CDC and Fungal Diseases

Why are fungal diseases a public health issue?

Fungal diseases pose an increasing threat to public health for several reasons.

Opportunistic infections such as cryptococcosis and aspergillosis are becoming increasingly problematic as the number of people with weakened immune systems rises – this includes cancer patients, transplant recipients, and people with HIV/AIDS.

Hospital-associated infections such as candidemia are a leading cause of bloodstream infections in the United States. Advancements and changes in healthcare practices can provide opportunities for new and drug-resistant fungi to emerge in hospital settings.

Community-acquired infections such as coccidioidomycosis (Valley Fever), blastomycosis, and histoplasmosis, are caused by fungi that are abundant in the environment. These types of fungi live in the soil, on plants, or in compost heaps, and are endemic (native and common) throughout much of the U.S. Climate change may be affecting these fungi, as even small changes in temperature or moisture can affect their growth.

What is CDC doing to combat fungal diseases?

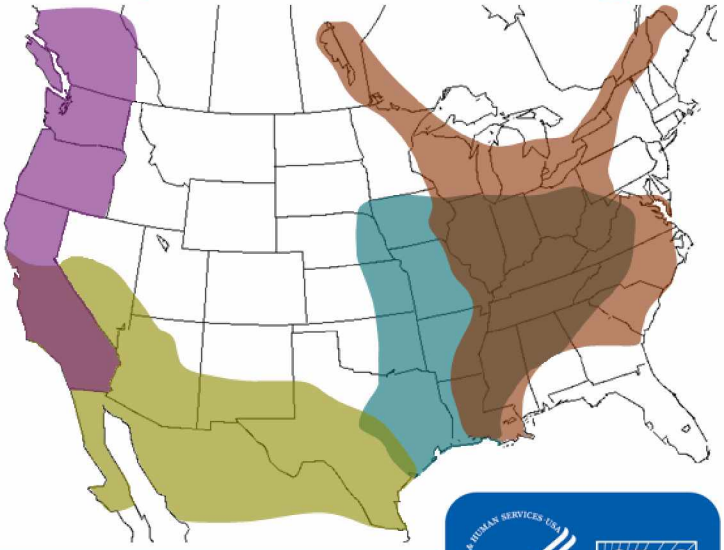
We are taking action to decrease the public health burden of fungal diseases through a variety of domestic and international activities:

Responding to outbreaks with epidemiologic investigations
Monitoring long-term trends in fungal diseases through surveillance
Developing, evaluating, and promoting cost-effective prevention guidelines and intervention strategies
Conducting laboratory activities that are vital to outbreak investigations and surveillance studies
Equipping laboratories in developing countries to perform diagnostic tests

Current challenges:

- **Defining the public health burden** of emerging fungal diseases
- **Developing improved methods** for earlier diagnosis of disease
- **Understanding the reasons for the rising number of endemic fungal infections**
- **Determining the effects of climate change on fungi**
- **Identifying groups of people at risk** in order to help focus our prevention efforts

Map of U.S. endemic fungi



National Center for Emerging and Zoonotic Infectious Diseases
Division of Foodborne, Waterborne, and Environmental Diseases

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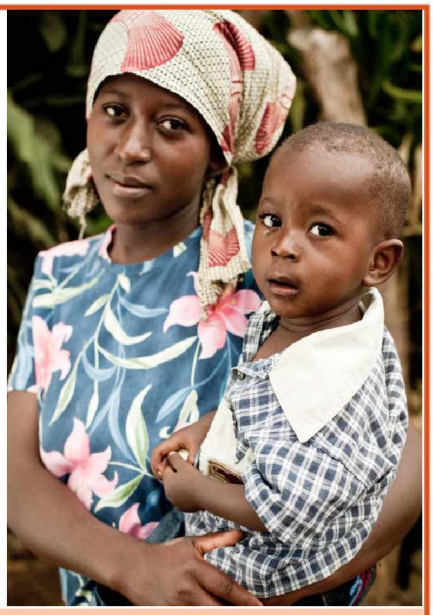
A new strategy to prevent deaths from *Cryptococcus*



In people with weakened immune systems, the fungus *Cryptococcus neoformans* causes life-threatening meningeal infections in nearly a million people every year. *Cryptococcus* is the most common cause of meningitis in sub-Saharan Africa, and is a leading cause of death among people with HIV. It is not possible to prevent the initial infection, but a blood test for cryptococcal antigen can catch the infection before meningitis develops. A novel, point-of-care dipstick test is quick, simple, affordable, and effective. CDC's call to action is to equip half of all HIV clinics in Africa and Asia to perform *Cryptococcus* testing and treatment by 2015, which could save 50,000 – 100,000 lives every year.

Monitoring hospital-associated *Candida* bloodstream infections with multi-state surveillance

Candida is the third most common cause of hospital-associated bloodstream infections in the U.S. Since 2008, CDC has been conducting population-based, active laboratory surveillance in several U.S. locations in order to monitor the epidemiology of candidemia as well as trends in drug resistance among different *Candida* species. Results of the ongoing surveillance indicate that the incidence of candidemia has increased among some age groups in recent years, and that species of *Candida* may be becoming resistant to particular antifungal medications. CDC has identified improved adherence to infection prevention guidelines and improved national surveillance as two important healthcare-associated infection prevention "Winnable Battle" goals.

"Disease detectives:" responding to outbreaks of fungal infections

Responding to outbreaks is an integral part of CDC's efforts to prevent and control the burden of emerging fungal infections. Recently, CDC responded to an outbreak of mucormycosis skin and soft-tissue infections among tornado victims in Joplin, Missouri. Working side-by-side with members of the community, disaster relief agencies, and state and local health departments, CDC reviewed medical records and conducted interviews in order to find out why some people got the infection and others did not. Ultimately, through collaboration with a variety of partners, the goal of any outbreak investigation is to learn how to better recognize and prevent these types of infections in the future.