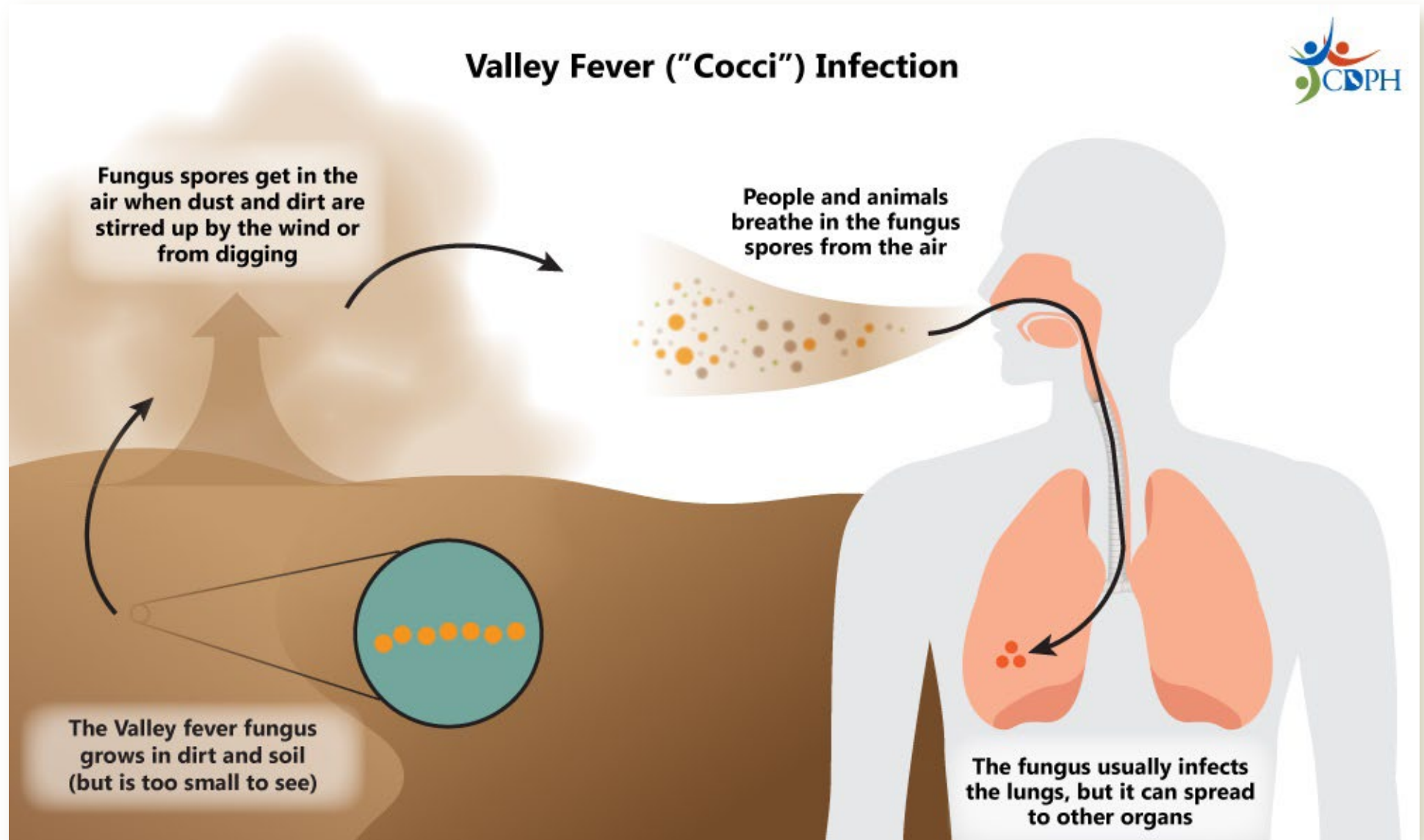


Illness also known as “coccidioidomycosis” or “cocci”

<https://www.cdc.gov/fungal/diseases/coccidioidomycosis/index.html>

<https://www.cdph.ca.gov/Programs/CID/DCDC/Pages/Coccidioidomycosis.aspx>

How people get Valley fever

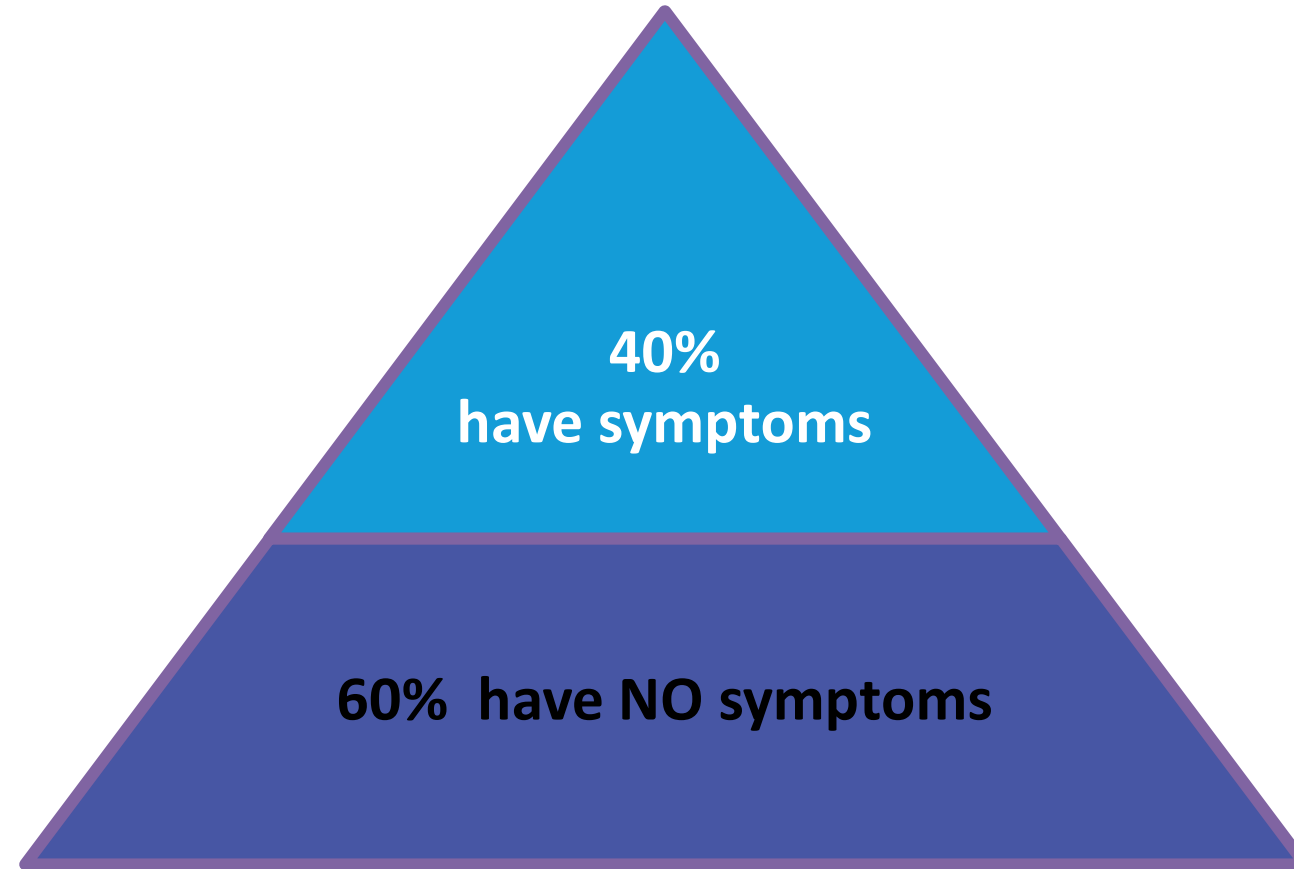


Symptoms and severity

- Usually causes respiratory illness
 - Cough, fever, fatigue, trouble breathing
 - Diagnosis can be challenging, laboratory tests (usually blood tests) needed
- Can be severe, chronic, and even fatal



Infection is often asymptomatic



Symptoms begin 1–3 weeks after exposure

Severe Valley fever illness

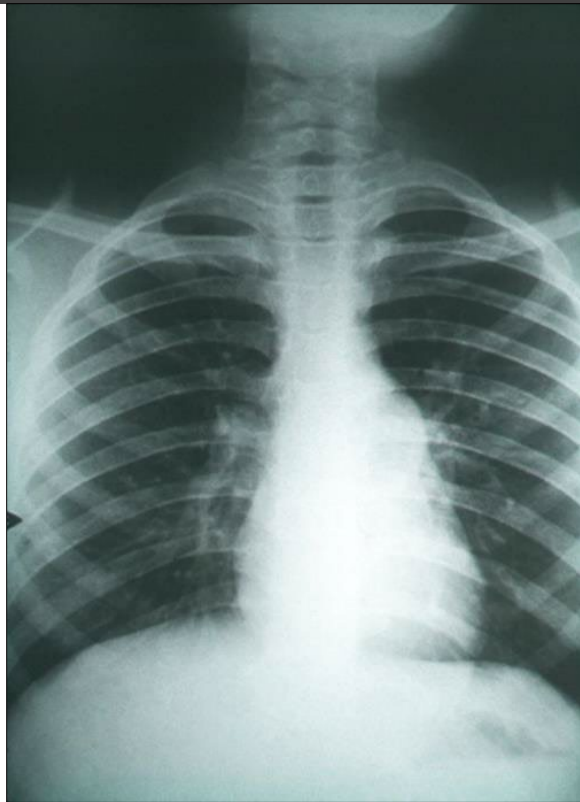
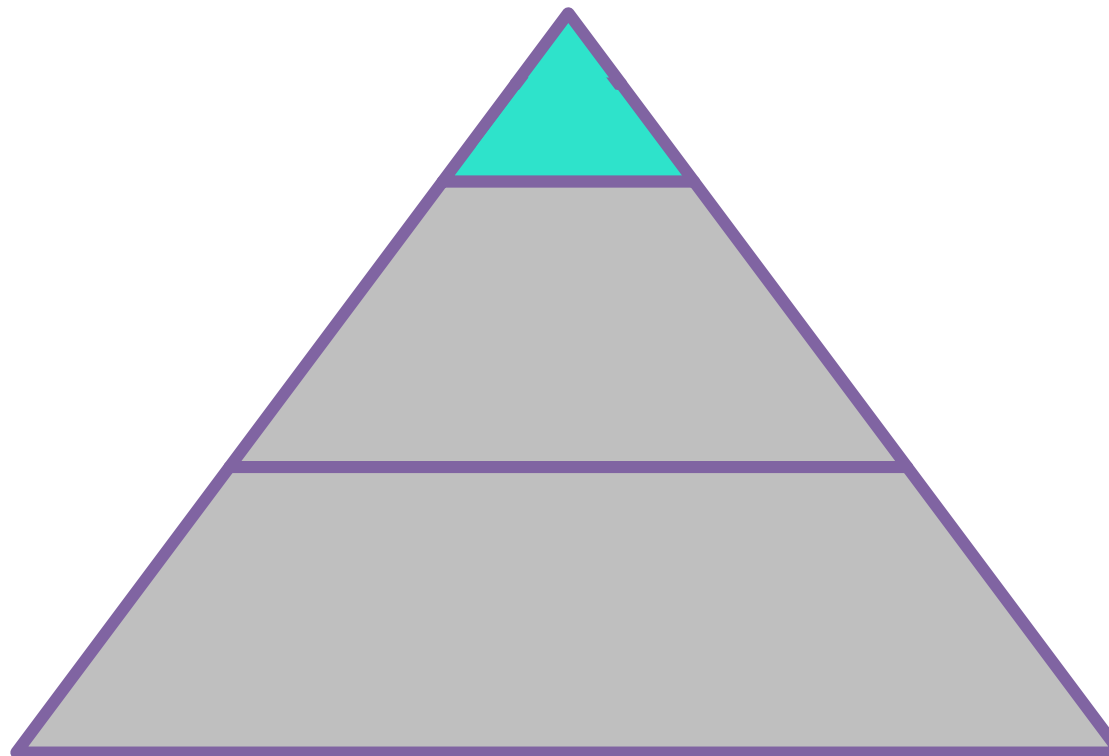


Photo: CDC/ Dr.
Lucille K. Georg



5–10%:
Pneumonia, chronic lung
infection



Disseminated Valley fever illness

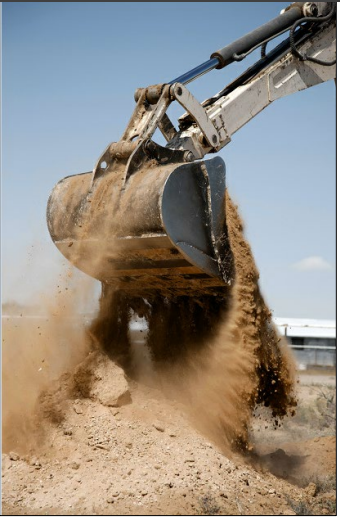
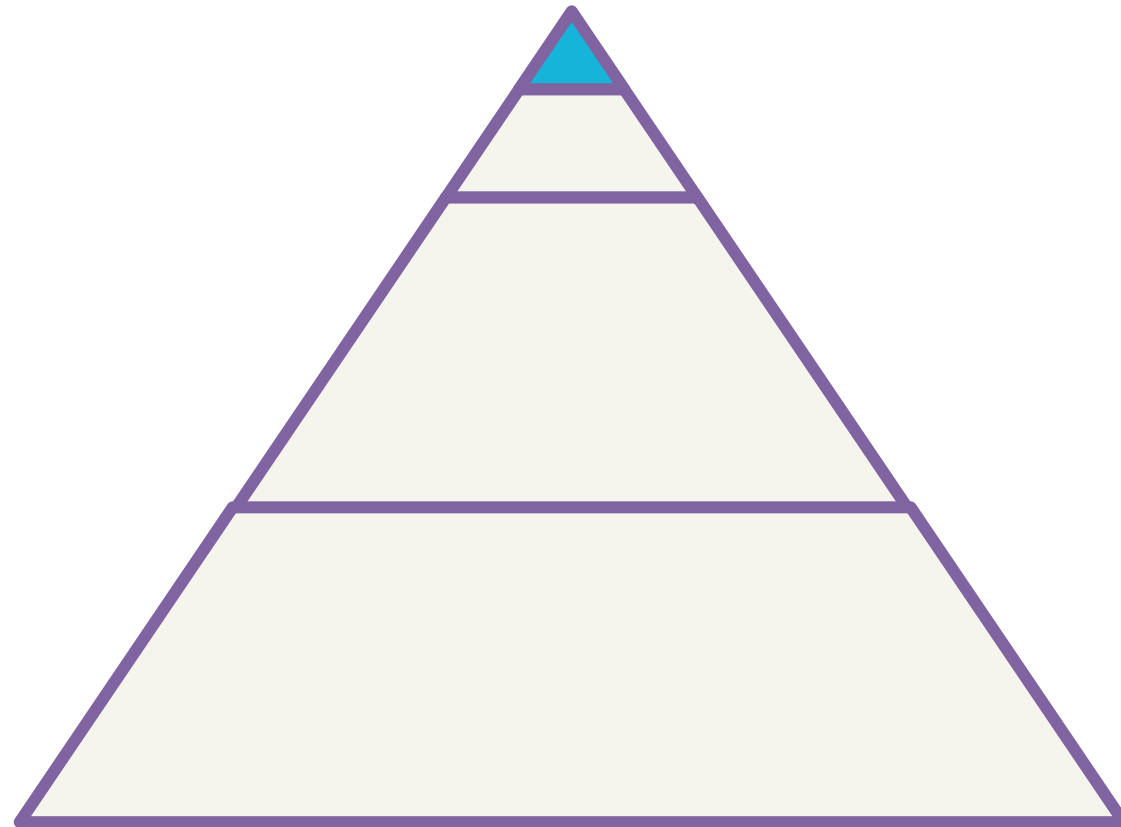


Photo: CDC/ Dr.
Lucille K. Georg



1%: Spreads outside the lungs



Who is at risk?

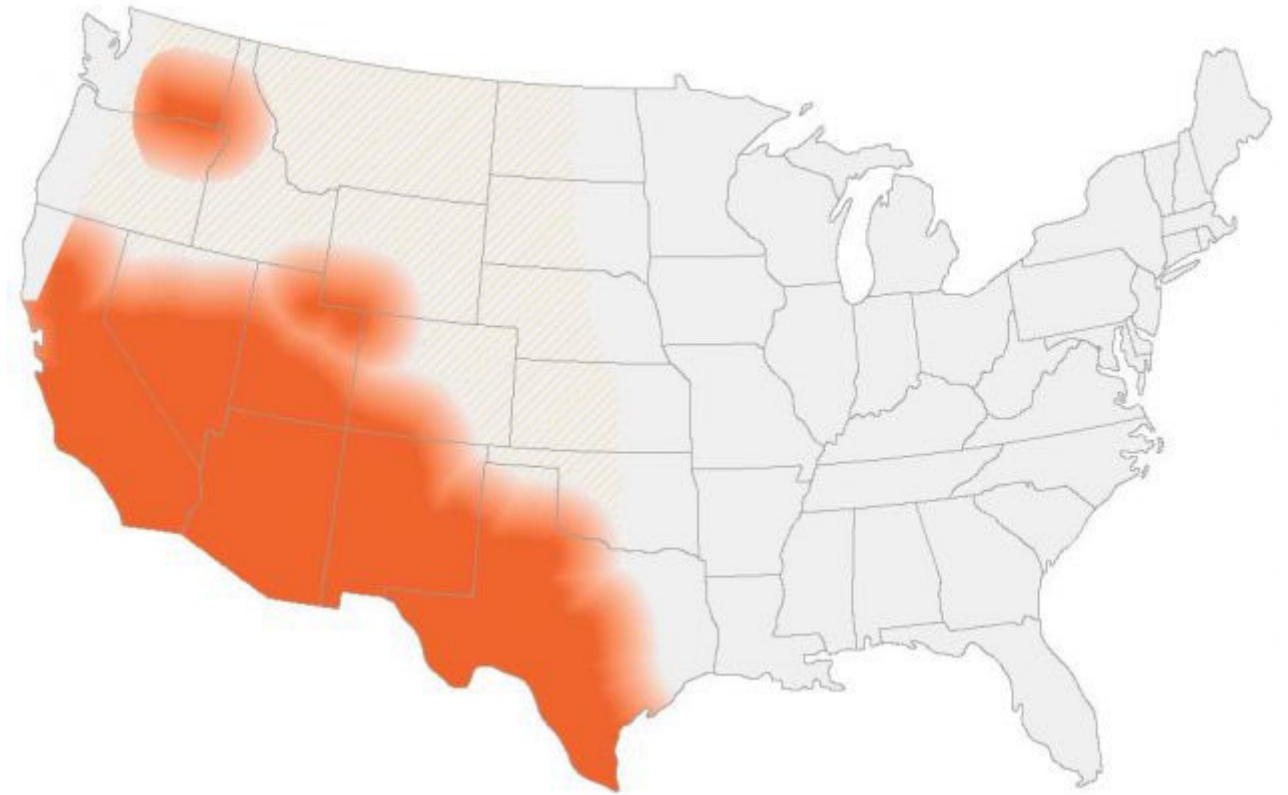
- Anyone who breathes in the fungus can get infected—even young, healthy people
- Increased risk of severe disease
 - Black and Filipino persons
 - Pregnant women
 - People with diabetes or weakened immune systems
 - People ≥ 60 years old
- Increased risk of exposure
 - Outdoor workers



Estimated areas with Valley fever in the US



- Primarily southwestern US
- ~97% of cases in AZ and CA
- *Coccidioides* range may be expanding (cases in WA)

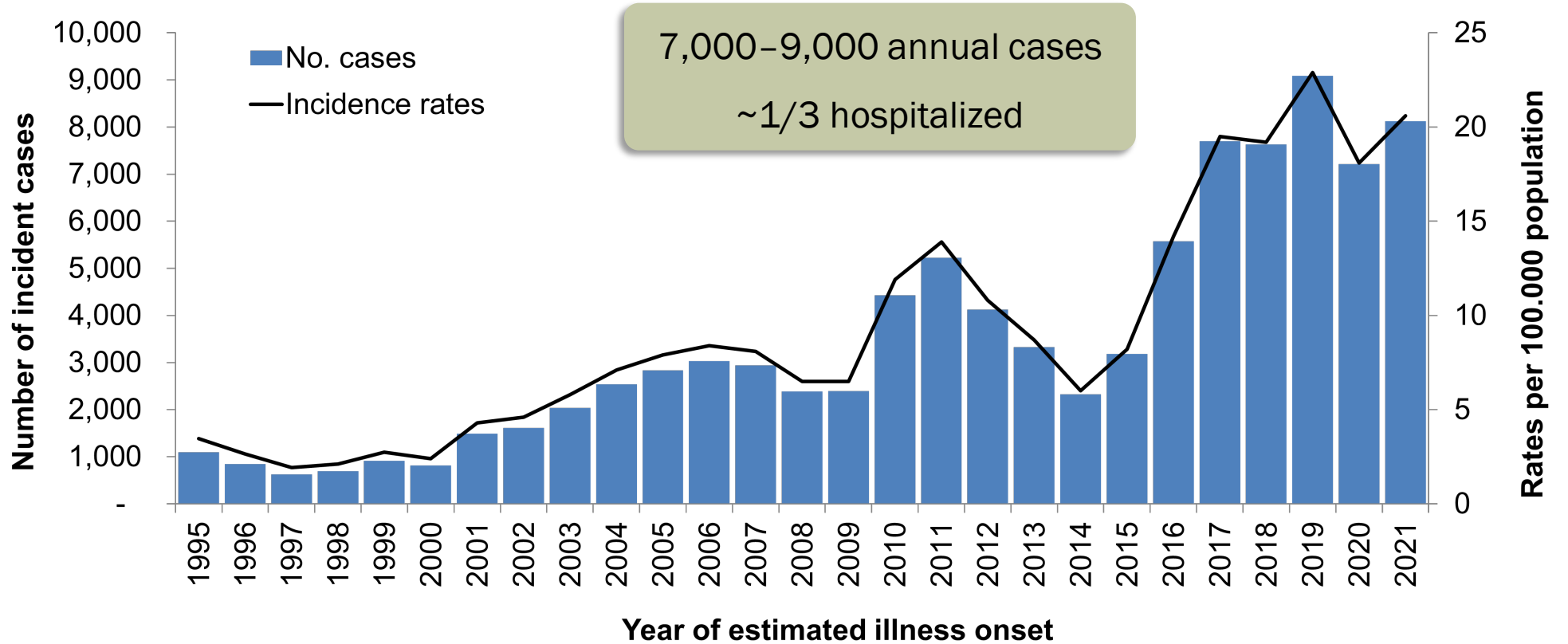


No effective means to test soil ahead of time

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

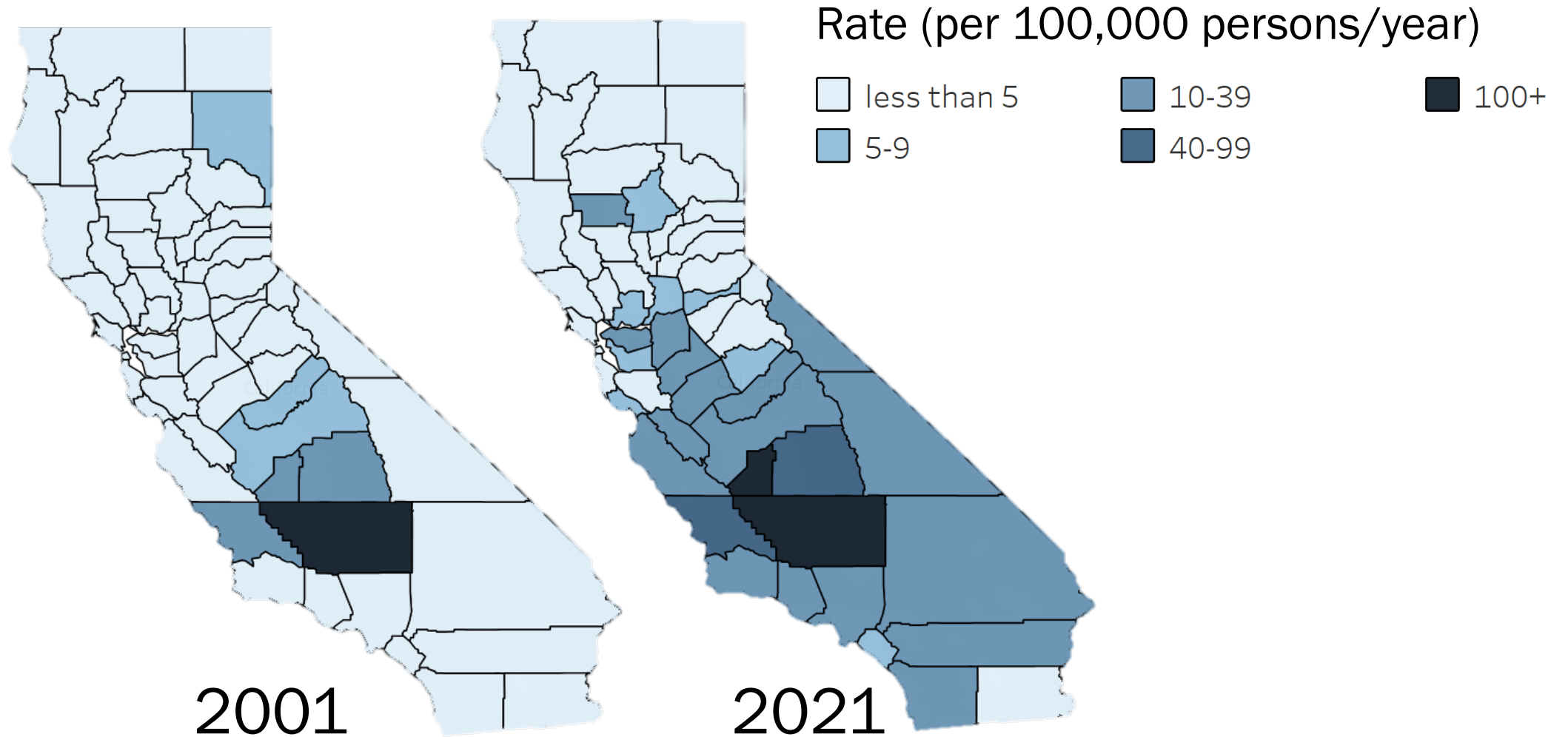


Burden of Valley fever in CA



<https://www.cdph.ca.gov/Programs/CID/DCDC/Pages/ValleyFeverDataPublications.aspx>

Expanding rates in California



Possibly multifactorial causes for increase/expansion



Climatic and
environmental
factors

Soil disturbing
activities in
endemic areas

Susceptible
people in
endemic areas

Changes in
recognition and
reporting

https://www.cdc.gov/mmwr/volumes/69/wr/mm6948a4.htm?s_cid=mm6948a4_w

<https://www.cdph.ca.gov/Programs/CID/DCDC/CDPH%20Document%20Library/CocciEpiSummary2020-2021.pdf>

<https://www.cdc.gov/fungal/climate.html>

Valley fever is an occupational disease

Workers disturbing soil or exposed to dust 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



Construction workers

- Kern County, 2008
- 8/10 with confirmed disease
- 2 with disseminated disease
- Not informed about the risk in this area



Photo From: Preventing Work-Related Coccidioidomycosis (Valley fever), California Department of Public Health, 2013.

Solar farms



Photo Credits (left to right): U.S. Department of Energy, California Department of Public Health, Aspen Environmental Group

- 44 confirmed cases at San Luis Obispo County site, 2011–2014
- 9 confirmed cases at Monterey County site, 2016–2017
- Most workers with illness did not live in endemic area
- Cases among many occupations
- Sources of exposure: grading, digging, working in trenches, uncovered spoils piles

https://www.cdc.gov/mmwr/volumes/67/wr/mm6733a4.htm?s_cid=mm6733a4_w
https://wwwnc.cdc.gov/eid/article/21/11/15-0129_article



Wildland firefighters



- Cluster among inmate firefighters responding to wildfire near city of Coalinga, 2017
- 10/112 diagnosed with Valley fever
- 2 additional cases in civilian firefighters
- Digging, working in dusty conditions, being in dust storms.
- None of the patients used respiratory protection



Photo Credit: Rich Pedroncelli/AP

<https://onlinelibrary.wiley.com/doi/abs/10.1002/ajim.23218>

Wildland firefighters, continued

- Another outbreak among firefighters responding to a fire in Kern County, 2021
- 3/21 diagnosed with Valley fever (all hospitalized)



Photo credit: Kern County Fire Department

Farmworkers



- Ventura County, 2017
- 7/17 workers on crew diagnosed with Valley fever
- Installing irrigation for an orchard in previously undisturbed soil



Photo credit: Getty Images



[https://vchca.org/images/public health/For Hlth Care Providers/HOT TIPS 95 Coccidioidomycosis in Ventura County 11-14-2017.pdf](https://vchca.org/images/public_health/For_Hlth_Care_Providers/HOT_TIPS_95_Coccidioidomycosis_in_Ventura_County_11-14-2017.pdf) -

Prisons

- 103 cases among employees at 2 state prisons, 2009–2013
- Most common job categories:
 - Custody
 - Health care
 - Administration



Photo credit: NIOSH

https://wwwnc.cdc.gov/eid/article/21/6/14-1201_article

Outdoor filming cast and crew



- Filming a television episode in Ventura County, 2012
- 10 confirmed cases among cast and crew
- Site preparation included grading, digging, setting up equipment and stage

Basis for prevention recommendations

- Spores act like any other airborne particle
- Use proven methods to avoid and control dust



Photo credit: California Department of
Public Health

California Labor Code § 6709



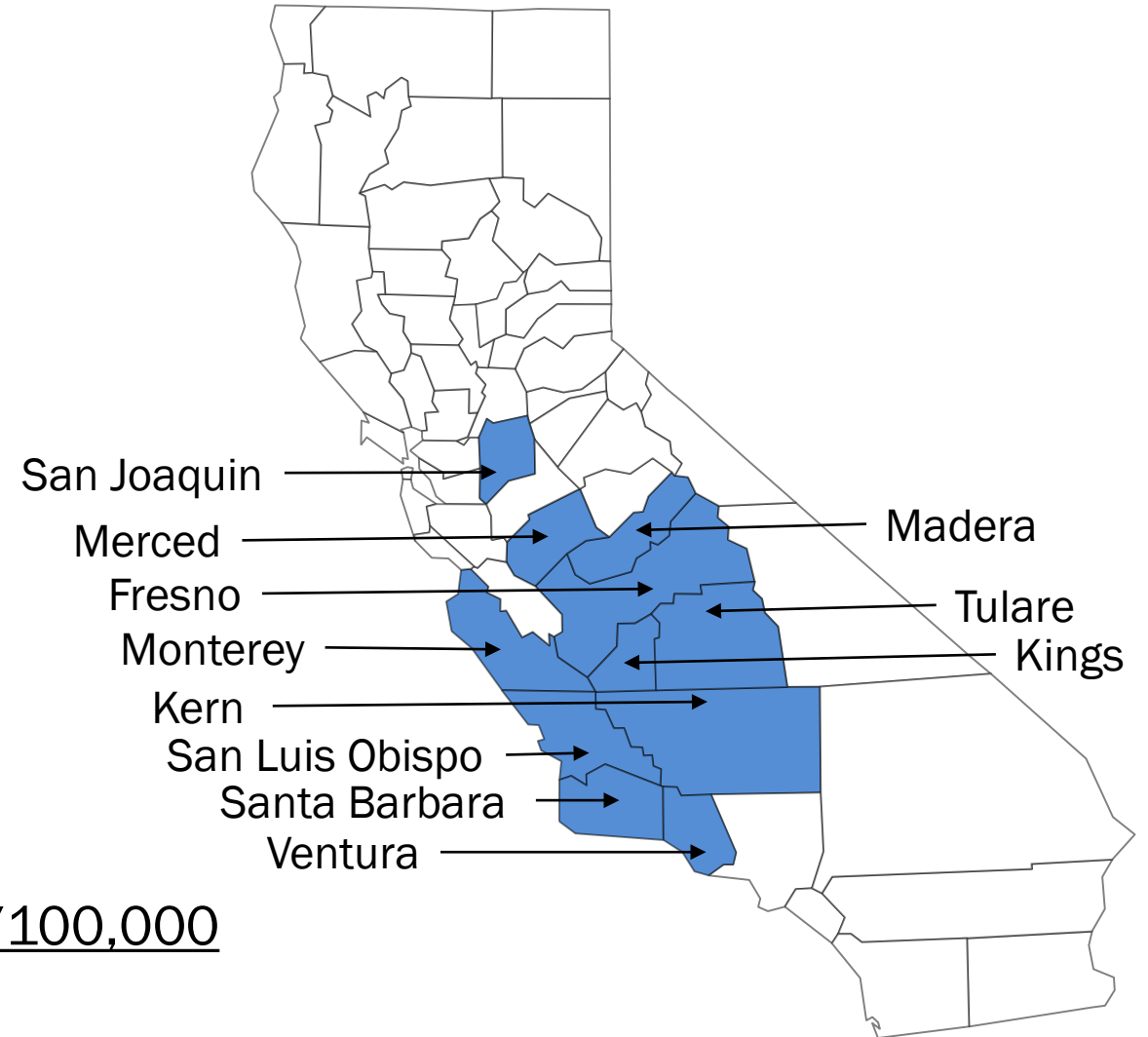
- Adopted following passage of AB203 (Salas) in 2019
- Employers in construction must provide effective awareness training to employees before beginning work and annually
 - In counties where Valley fever is highly endemic (incidence rate >20 cases/100,000 persons per year)
 - If reasonably anticipated to cause exposure to visible airborne dust for a total duration of ≥ 1 hour on any day
- https://leginfo.legislature.ca.gov/faces/codes_displaySection.xhtml?lawCode=LAB§ionNum=6709

Planning ahead for Valley fever (Labor Code § 6709)



Highly endemic counties:

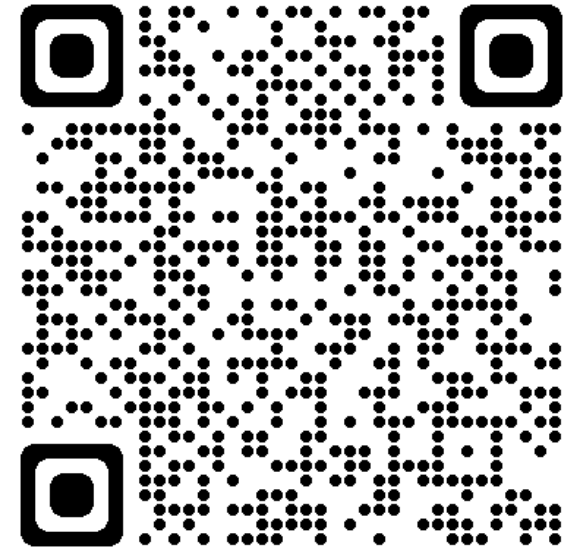
- Fresno
- Kern
- Kings
- Madera
- Merced
- Monterey
- San Joaquin
- San Luis Obispo
- Santa Barbara
- Tulare
- Ventura
- Any county with case rate >20/100,000



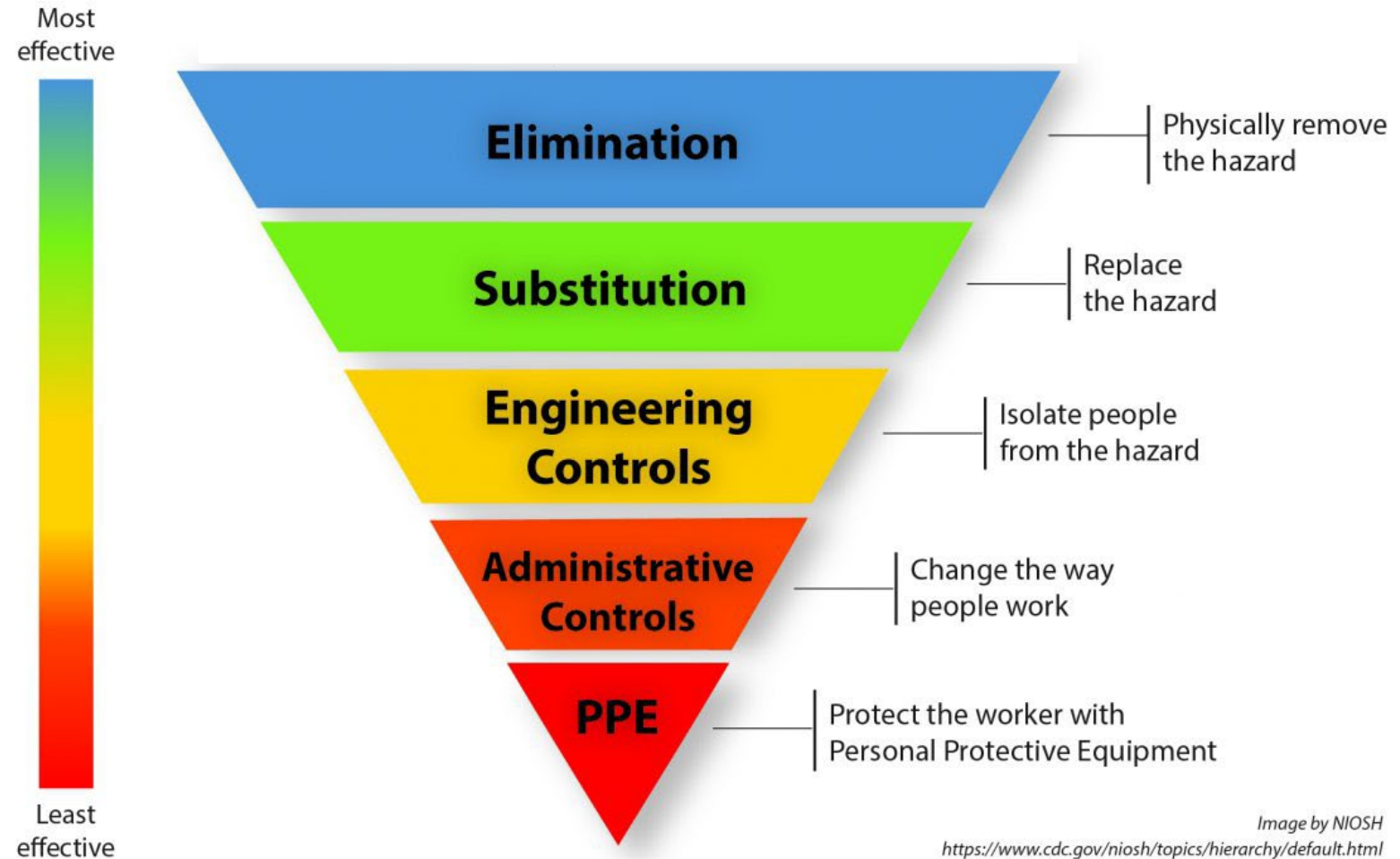
CDPH work-related Valley fever guidance and resources



- Fact sheet—Preventing work-related coccidioidomycosis (Valley fever)
- Webinar—Preventing Valley fever in outdoor workers
- Webinar—Preventing Valley fever in construction workers
- Training guide—VALLEY FEVER: Tailgate training guide for California construction workers
- Training guide—Preventing work-related Valley fever in wildland firefighting



Hierarchy of controls



Use job design to minimize soil disturbance

- Avoid digging if possible
- Reduce grading
- Maintain vegetation



Photo credit: First Solar. Wiring is installed in above-ground trays instead of below-ground trenches

Limit dust generation



Photo Credit: California Department of Public Health, Occupational Health Branch

- Wet soil before and while digging
- Cover bare soil (tarps, vegetation, etc.)
- Stay upwind of digging



Use enclosed cabs to protect operators

- HEPA or MERV-16 or higher filtration
- Positively pressured
- Air conditioned
- Windows closed
- 2-way radio
- Wet-clean inside cabs



Photo credit: Pixabay.com

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



Photo credit: iStock

Respiratory protection program (RPP) considerations



- Comprehensive, Cal/OSHA-compliant RPP
- NOT voluntary program
- Respiratory protection for anyone at or near soil-disturbing activities (bandanas don't count)
- RPP manager must tell employees where and when to wear respirator
- Heat illness prevention program considerations (e.g., PAPR)

Preventing “take-home” dust

- Clean area to wash up (showers if possible)
- Change clothes
- Boot cleaning stations
- Wet-clean tools and equipment



Wash-up station

General contractor responsibilities



- Having contract provisions with each subcontractor requiring:
 - Valley fever prevention programs
 - Access to sufficient water for dust suppression
 - Access to knowledgeable medical providers for evaluation of workers ill with possible Valley fever
- Ensure that contractors are warned and well-aware of the risk of Valley fever among outdoor workers in areas where Valley fever is common
- Ensure prompt medical evaluation of anyone reporting symptoms and reporting of cases

Workers' responsibilities if they are sick

- Inform supervisors
- Get medical evaluation
 - Tell provider about their duties and if they think it might be Valley fever
- File workers' compensation claim



Employers responsibilities if workers are sick

- Refer sick workers to providers familiar with Valley fever
- Track illnesses on
 - Employer's Report of Occupational Injury or Illness (5020)
 - OSHA 300 logs
- Contact local health department



Training content required by CA Labor Code § 6709

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



Training content required by CA Labor Code § 6709, cont'd



- High-risk areas and types of work
- How to prevent exposure
- What to do if you have symptoms
- Treatment and prognosis for Valley fever



Photo credit: California Department of Public Health

CDPH tailgate trainings

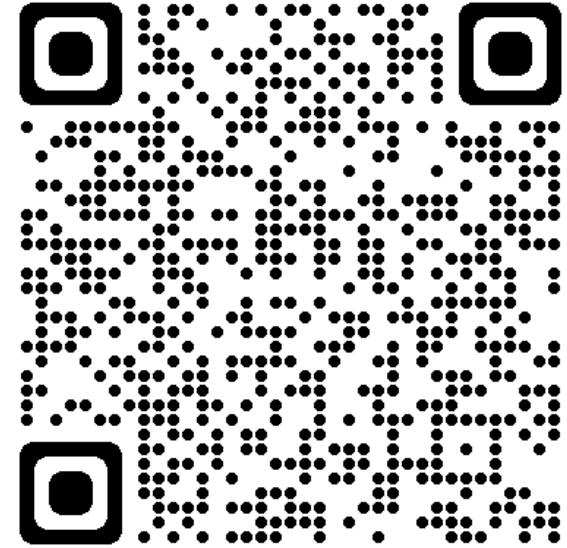


- Short, interactive, easy to use training guide
- Covers the 8 California Labor Code § 6709 required worker training elements
- Trainings for:
 - Construction workers
 - Wildland firefighters



<https://www.cdph.ca.gov/Programs/CCDPHP/DEODC/OHB/Pages/Cocci.aspx>


Additional CDPH training and prevention resources



- Webinar for employers and planners
- Webinar for construction employers and safety professionals
- Worker fact sheet, worker wallet card
- Employer fact sheet
- Posters (English and Spanish)

CalOSHA Valley fever page has important guidance





State of California
Department of
Industrial Relations

Labor Law ▾ Cal/OSHA - Safety & Health ▾ Workers' Comp ▾ Self Insurance ▾ Apprenticeship ▾

[Cal/OSHA](#) / [Protection from Valley Fever](#)

Protection from Valley Fever

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. Workers who work outdoors are especially at risk if they dig or disturb soil, operate heavy machinery, or work in windy conditions without taking steps to prevent valley fever.

Information for Employers

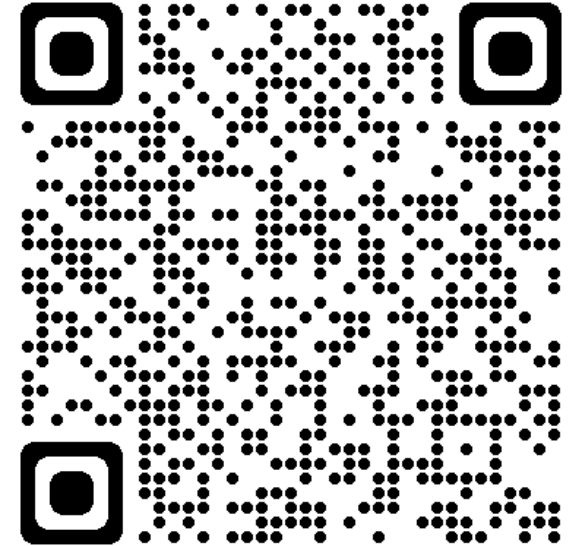
- Employers have a legal responsibility to immediately report to Cal/OSHA any serious injury or illness, or death (including any due to Valley Fever) of an employee occurring in a place of employment or in connection with any employment. Employers also have responsibilities to control workers' exposure to hazardous materials.
- Applicable regulations with regard to Valley Fever protection and exposure can be found in the California Code of Regulations, Title 8, sections
 - [Section 342](#) (Reporting Work-Connected Fatalities and Serious Injuries),
 - [Section 3203](#) (Injury and Illness Prevention),
 - [Section 5141](#) (Control of Harmful Exposures),
 - [Section 5144](#) (Respiratory Protection) and
 - [Section 14300](#) (Employer Records-Log 300).
- Construction employers must train workers on Valley Fever prevention in counties where Valley Fever is highly endemic including but not limited to including, but not limited to, the Counties of Fresno, Kern, Kings, Madera, Merced, Monterey, San Joaquin, San Luis Obispo, Santa Barbara, Tulare, and Ventura. Other counties may be added to this list, depending on Valley Fever rates in future years.

www.dir.ca.gov/dosh/valley-fever-home.html

Key references



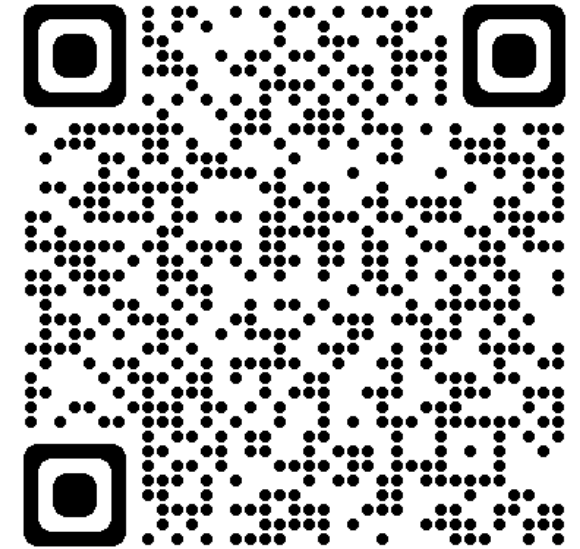
- [Preventing Work-related Coccidioidomycosis \(Valley Fever\)](#)
- [VALLEY FEVER: Tailgate Training Guide for California Construction Workers](#)
- [Preventing Valley Fever in Outdoor Workers webinar](#)
- [Notes From the Field: Coccidioidomycosis Outbreak Among Wildland Firefighters](#)
- [Coccidioidomycosis Outbreak Among Inmate Wildland Firefighters: California, 2017](#)
- [Coccidioidomycosis Outbreak Among Workers Constructing a Solar Power Farm — Monterey County, California, 2016–2017](#)
- [Coccidioidomycosis Among Workers Constructing Solar Power Farms](#)
- [Coccidioidomycosis Among Cast and Crew Members at an Outdoor Television Filming Event](#)
- [Outbreak of Coccidioidomycosis in Construction Workers](#)
- [CDPH Valley Fever Data and Publications](#)



Acknowledgments



- CDPH
 - Occupational Health Branch
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- National Institute for Occupational Safety and Health
- CalOSHA
- San Luis Obispo County Public Health
- Monterey County Public Health
- Los Angeles County Department of Public Health
- Workers and unions



The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention or the California Department of Public Health.