

What is Valley fever? Fungal infection from the Southwest may spread with climate change

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The HBO series "The Last of Us" has brought awareness to the growing threat of fungal infections. While there's no known fungus that turns humans into sporous zombies, health experts say one pathogen may

become more prevalent due to climate change.

Valley fever is an infection caused by coccidioides, a fungus that generally prefers warm, arid climates and predominately lives in soil in the southwestern United States, according to the Centers for Disease Control and Prevention.

The CDC reported about 20,000 cases of Valley fever in 2019. Although most cases are mild, the fungus spreads in a fraction of patients causing severe disease and death.

Studies show variable weather caused by [climate change](#) could spread the fungus to other parts of the country, said Dr. Paris Salazar-Hamm, a researcher at the University of New Mexico School of Medicine.

A 2019 study found Valley fever endemicity could spread from 12 to 17 states and the number of cases could increase by 50% by 2100 in a "high warming scenario."

"Fungal pathogens are a group that get vastly overlooked and Valley fever is an interesting model because it's associated with the climate," Salazar-Hamm said.

Here's what we know about Valley fever.

How do you catch Valley fever?

A person gets Valley fever by inhaling [fungal spores](#) from soil that's typically kicked up in the air, according to the University of Arizona's Valley Fever Center for Excellence.

What are symptoms of Valley fever?

Symptoms typically occur within three weeks exposure, according to the Valley Fever Center for Excellence.

The CDC says symptoms include:

- Fatigue
- Cough
- Fever
- Shortness of breath
- Headache
- Night sweats
- Muscle aches or joint pain
- Rash on the [upper body](#) or legs

Is Valley fever a serious disease? What is the survival rate?

The fungal infection is endemic in the southwest, with most people experiencing mild to no symptoms, said Dr. Manish Butte, professor and division chief of immunology, allergy and rheumatology in the department of pediatrics at the University of California, Los Angeles.

But there is a small subset of people where the fungus "spreads rapidly and destructively throughout the body," eating flesh for nutrition, he said.

"If it spreads to the brain or [spinal cord](#), about 40% of the people die," he said. This process can take up to two weeks from exposure. About 200 people die from Valley fever each year, the CDC reports.

It's unclear why only a fraction of people exposed to the fungal spores develop [severe disease](#) but Butte's research suggests it may have

something to do with an individual's immune system.

"We still find a number of patients where we don't have a good clue for them, and that's where immunologists like me try to get involved and try to understand from genetic tests," he said.

Can you be cured of Valley fever?

Most acute infections can be treated with antifungal medications, most commonly fluconazole, Butte said, but the tricky part is knowing when to use it.

Fungal infections are difficult to catch through simple X-rays, he said, and the only diagnostic testing available is a blood test that detects antibodies.

Some clinicians mistake [fungal infections](#) for a viral or bacterial infections and use antibiotics to treat patients, Salazar-Hamm said.

"You wipe out the bacterial flora (with the antibiotic), allowing the [fungal infection](#) to grow and it makes it worse," she said.

Antifungal drugs are also "intense," Salazar-Hamm said, and may have bad side effects. The Mayo Clinic says some rare side effects include:

- Fever
- Headache
- Hives, chills
- Chest tightness
- Fast heartbeat, among others

"Fungi are more closely related to humans than they are to bacteria," she said. "Targets for fungal drugs have negative side effects for human

cells."

About 1% of patients where the fungus spreads throughout the body are also given another antifungal called AmBisome, but Butte said many patients still die. His research focuses on how immunomodulation—or manipulating the immune system—could help these select patients fight the fungus.

Is Valley fever high contagious?

Multiple people in a household can get the fungal disease by inhaling the spores airborne in their environment, but Valley fever is not "contagious" in that it cannot be passed from person to person.

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