

# Animal Bites: Clinical and Public Health Considerations

## Proper Cleaning and Disinfection

Animal bites are always considered grossly contaminated. If a wound can be properly irrigated and disinfected, antibiotics are not always recommended. If a wound cannot be properly irrigated and disinfected, antibiotics should be considered.

Considerations when irrigating/cleaning and disinfecting:

- Assess the need for debridement.
- Ensure you flush the wound using adequate pressure, using a 20-mL or larger syringe.
  - Heavily contaminated wounds require more irrigation



- If available, a virucidal agent such as povidine-iodine solution should be used to irrigate the wounds.

## Antibiotics

Antibiotics should not be a first-line treatment for every animal bite you treat. Doing so promotes antibiotic resistance. However, if the answer to any of the questions below is “yes” you may want to consider using antibiotics:

Are there overt signs of infection?

- Culture if possible and consider starting treatment with a broad-spectrum antibiotic until culture results return, then switch to a more narrow antibiotic. Note that culturing bite wounds is generally not helpful unless the wound is abscessed or infection is otherwise evident.

Is your patient immunocompromised?

- Consider patients that are asplenic, have advanced liver disease, have edema in the affected area, or that are very young or very old as immunocompromised.

Is the bite moderate-to-severe?

- Consider moderate-to-severe if it:
  - involves hands, face, or genital region
  - penetrates the periosteum
  - penetrates a joint capsule
  - involves a deep structure requiring surgical repair



Is there delayed presentation?

- Bites to the arms or legs after more than 6 to 12 hours and bites to the face after more than 12 to 24 hours are considered delayed presentations.

## Recommendations by Type of Animal Bite

**Cat bites:** Penetrating and difficult to decontaminate. The canine teeth in cats can act like needles, depositing bacteria deep in tissue.

- Prophylactic antibiotics to decrease bacterial infection risk

**Dog bites:** Tearing bites, resulting in open wounds. Decontamination can greatly reduce bacterial contamination and is easier to perform than with other types of animal bites.

- Antibiotics only when above criteria met

**Snake bites:** Penetrating and can result in toxicity. Venomous snakes found in the DC region include copperheads and timber rattlesnakes.

- Antivenom and clinical care (ie airway support as needed)

### Copperhead



**Bat bites:** Small and penetrating. Sometimes they cannot be seen with the naked eye. Rabies is the biggest concern.

- Assess patients for rabies risk (detailed information can be found on the DC Health [rabies webpage](#))

**Rodent bites:** Small and penetrating. Very little rabies risk. Greatest risk is [rat bite fever](#). While transmission of [hantavirus](#) from rodent bites is extremely rare, the virus can be spread via aerosol transmission in areas where rodents live. If a patient was bitten by a rodent, they were likely in the area where the rodent lives and may have inhaled viral particles.

- 21-day fever watch. If fever occurs collect a blood culture prior to prescribing antibiotics

**Wildlife bites:** Wild mammal bites are a rabies concern. In our region raccoons are the most likely animal to be rabid. Within DC squirrel bites occur frequently in high tourist areas and are almost never deemed a rabies risk.

- Assess patients for rabies risk (detailed information can be found on the DC Health [rabies webpage](#))

**Non-human primate (monkey) bites:** These carry a risk for rabies among international travelers, being the second most common rabies risk to travelers after dog bites. Bites from macaques can also result in [herpes virus B](#) infections, resulting in severe brain damage or death if the patient is not treated soon after exposure. Testing for Herpes virus B can be requested from the [National B Virus Resource Center](#).

- Prophylactic antibiotics to decrease bacterial infection risk

## Potential Pathogens and Recommendations

### Tetanus (*Clostridium tetani*)

- Anyone bitten by an animal that has not received a tetanus booster in the past five years should be vaccinated against tetanus immediately.



### Rabies

- The only way to determine if a domesticated dog or cat that bites a person did not have rabies is for it to remain healthy and live through a 10-day observation period under veterinary supervision or to test negative for rabies.
- The only way to determine if wildlife that bite a person was not rabid is for it to test negative for rabies (brain tissue biopsy).
- Detailed information on assessing patients for rabies risks and when to administer post-exposure prophylaxis can be found on the DC Health rabies webpage: <https://dchealth.dc.gov/service/rabies-and-animal-exposures>.

### Pasteurella multocida

- Normal oral flora in dogs and cats.
- In people, pasteurellosis causes painful wound and skin infections. In severe cases, it can cause widespread infection and potentially affect the nervous system. Skin manifestations typically appear within 24 hours.
- $\beta$ -lactam antibiotics are usually effective.

### Capnocytophaga canimorsus

- Normal oral flora in [dogs and cats](#).
- Greater risk for immunocompromised people with a high fatality rate in this group.
- Antibiotic treatment recommended as soon as possible.

### Rat bite fever (*Streptobacillus moniliformis*)

- Transmitted by bites or scratches from infected rodents (such as rats, mice, and gerbils), handling rodents with the disease (even without a bite or scratch), and consuming food or drink contaminated with the bacteria.



- Without treatment, rat bite fever can be serious or potentially fatal. Penicillin is usually effective.

### Cat Scratch Disease (*Bartonella henselae*)

- $\approx$  40% of cats carry it at some point; however, kittens younger than 1 year of age are more likely to have it.



- People who are bitten or scratched by an affected cat may develop a mild infection 3-14 days later at the wound site. The infection may worsen and cause fever, headache, poor appetite, and exhaustion. Later, the lymph nodes closest to the original wound can become swollen, tender, or painful.



- Most cases resolve without treatment, although some may develop complications from disseminated disease. Azithromycin can decrease lymph node volume more rapidly compared to no treatment.

## Pain Medication

Only you and your patient can determine if an animal bite is causing enough pain to warrant pain medication and only you can determine the type of medication that is appropriate. However, prescribing some types of medications such as [opioids](#) comes with the risk of addiction and overdose.

Always keep in mind:

- Anyone who takes prescription opioids can become addicted.
- As many as 1 in 4 patients receiving long-term opioid therapy in a primary care setting struggle with opioid addiction.

## Additional Resources

DC Health: [Rabies and Animal Exposures](#)

DC Health: [Healthcare-Associated Infections](#) & [Antibiotic Resistance](#)

American Family Physician: [Dog and Cat Bites](#)

American Veterinary Medical Association: [Dog Bite Prevention](#)

Centers for Disease Control and Prevention: [Preventing Dog Bites](#)

Georgia State University: [Herpes Virus B testing](#)

World Health Organization: [Animal bites](#)