

FUNGAL INFECTIONS



A multistate outbreak of fungal meningitis sickened more than 750 people and killed nearly 65 in 2012. NCEZID fungal experts helped nail the culprit: contaminated injections of a steroid linked to a compounding pharmacy.
Courtesy Jim Gathany

HOW WE KEEP AMERICANS SAFE

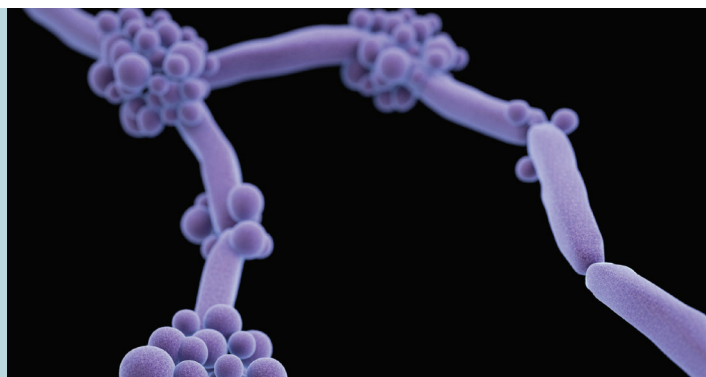
Fungi are everywhere. There are approximately 1.5 million different species of fungi on Earth, but only about 300 of those are known to make people sick. Most fungi are not dangerous, but some types can be harmful to health.

Fungal diseases are a concern in the medical and public health community for several reasons.

- Increasing numbers of people with weakened immune systems (like cancer patients and organ transplant recipients) are especially vulnerable to fungal infections.
- Changes in healthcare practices provide opportunities for new and drug-resistant fungi to emerge in healthcare settings.
- Other fungal diseases, like Valley fever, are caused by fungi that live in soil or other parts of the natural environment.
- Fungal disease outbreaks occur and have been linked to a variety of sources, including exposure to disease-causing fungi in the natural environment or injections with contaminated medication.

The emerging phenomenon of antifungal resistance is especially a concern for invasive candidiasis, a serious infection involving the fungus *Candida* pictured below.

THE WORK OF CDC'S
National Center for Emerging and Zoonotic Infectious Diseases (NCEZID) is about protecting America's health, safety, and security. NCEZID is ground zero when there's an outbreak of infectious disease. We have world-class scientists, researchers, laboratories, and emergency responders to protect people from fungal infections.



**National Center for
EMERGING and ZONOTIC INFECTIOUS DISEASES**
Division of Foodborne, Waterborne, and Environmental Diseases



COUGH? FEVER? EXHAUSTED?

If you live in or have traveled to the Southwest, ask your doctor about Valley fever.



www.cdc.gov/fungal



Valley fever is an infection caused by a fungus that lives in the soil. As many as 40% of people who get Valley fever need to stay in the hospital.



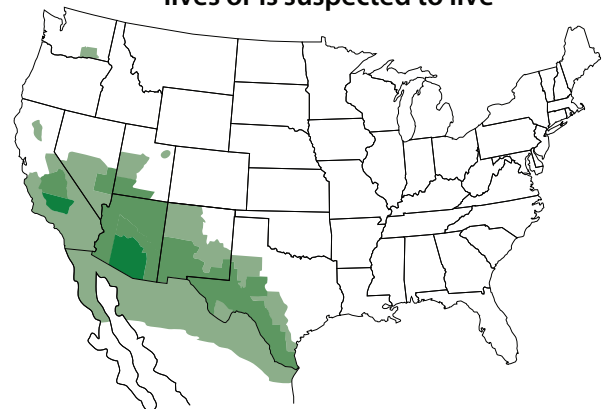
Candida auris has caused outbreaks in healthcare settings.

The emerging drug-resistant fungus *Candida auris* can cause serious and sometimes deadly bloodstream infections.

What we're doing:

- Helped conduct **fungal disease outbreak investigations**, including mucormycosis outbreaks in Kansas, Colorado, and Pennsylvania. Mucormycosis typically affects people with weakened immune systems, such as people who have had an organ transplant.
- Applied new **laboratory tools to detect the fungus that causes Valley fever** (*Coccidioides*) in the environment and used whole genome sequencing to understand the emergence of this fungus in new geographic areas.
- Investigating **new cases of *Candida auris* infections**, an emerging drug-resistant fungus that can spread through healthcare settings and cause serious and sometimes deadly bloodstream infections that have limited treatment options.
- Determining the **global burden of fungal infections**, respond to **outbreaks**, and address other public health problems related to fungal infections.
- Working with international partners in a wide variety of areas, particularly with the assessment and **prevention of opportunistic fungal infections** among persons with HIV/AIDS.
 - For example, we implement programs that aim to reduce the burden of cryptococcal disease by partnering with public health and healthcare agencies in several countries.

Approximate areas where fungus *Coccidioides* lives or is suspected to live



■ Highly endemic ■ Established endemic ■ Suspected endemic

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