

# Toolbox Talks

## Bird and bat droppings

### Introduction

While the hazards of bird and bat droppings are generally exaggerated, there is some risk of disease wherever there are large populations of roosting birds or bats.

The most serious health risks arise from organisms that grow in the nutrient-rich accumulations of droppings, feathers, and debris under a roost — particularly if roosts have been active for years.



In addition, insects and parasites that live on birds, bats or their droppings may become a problem when the infested birds leave roosts or nests. These insects can invade buildings and bite or irritate people.

The two most common types of fungal diseases associated with bird and bat droppings are histoplasmosis and cryptococcosis.

### Histoplasmosis

Histoplasmosis is caused by a fungus (*Histoplasma capsulatum*). The disease is transmitted to humans by airborne fungus spores from soil contaminated by bird and bat droppings.

Fresh bird droppings do not contain *H. capsulatum*. Rather, bird manure is a nutrient source for the growth of *H. capsulatum* already present in soil. Soil must be enriched by these droppings for three years or more before the disease organism can reach significant levels.

The active and inactive roosts of blackbirds (e.g., starlings, grackles, and cowbirds) have been found to be heavily contaminated with fungus spores. *H. capsulatum* contamination may also be found in the habitats of pigeons and bats, as well as poultry houses with dirt floors.

Unlike birds, bats can become infected with *H. capsulatum* and consequently can excrete the organism in their droppings.

### Cryptococcosis

*Cryptococcus neoformans* (*C. neoformans*) is found worldwide. Its main habitats are debris around pigeon roosts and soil contaminated with decaying pigeon or chicken droppings. Humans become infected by inhaling the airborne organism in the form of dehydrated yeast or as spores.

# Toolbox Talks

Pigeon droppings appear to be the most important source of the fungus *C. neoformans* in the environment. The fungus is typically found in accumulations of droppings around roosting and nesting sites (e.g., attics, cupolas, ledges and water towers). *C. neoformans* has been found in as many as 84 percent of samples taken from old roosts. Even when old and dry, bird droppings can be a significant source of infection.

## Other associated diseases

Other diseases carried or transmitted by birds affect people to a lesser degree. Psittacosis and toxoplasmosis, for example, are normally mild in humans; however, serious illness or death may rarely occur. Pigeons and sparrows also have been implicated (along with many other species of birds) as sources of encephalitis viruses transmitted by mosquitoes.

Rabies, another viral disease, is a dangerous, fatal disease, but only about 5 percent of bats submitted for testing are infected with the rabies virus. However, there is concern about the risk of rabies transmission following contact with bats. If an injured or ill bat is found in or around a structure, it should be removed. Because most bats will try to bite when handled, they should be picked up with tongs or a shovel. (If you are uncomfortable removing a bat, contact your local animal control officer.) If a bat has bitten or scratched someone, capture the bat without touching it with your hands and without crushing its head. If the bat is dead, refrigerate it (DO NOT freeze) and then contact your local health department immediately for instructions.

## Who is at risk

Anyone who is exposed to these hazards in sufficient quantity is at risk of developing disease. However, certain demographic groups are of particular concern:

- Infants and the elderly
- Persons with compromised immune systems
- Persons with a history of respiratory illness

## Symptoms to watch for

In many cases, histoplasmosis or cryptococcosis may be asymptomatic (without symptoms). In fact, in some parts of the country, about 80% of the population has been determined to have been previously exposed to histoplasmosis without even knowing it.

In more serious cases, symptoms may be mild and similar to the flu. Symptoms may not be observed for days or even weeks after the exposure.

Normally, symptoms subside on their own, but may become more serious or even fatal in rare cases. Always consult your physician if you think you may have been exposed, especially if your symptoms don't improve within a few days.

The National Institutes of Health (NIH) has reported a potentially blinding eye condition — presumed ocular histoplasmosis syndrome (OHS) — that results from the fungus. NIH estimates that 4 percent of those exposed to the airborne organism are at risk of developing OHS.

# Toolbox Talks

## Removing bat or bird manure from a building

When an accumulation of bat or bird manure is discovered in a building, removing the material is not always the next step. Simply leaving the material alone if it is in a location where no human activity is likely may be the best course of action.

This is not always possible, of course, and, if the potential for human exposure exists, methods of safely controlling the risks during removal must be undertaken.

If there is a small accumulation of droppings from a few birds or bats, it can be cleaned up with soap and water. If large quantities of bird or bat droppings are present, contact an environmental engineering consultant for advice.

*Remember, the organisms are spread by becoming airborne and subsequently inhaled by humans.*

*Therefore, it is critical to avoid disturbing the material in order to prevent it from becoming aerosolized.* A brief inhalation exposure to highly contaminated dust may be all that is needed to cause infection and subsequent development of fungal disease.

Before shoveling or sweeping dry, dusty material, dampen it with a water spray to reduce the amount of dust aerosolized during the activity. Adding a surfactant or wetting agent to the water might further reduce the amount of aerosolized dust.

An alternative method is to use an industrial vacuum cleaner with a high-efficiency (HEPA) filter to bag contaminated material.

Air sampling, surface sampling, or the use of any other method intended to confirm that no infectious agents remain following removal of bat or bird manure is unnecessary in most cases. However, before a removal activity is considered finished, the cleaned area should be visually inspected to ensure that no residual dust or debris remains.

## Disinfecting contaminated material

Disinfectants have occasionally been used to treat contaminated soil and accumulations of bird or bat manure when removal was impractical or as a precaution before a removal process was started.

However, the only disinfectants that have been proven to be effective contain highly toxic chemicals such as formaldehyde. Therefore, these products may only be applied by qualified individuals.

## Disposing of manure

Before any disposal activity is started, the quantity of material to be removed should be estimated. (If the approximate volume of dry bat or bird manure in a building is known, the approximate weight can be calculated using a conversion factor of 40 pounds per cubic foot.) Requirements established by local and state authorities for the removal, transportation, and disposal of contaminated material should be followed.

Arrangements should be made with a landfill operator concerning the quantity of material to be disposed of, the dates when the material will be delivered, and the disposal location. If local or state

# Toolbox Talks

landfill regulations define material contaminated with fungal spores to be infectious waste, incineration or another decontamination method may also be required.

## Removal and cleanup of bird and bat droppings

Workers should follow certain precautions to minimize risk from disease organisms in the droppings:

- Cleanup should be done by healthy individuals.
- Wear a HEPA particulate respirator that can filter particles as small as 0.3 microns. Remember that if you wear any type of respirator for any reason, frequency, or duration, you may need to be included in a formal, written, respiratory protection program (see 29 CFR 1910.134).
- Wear disposable protective gloves, hat, coveralls, and boots.
- During the cleanup, seal heating and cooling air ducts or shut the system down.
- Moisten the droppings with a light mist of water to keep dust and spores from becoming airborne.
- Put droppings into sealed plastic garbage bags and double bag.
- When finished and while still wearing a respirator, remove protective clothing and place it in a plastic bag.
- Wash or shower at the work site after clean-up.
- Check with local government agencies to verify that disposal of the waste is permissible through standard trash pickup.

- Modify the structure to prevent birds or bats from reestablishing the roost.

## Questions

If you have questions on this topic, please contact the Office of Occupational Health and Safety at (612) 626-5008 or [uohs@umn.edu](mailto:uohs@umn.edu), or see the website at <http://www.ohs.umn.edu>.