Prevention of Rabies in Humans:

Bat Exposure Assessments and Bat Infestations

Since a bat can transmit rabies to a person through superficial contact or an unnoticed encounter, any potential exposure to a bat requires a thorough evaluation and risk assessment. If possible, bats involved in human exposures should be safely collected (preferably by Animal Control) and submitted for rabies testing at the NC State Laboratory of Public Health.

Bat exposures require special consideration. People do not always know how they might become exposed to rabies or understand the danger of rabies exposure. In the United States, most recent human rabies cases have been attributed to bat variant rabies, which is almost always fatal to humans. Many of these bat exposures were unrecognized or were not taken seriously by the exposed person, and the infecting agent was not identified until it was too late for treatment. (see CDC, www.cdc.gov/rabies/location/usa/surveillance/human_rabies.html).

Bats with rabies may appear normal or may seem sick or be found weak or dead – simple observation cannot determine infection. Although fewer than 3 out of every 100 bats submitted to the SLPH are found to be rabies-positive, testing is the *only way* to determine if a bat has rabies.

Important Points about Bat Exposures:

- **An exposure is**
  - A known bite or scratch from a bat;
  - direct physical contact with a bat when a bite or scratch cannot be ruled out;
  - bat **found in a room** with a deeply sleeping person;
  - bat **found in a room** with an unattended child;
  - bat **found in a room** with an intoxicated or mentally compromised person;

  Bat exposures may be difficult to recognize, and should be carefully assessed and explained to those who may be affected because:

    - bats have tiny, sharp teeth that inflict limited injury, so a bite may not be evident;
    - some bat-related rabies viruses can result in infection after inoculation into superficial (shallow) layers of the skin (a scratch or nick by a tooth);
    - the person who was exposed may not understand the seriousness of a potential rabies exposure and may be difficult to convince.

  - If any person has been potentially exposed to a bat, the bat should be safely caught (https://www.cdc.gov/rabies/bats/contact/capture.html) and submitted for testing without delay. If the bat is not available for testing, start rabies post-exposure prophylaxis (PEP).

Bat Infestations

Determine if there is a bat infestation in the building

- When a bat is found in a living space, a determination of how the bat entered the home should be made, and any points of entry should be closed or sealed off.
    - Entry portals include open outside doors, open windows, open chimney flues, cracks around an attic door, cracks or holes in a ceiling or wall, vents, and holes around plumbing or light fixtures.
- If the point of entry is not obvious the owner/manager of the building should consider calling a professional, such as a Wildlife Damage Control Agent (https://www.ncwildlife.org/Trapping/Wildlife-Damage-Control-Agent) who is experienced in bat exclusions.
- If more than one bat has been found in the living space, then a professional should be consulted to inspect for infestation and to exclude bats from the living space.
- **Signs of bat infestation** include:
    - Bats flying out of building at dusk;
    - Squeaking and/or scratching noises behind wall(s);
    - Stains or odor from guano (bat droppings) on outside of building (roof, window louvers, vents, etc.), or inside building (attics, rafters, loft areas, etc.); and
- If there is evidence that bats are getting into the living space frequently, it may be appropriate to recommend PEP for everyone who was potentially exposed in the building. If this is the case, do not submit the bat(s) for testing as there is no way to tell whether a captured bat is the one that may have exposed the person.

Infestations in apartment and other multi-unit buildings

- If the bat infestation is in an apartment or other multi-unit building, LHD communicable disease nurses should assess people for exposures to the bats.
- LHD CD nurses should provide potentially exposed and exposed persons with rabies education, guidance for access to post-exposure prophylaxis/vaccination (PEP), and contact information for asking questions
- An informational meeting to educate residents about rabies, bats and PEP assessments may be held with the LHD CD nurse, environmental health expert, and building owners or management. Veterinary Public Health (919-733-3419) may be called to assist.
- LHD CD nurses should develop a line list of persons potentially exposed to bats, including demographics, address, phone number, type of exposures, PEP recommended (y/n), PEP begun (y/n), Days 0, 3, 7, 14, (and 28 if immune-compromised), PEP completed (y/n), etc.

Removal of bat guano (droppings) is important.

- Guano present in areas where bats roost can cause histoplasmosis, a serious fungus infection, in humans (see CDC web site, https://www.cdc.gov/fungal/diseases/histoplasmosis/index.html Guano should be cleaned up by a professional industrial hygienist using personal protective equipment (local Environmental Health should collaborate with the N.C. Division of Public Health Occupational and Environmental Epidemiology Branch).

- **Contact** N.C. Occupational and Environmental Epidemiology Branch (**919-707-5900**) to assess guano accumulation and potential for histoplasmosis, and for remediation recommendations.
- **See the NIOSH booklet, Histoplasmosis: Protecting Workers at Risk**, at www.cdc.gov/niosh/docs/2005-109/pdfs/2005-109.pdf (see Appendix for histoplasmosis fact sheet).