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Patient information: Animal bites (Beyond the Basics)

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Disclosures

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ANIMAL BITES OVERVIEW — Animal bites are a common problem in the United States, with two to five million occurring each year. Children are bitten more often than adults. The vast majority of animal bites are caused by dogs (85 to 90 percent), with the remainder caused by cats (5 to 10 percent) and rodents (2 to 3 percent).

The most feared complication of an animal bite is rabies, although skin infection is the most common complication. Some bite wounds can be serious, causing injury and permanent disability. Bite wounds to the hand carry an especially high risk for serious complications because the skin's surface is so close to the underlying bones and joints.

This topic review discusses recommendations for care after an animal bite. Prevention of rabies is discussed in a separate topic review. (See "[Patient information: Rabies \(Beyond the Basics\)](#)".)

TYPES OF ANIMAL BITES — The location and type of the injury depends upon the animal inflicting the bite.

Dog bites — Victims of dog bites frequently know the dog that attacked them. Most dog bites occur in children, with the highest number seen in boys between the ages of five and nine years old. The head and neck are the most common site of bites in children up to age 10 years, probably because a child's head is close to the level of a large dog's mouth. The arms and legs, particularly the right hand, are the most frequent site of injury for older children and adults. A dog bite can lead to a range of injuries, including scratches, deep open cuts, puncture wounds, crush injuries, and tearing away of a body part. Dog bites rarely cause death.

Certain breeds of dog are more commonly associated with bites. German Shepherds, pit bull terriers, and mixed breeds account for the majority of dog bite injuries.

Cat bites — Cats can cause wounds with their teeth or claws. Two-thirds of cat bites involve the upper extremities (arms and hands). Scratches typically occur on the upper extremities or face.

Deep puncture wounds are of particular concern because cats have long, slender, sharp teeth. When the hand is bitten, bacteria can get into the tissue that surrounds the bones or into a joint and result in osteomyelitis (infection of the bone) or septic arthritis (infection of the joint).

If infection occurs, it generally progresses rapidly, causing skin redness, swelling, and intense pain as quickly as 12 to 24 hours after the bite.

Rodent bites — Rats cause the majority of rodent bites. Most bites occur at night on the face or hands in children five years old or younger.

Human bites — Children are the most common victims of human bites, usually as a result of aggressive play with another child. Human bites can cause a semicircular or oval area of skin redness or bruising, and the skin may be punctured. Human bites are typically located on the face, upper extremities, or trunk (chest or abdomen).

Other types of bites — The bites of most other animals, such as squirrels, rabbits, and guinea pigs, are generally treated the same way as cat bites.

ASSESSING FOR RABIES EXPOSURE — Anyone who is bitten by a raccoon, skunk, fox, coyote, or bat needs immediate medical attention, even if the bite is small and does not appear to be infected. These animals can be carriers of rabies, and post-bite rabies medications should be started as soon as possible. Since cats and dogs may also harbor rabies, all cat and dog bites should be reported to the animal control section of the local health department. (See "[Patient information: Rabies \(Beyond the Basics\)](#)".)

ANIMAL BITE TREATMENT — After being bitten by an animal or human, it is important to quickly and carefully clean the wound thoroughly with soap and a large amount of water; this can help to prevent infection. If there is bleeding, a clean towel or gauze should be pressed to the wound to slow or stop the bleeding.

Do I need treatment? — Adults or children who have been bitten by an animal or human should see a healthcare provider if:

- An animal bite has broken through the skin and bleeding does not stop after applying pressure for 15 minutes
- A bone may be broken, or if there is other serious injury
- A bite victim has diabetes, liver disease, cancer, HIV-infection, or takes a medication that could weaken the immune system

It is best to be evaluated and treated within 8 hours of being bitten. Beginning treatment, if indicated, within 8 hours significantly reduces the chance of developing an infection.

People who do not meet the above criteria should watch their wound carefully for signs of infection (eg, worsening pain, redness, or warmth, fever, or pus-like discharge); if the bite is near a joint, the person should monitor for pain, swelling, and joint movement. Anyone whose wound appears to be worsening rather than improving should seek medical care. It is not necessary to be evaluated after a cat scratch from a house pet unless there are signs or symptoms of infection (worsening pain, warmth or redness, pus-like discharge, or fever). If the scratch originates from an unknown cat from the outdoors that attacked without provocation, medical advice should be sought regarding rabies risk. (See "[Patient information: Rabies \(Beyond the Basics\)](#)".)

Antibiotics — The most common complication of an animal bite is infection. Antibiotics are generally recommended to prevent infection in people with high-risk wounds, facial wounds, wounds involving a bone or joint, and for people with other health problems, such as a weakened immune system or diabetes, which could increase the risk of serious infection.

Many experts also recommend antibiotics for any person bitten by a cat because there is a high rate of infection from cat bites.

Antibiotics are usually given in a pill form. Some people will require a prolonged course of intravenous or oral antibiotics, especially if the wound becomes infected.

Tetanus immunization — Tetanus is a serious, potentially life-threatening infection that can be transmitted by an animal or human bite. Adults who are bitten should receive a tetanus vaccine (called a tetanus toxoid vaccine) if the most recent tetanus vaccine was greater than 5 years ago. (See "[Patient information: Adult vaccines \(Beyond the Basics\)](#)".)

In addition, [tetanus immune globulin](#) may be recommended if the person is not sure of the date of their last tetanus vaccination. The immune globulin provides additional protection against tetanus infection.

Rabies immunization — People who are bitten by an animal that could be infected with rabies MUST seek medical attention to determine if a series of injections is needed to prevent rabies, which is usually a fatal illness. This is discussed in detail in a separate topic review. (See "[Patient information: Rabies \(Beyond the Basics\)](#)".)

Sutures (stitches) — Some wounds can be sutured (stitched closed) within several hours of the injury, after the wound is thoroughly cleaned. Wounds to the face are usually closed immediately to avoid developing a scar.

However, due to the risk of infection, some bite wounds may not be sutured immediately. These wounds may be left open and sutured 72 hours after the injury. When wounds are left open, they are flushed with saline (a salt and water solution), left open to drain, covered with a dressing, and examined daily to look for signs of infection.

Immediate suturing is not recommended for wounds at high risk of becoming infected, including:

- Crush injuries
- Puncture wounds
- Bites involving the hands
- Dog bite wounds that occurred many hours earlier
- Cat or human bites, except those to the face
- Bite wounds in people who have a weakened immune system

Management of an infected bite wound — People who do not seek immediate medical attention after being bitten may develop an infection in their wound. If this happens, surgical treatment and antibiotics may be required. People with an infected wound can be treated at home unless the person is not able to take care of their wound or if there is concern that the infection is worsening; in these cases, hospitalization is recommended.

People who are at risk for developing a wound infection should seek prompt medical attention even if there are no signs of redness (see "[Do I need treatment?](#)" above). For example, a person who has a deep puncture wound in their hand from a cat bite should seek medical attention immediately to prevent infection. Medical care usually consists of cleaning and dressing the wound and oral antibiotics that can be taken at home.

An x-ray may be done to ensure that there is no bone fracture and that tooth fragments are not buried in the wound. Infected bite wounds are not generally sutured immediately. Severe wound infections may require antibiotics given by intravenous injection and/or hospitalization.

SUMMARY — Adults or children who have been bitten or scratched by an animal or human should see a healthcare provider in the following situations:

- An animal has bitten and broken the skin and bleeding does not stop after applying pressure for 15 minutes, a bone may be broken, or there is other serious injury.
- A dog or cat has bitten the hand, foot or head, or has bitten another area and caused a large wound.
- A bite victim has diabetes, liver disease, cancer, HIV infection, or takes any medications that could weaken the immune system.
- There are signs or symptoms of infection, including worsening pain, warmth or redness, pus-like discharge, or fever.
- If the bite victim had their last tetanus shot more than five years ago, or if they cannot remember when they received their last tetanus shot. (See "[Patient information: Adult vaccines \(Beyond the Basics\)](#)".)
- If there is a concern about possible rabies.

WHERE TO GET MORE INFORMATION — Your healthcare provider is the best source of information for questions and concerns related to your medical problem.

This article will be updated as needed on our web site (www.uptodate.com/patients). Related topics for patients, as well as selected articles written for healthcare professionals, are also available. Some of the most relevant are listed below.

Patient level information — UpToDate offers two types of patient education materials.

The Basics — The Basics patient education pieces answer the four or five key questions a patient might have about a given condition. These articles are best for patients who want a general overview and who prefer short, easy-to-read materials.

[Patient information: Animal bites \(The Basics\)](#)

[Patient information: Avoiding infections in pregnancy \(The Basics\)](#)

[Patient information: Taking care of cuts and scrapes \(The Basics\)](#)

[Patient information: Swollen neck nodes in children \(The Basics\)](#)

[Patient information: Tetanus \(The Basics\)](#)

[Patient information: Cat scratch disease \(The Basics\)](#)

Beyond the Basics — Beyond the Basics patient education pieces are longer, more sophisticated, and more detailed. These articles are best for patients who want in-depth information and are comfortable with some medical jargon.

[Patient information: Rabies \(Beyond the Basics\)](#)

[Patient information: Adult vaccines \(Beyond the Basics\)](#)

Professional level information — Professional level articles are designed to keep doctors and other health professionals up-to-date on the latest medical findings. These articles are thorough, long, and complex, and they contain multiple references to the research on which they are based. Professional level articles are best for people who are comfortable with a lot of medical terminology and who want to read the same materials their doctors are reading.

[Initial management of animal and human bites](#)

[Pasteurella infections](#)

[Rabies immune globulin and vaccine](#)

[Rat bite fever](#)

[Soft tissue infections due to dog and cat bites](#)

[Soft tissue infections due to human bites](#)

[When to use rabies prophylaxis](#)

[Zoonoses from cats](#)

[Zoonoses from dogs](#)

[Zoonoses from pets other than dogs and cats](#)

The following organizations also provide reliable health information.

- National Library of Medicine

(www.nlm.nih.gov/medlineplus/ency/article/000034.htm, available in Spanish)

- Centers for Disease Control and Prevention (CDC)

Toll-free: (800) 311-3435

(www.cdc.gov)

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