

Histoplasmosis

Histoplasmosis is not a reportable condition unless outbreaks are observed.

Histoplasma capsulatum var. *capsulatum* is a dimorphic fungus. The organism grows as a mold in soil and as yeast in animal and human hosts. It is encountered in many parts of the world and is endemic in Louisiana. The source of the organism is soil or dust in barnyards and other locations high in nitrogen concentrations, especially soil contaminated with bat or bird droppings. Infection is acquired through inhalation of airborne spores (conidia). The quantity of inoculum inhaled, strain virulence, and the immune status of the host affect the outcome of infection.

Epidemiology

Histoplasmosis is not contagious; it cannot be transmitted from an infected person or animal to another person. Infection does not always result in illness. Symptoms, when present, usually begin three to 17 days post exposure and range from mild conditions requiring no treatment to severe systemic illness. Severity is dependent on the intensity of exposure and a person's immunity. The illness is typically flu-like with symptoms such as fever, cough, fatigue, chills, headache, chest pain, and body aches. Children younger than two years of age, immune-compromised persons, and the elderly, especially those with underlying illnesses such as diabetes and chronic lung disease, are at increased risk for developing systemic histoplasmosis. Although the lung is the primary organ affected, disseminated disease can affect the bone marrow, liver, spleen, adrenal gland and meninges. In children, the most common sign of infection is hepatosplenomegaly. Mild disease usually resolves without treatment. Untreated systemic infections are frequently fatal. Treatment with appropriate antifungal drugs is usually successful. No vaccines are available.

Previous exposure or infection is detected by a positive skin test (histoplasmin skin test). The Centers for Disease Control and Prevention (CDC) estimates that approximately 80% of the population living in areas with endemic disease is skin-test positive. In a survey carried out throughout Louisiana in the early 1950s, the range of skin-test positivity ranged from 10% in the southeast to 75% in the northeast of the state. It is estimated that 50 million people have been infected in North America, most asymptotically. However 10% to 25% of HIV-infected persons in endemic areas will develop disseminated histoplasmosis. The mortality rate in HIV infected persons with disseminated disease is approximately 10%.

Histoplasma capsulatum grows in soils throughout the world. In the U.S., the proportion of people infected is higher along the Ohio and Mississippi River valleys in the central and southern states. Blackbird roosts (starlings, grackles, red-winged black-birds and cowbirds) are often

found to be heavily contaminated. Pigeon and bat habitats and poultry houses with dirt floors are also commonly infested areas. However birds are not infected with *H. capsulatum*. Birds provide a nutrient source that promotes growth of the organism already present in soil. Bats, however, can be infected and can excrete *H. capsulatum* in droppings.

Anyone working or recreating in areas where soils or materials are contaminated with *H. capsulatum* may be at risk for infection. Occupations and hobbies at risk for infection in endemic areas include bridge inspectors or painters, chimney cleaners, construction workers, demolition workers, farmers, gardeners, heating and air conditioning installers or technicians, microbiology lab workers, pest control personnel, workers in abandoned buildings, roofers and spelunkers. Immunocompromised persons (persons with cancer, transplant patients, HIV-infected individuals) are at increased risk of infection.

Outbreaks have occurred in people not directly in contact with soil. In the U. S. since 1970, two large school outbreaks infecting hundreds of students as well as other personnel were reported. One case involved raking of leaves and debris from a school courtyard; the other involved tilling soil - also in a school courtyard. Spores seem to have been distributed through the schools' ventilation systems.

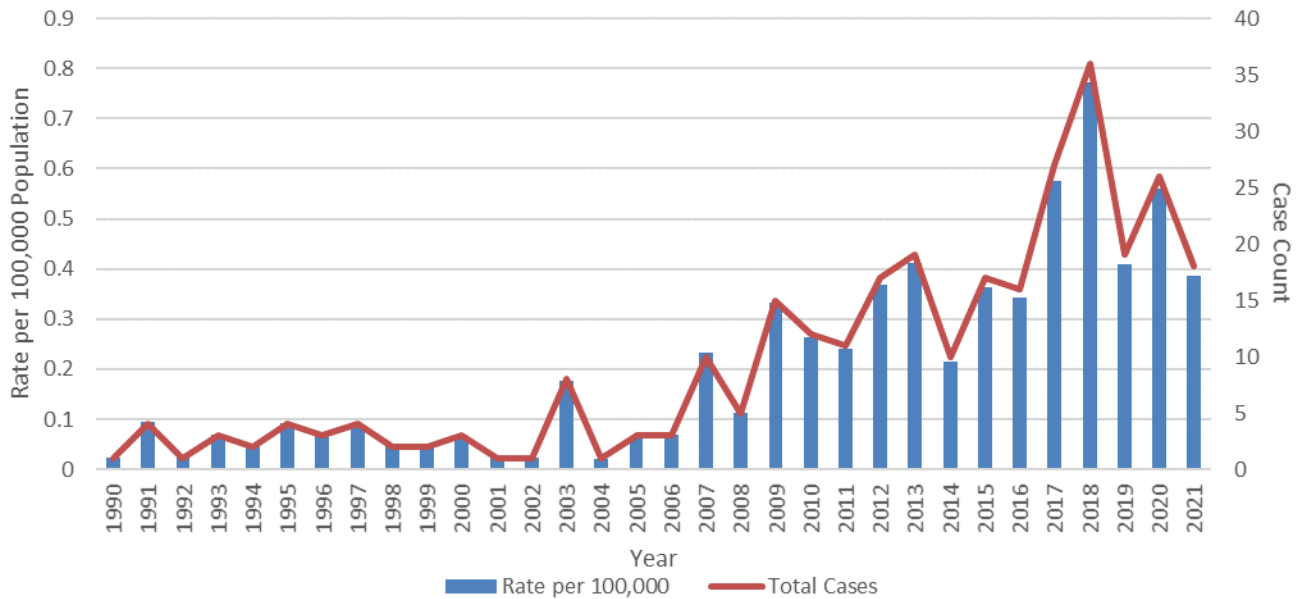
Testing samples of soil to determine risk of infection or decontamination of sites is impractical in most situations. Prevention is best accomplished by assuming that soils in endemic regions as well as areas contaminated with bird or bat droppings are potentially contaminated and taking the appropriate precautions. Use of masks and reduction of dust by watering areas prior to dust generating activities are recommended. Hosing off footwear and placing clothing in airtight plastic bags for laundering also may reduce risk. Areas suspected of being contaminated with *H. capsulatum* should be posted with signs warning of the health risk.

More in depth guidelines are available on the National Institute for Occupational Safety and Health website (<http://www.cdc.gov/niosh/>).

Histoplasmosis Incidence Rates and Cases

The incidence of Histoplasmosis from 1990 to 2021 has been on an upward trend, likely reflected by an increase in testing (Figure 1). It's highest in 2018 was the result of an outbreak at a Boy Scout summer camp. The campers, along with their chaperones, went geocaching in the woods and became infected with *Histoplasma*. Cases decreased to 2017 levels in 2019 and 2021

Figure 1: Histoplasmosis Incidence in Louisiana, 1990 – 2021



In 2018 the number of “probable” cases overtook confirmed infections. This change from 2017 to 2018 could be the result of a change in case definition, the tests available, a change in testing policy, or awareness of the disease (Figure 2).

Figure 2: Histoplasmosis Cases in Louisiana, 1990 – 2021

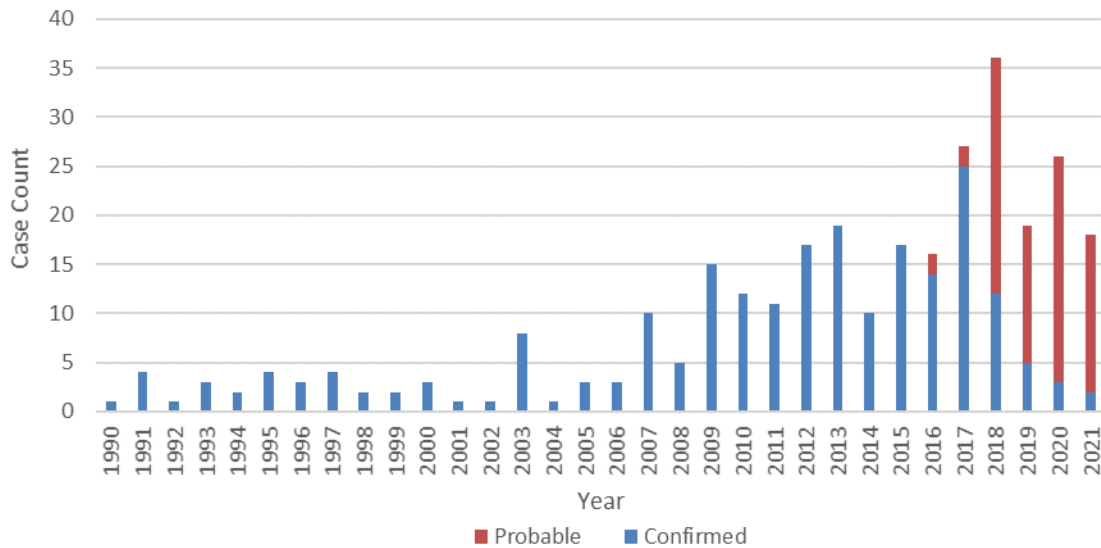
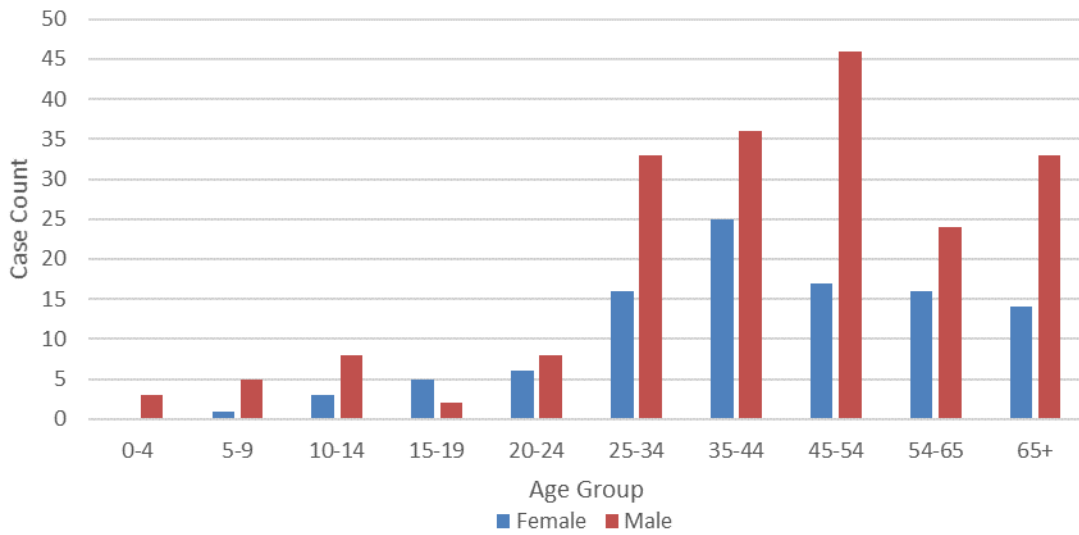
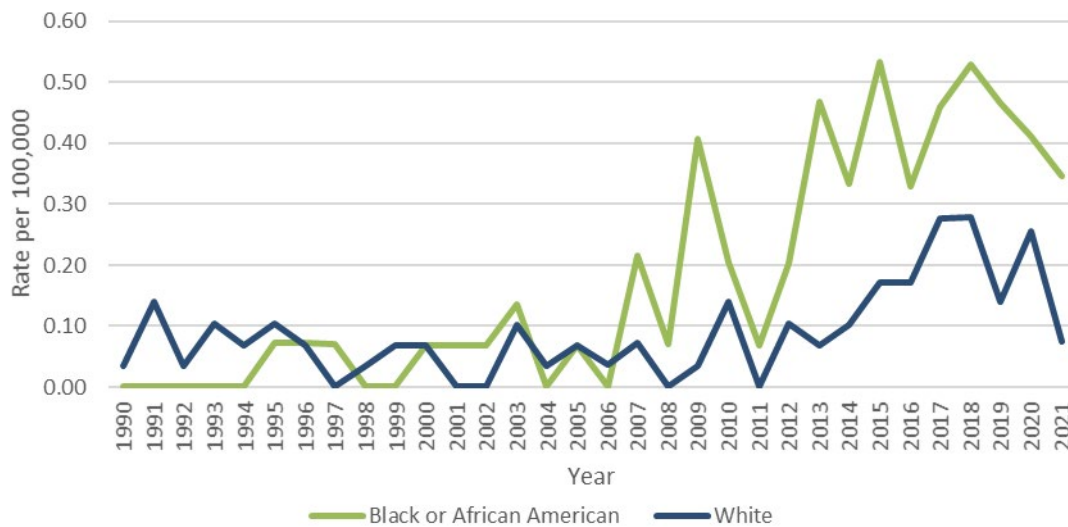


Figure 3: Histoplasmosis Cases by Age Group and Sex, Louisiana 1990 - 2021



A difference in incidence can be seen between African American and White individuals. After 2006, the incidence of Histoplasmosis has been consistently greater in African American or Black individuals than it is in White individual (Figure 4).

Figure 4: Histoplasmosis Incidence Rates by Race, Louisiana 1990 – 2021



No temporal relationship exists for Histoplasmosis infection in Louisiana (Figure 5).

Figure 5: Histoplasmosis Case Count by Month, Louisiana 1990 – 2021

