

COCCIARDI and Associates, Inc.

Safety • Health • Environmental
Consulting and Training

BY: Dr. Joseph Cocciardi, CIH, CSP, REHS, RS

DATE: January 23, 2006

SUBJECT: Avian Fungi/Bacteria Assessment
Lackawanna County Courthouse

In November of 2005, Cocciardi and Associates, Inc. (Cocciardi) was contracted by Alicon Environmental (Alicon), to conduct a Post-Remediation Assessment of the Avian Waste Project at the Lackawanna County Courthouse. The remediation project included the containment and cleaning of areas of the fourth floor of the courthouse effected by the collapse of a ceiling and release of these waste products.

Upon completion of the environmental health assessment in January 2006, Cocciardi issued a report to Alicon. The report concluded that due to the accumulation of avian waste (greater than 3 inches in depth), the length of time of issue development (greater than 3 years), the prior maintenance practices around these materials and a sudden release (occurring in November, 2004), it is reasonable to assume that particulates from this waste had been dispersed throughout the interior of the Courthouse structure.

Subsequently, Cocciardi provided three recommendations. Cocciardi recommended the completion of gross cleanup of materials by environmental remediation contractors. Secondly, Cocciardi recommended a "high efficiency"¹ vacuuming of all horizontal surfaces in the Courthouse on "off-shifts". At the same time, the building's heating, ventilating and air conditioning (HVAC) systems should also be cleaned. Both cleaning processes should be supervised by an Industrial Hygienist. Upon completion of the cleaning/vacuuming processes, areas will be returned to Courthouse personnel. The results of this recommended action will be a significant decrease in the number of fungal spores and bacteria present in the work environment, in particular within employee breathing zones.

¹ High efficiency cleaning retains at least 99.97% of all mono-dispersed particles of .3 micrometers in diameter or larger.

The final recommendation provided by Cocciardi was to conduct public health education and hazard communication to inform workers of the nature of the hazards present and processes being implemented to address any hazards. The three primary pathogens of concern identified where accumulated avian waste is present are:

- Histoplasma Capsulatum (fungi);
- Cryptococcus Neoformans (fungi);
- Chlamydia Psittaci (bacterium);

Histoplasma Capsulatum is a fungal spore, which primarily affects a person's lungs. The vast majority of infected people have no or mild symptoms (flu-like). Chronic lung disease due to histoplasmosis can worsen over months or years. People with weakened immune systems [HIV Infection, cancer, persons receiving chemotherapy, or immuno suppressive modification drugs] are at greatest risk. Re-infection or reactivation of latent histoplasmosis can occur.

Cryptococcus Neoformans is the infectious agent of the disease cryptococcosis, a fungi most readily transmitted via the air, however most people can overcome inhalation exposures. Procedures preventing the transmission of histoplasmosis will also protect against exposures to cryptococcus neoformans and other microorganisms.

Psittacosis is caused by the bacterium chlamydia psittaci. The severity of the disease which again presents as flu-like symptoms can range from asymptomatic to a severe systemic disease.

You should be aware that many people exposed to these materials show no signs of illness, however, it is advisable to provide this information to your personal physician if you are symptomatic.

Additional information may be obtained from Cocciardi (717) 766-4500. Press releases concerning this event and actions can be found at www.cocciardi.com. A fact sheet concerning histoplasmosis provided by the U.S. Centers for Disease Control and Prevention, is attached.

doc/corr/2006/Alicon avian

Attachment

HISTOPLASMOSIS

What is histoplasmosis?

Histoplasmosis is an infectious disease caused by inhaling spores of a fungus called *Histoplasma capsulatum*. Histoplasmosis is not contagious; it cannot be transmitted from an infected person or animal to someone else.

What are the symptoms of histoplasmosis?

Histoplasmosis primarily affects a person's lungs, and its symptoms vary greatly. The vast majority of infected people are asymptomatic (have no apparent ill effects) or they experience symptoms so mild they do not seek medical attention. If symptoms do occur, they will usually start within 3 to 17 days after exposure, with an average of 10 days. Histoplasmosis can appear as a mild, flu-like respiratory illness and has a combination of symptoms, including malaise (a general ill feeling), fever, chest pain, dry or nonproductive cough, headache, loss of appetite, shortness of breath, joint and muscle pains, chills, and hoarseness. A chest X-ray of a person with acute pulmonary histoplasmosis will commonly show a patchy pneumonitis, which eventually calcifies. Chronic lung disease due to histoplasmosis resembles tuberculosis and can worsen over months or years. The most severe and rare form of this disease is disseminated histoplasmosis, which involves spreading of the fungus to other organs outside the lungs.

Who can get histoplasmosis?

Anyone working at a job or present near activities where material contaminated with *H. capsulatum* becomes airborne can develop histoplasmosis if enough spores are inhaled. After an exposure, how ill a person becomes varies greatly and most likely depends on the number of spores inhaled and a person's age and susceptibility to the disease. The number of inhaled spores needed to cause disease is unknown. Children younger than 2 years of age, persons with compromised immune systems, and

older persons, in particular those with underlying illnesses such as diabetes and chronic lung disease, are at increased risk for developing symptomatic histoplasmosis.

People with weakened immune systems are at greatest risk for developing severe and disseminated histoplasmosis. Included in this high-risk group are persons with AIDS or cancer and persons receiving cancer chemotherapy; high-dose, long-term steroid therapy; or other immuno-suppressive drugs.

Before 2000, a person could learn from a histoplasmin skin test whether he or she had been previously infected by *H. capsulatum*. However, the manufacturing of histoplasmin was discontinued in 2000, and the skin testing reagents were still unavailable in 2004. A previous infection can provide partial immunity to reinfection. Since a positive skin test does not mean that a person is completely immune to reinfection, appropriate exposure precautions should be taken regardless of a worker's past skin-test status whenever disturbances of materials that might be contaminated with *H. capsulatum* occur.

What is the treatment for histoplasmosis?

Mild cases of histoplasmosis are usually resolved without treatment. For severe cases, special anti-fungal medications are needed to arrest the disease. Disseminated histoplasmosis is fatal if untreated, but death can also occur in some patients even when medical treatment is received.

*Where are *H. capsulatum* spores found?*

H. capsulatum grows in soils throughout the world. In the United States, the fungus is endemic (more prevalent) and the proportion of people infected by *H. capsulatum* is higher in central and eastern states, especially along the Ohio and Mississippi River valleys. The fungus seems to grow best in soils having a high nitrogen content, especially

those enriched with bat droppings or bird manure. Disturbances of contaminated material cause small *H. capsulatum* spores to become airborne, or aerosolized. Once airborne, spores can easily be carried by wind currents over long distances.

How can someone know if soil or droppings are contaminated with *H. capsulatum* spores?

To learn whether soil or droppings are contaminated with *H. capsulatum* spores, samples must be collected and cultured. Presently, the method used to isolate *H. capsulatum* is expensive and requires several weeks to complete. If not enough samples are collected, small but highly contaminated areas can be overlooked. Until a less expensive and more rapid method is available, testing samples for *H. capsulatum* will continue to be impractical for most situations. Consequently, when thorough testing is not done, the safest approach is to assume soil in endemic regions and any accumulations of bat droppings or bird manure are contaminated with *H. capsulatum* and take appropriate exposure precautions.

What jobs and activities have risks for exposure to *H. capsulatum* spores?

Below is a partial list of occupations and hobbies with risks for exposure to *H. capsulatum* spores. Appropriate exposure precautions should be taken by these people and others whenever contaminated soil, bat droppings, or bird manure is disturbed.

- Bridge inspector or painter
- Chimney cleaner
- Construction worker
- Demolition worker
- Farmer
- Gardener
- Heating and air-conditioning system installer or service person
- Microbiology laboratory worker
- Pest control worker
- Restorer of historic or abandoned buildings
- Roofer
- Spelunker (cave explorer)

How can exposure to *H. capsulatum* be controlled and histoplasmosis prevented?

The best way to prevent exposures to *H. capsulatum* spores is to avoid situations where material that might be contaminated can become aerosolized and subsequently inhaled. This is especially important for persons with weakened immune systems.

Dust suppression methods, such as carefully wetting with a water spray, may be useful for reducing the amount of material aerosolized during an activity. For some activities, such as removing an accumulation of bat droppings or bird manure from an enclosed place such as an attic, wearing a NIOSH-approved respirator and other items of personal protective equipment may be needed to further reduce the risk of *H. capsulatum* exposure. However, only persons trained in the proper selection and use of personal protective equipment should undertake work where this equipment is needed.

Disinfectants have occasionally been used to treat soil and accumulated bat manure when removal was impractical or as a precaution before a removal process was started. There is no product or chemical that is registered by the EPA that has the specific claim of being effective against *H. capsulatum*. A manufacturer of a product claiming to disinfect soil contaminated with *H. capsulatum* will have to meet the EPA's regulatory requirements and complete the registration process.

Where can I get more information about histoplasmosis?

This histoplasmosis fact sheet was prepared by the National Institute for Occupational Safety and Health (NIOSH) and the National Center for Infectious Diseases (NCID), both of the Centers for Disease Control and Prevention. For answers to other questions about histoplasmosis or histoplasmin skin-testing, please contact your physician, your local health department, or NCID in Atlanta, Georgia. NCID's Internet address is <http://www.cdc.gov/ncidod/>. For other questions about worker health and safety precautions during disturbances of soil, bat droppings, or bird manure that might be contaminated with *H. capsulatum* spores, call NIOSH in Cincinnati, Ohio, at (800) 356-4674.