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## BITES AND SCRATCHES - ADULT

### DEFINITION

An injury or mark caused by an animal or a human being. The primary puncture wounds are caused by teeth that may also tear tissue and, in some cases, remove tissue in pieces. Wounds frequently become infected.

If a bite has been inflicted on a vulnerable adult consider protection issues and follow local policies for referral of vulnerable adults considered at risk.

### Potential Causes

- Animal bites are common. 60–80% are caused by dogs, and 20–30% by cats; bites by other animals (rabbits, guinea pigs, hamsters, rats, mice) are much rarer.
- Human bites account for as many as 20% of all bite injuries in some urban areas. Indirect human “bite” wounds caused by a blow from the fist to another person’s teeth have their own specific pattern of injury (known as reverse bite injury, clenched fist injury, or fight bite).
- The spectrum of injury is broad. Infectious complications are common due to unusual pathogens.

## Typical Findings of a Bite Wound

### History

- Determine cause of injury (human, animal)
- For animal bites: determine if bite was caused by a provoked or unprovoked animal
- Determine vaccination status of the animal (if possible) Refer to BCCDC, Communicable Disease Control, Management of Specific Diseases, Rabies (May 2017).
- Human bite: assess to determine exposure risk to the bloodborne viruses’ hepatitis B virus (HBV), hepatitis C virus (HCV), syphilis, and Human Immunodeficiency Virus (HIV). bloodborne viruses?. Refer to BCCDC, Communicable Disease Control, Blood and Body Fluid Exposure (August 2016).
- Determine time elapsed since injury (after 3 hours, the bacterial count in a wound increase dramatically)
- Determine potential contaminants:
  - wound contact with manure, rust, dirt, etc., will increase risk of infection and tetanus
  - wounds sustained in barnyards or stables should be considered contaminated (*Clostridium tetani* is indigenous in manure)
- Amount of blood lost

BCCNP monitors and revises the BCCNP certified practice decision support tools (DSTs) every two years and as necessary based on best practices. The information provided in the DSTs is considered current as of the date of publication. BCCNP-certified nurses (RN(C)s) are responsible for ensuring they refer to the most current DSTs.

The DSTs are not intended to replace the RN(C)'s professional responsibility to exercise independent clinical judgment and use evidence to support competent, ethical care. The RN(C) must consult with or refer to a physician or nurse practitioner as appropriate, or whenever a course of action deviates from the DST.

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- Loss of function in nearby tendons, ligaments, nerves (sensation)
- Immunization status including: tetanus and hepatitis
- Assess if client or household contacts have tested positive for methicillin resistant staphylococcus aureus (MRSA)

## PHYSICAL ASSESSMENT

### Vital Signs

- Findings may be tachycardia, hypotension if significant blood loss
- General
- Assess wound for:
  - Dimensions and depth
  - Lacerations versus punctures
  - Tissue loss
  - Infection (erythema, warmth, tenderness, discharge, local lymphadenopathy)
  - Assess integrity of underlying structures (nerves, ligaments, tendons, blood vessels):
    - Vascular injury – capillary refill should be checked distally
    - Neurologic injury – check distal muscle strength, movement distal to wound and sensation
    - Always check sensation before administering anaesthesia
    - For hand and finger lacerations check two-point discrimination (Two-point discrimination measures the individual's ability to perceive two points of stimuli presented simultaneously. The health care practitioner is interested in the smallest distance between the points that can still be perceived as two points by the individual being tested.), this should be less than 1 cm at the fingertips
    - Tendons – can be evaluated by inspection, but individual muscles and tendons must also be tested for full range of motion and full strength
    - Assess range of motion of all body parts surrounding the wound site
    - Bones – check for open fracture or associated fractures, based on mechanism of injury
    - Foreign bodies – inspect the area

### Diagnostic Tests

- Swab discharge for Culture and Sensitivity (C&S) if infected
- For animal bite injuries follow the British Columbia Centre for Disease Control (BCCDC) Rabies Protocol (see references)
- For human bite injuries follow the British Columbia Centre for Disease Control (BCCDC) Blood and Body Fluid Exposure Management.

## MANAGEMENT AND INTERVENTION

**Note:** Remove all jewelry from affected area.

- Prophylaxis for tetanus, blood borne pathogens and rabies should be provided when indicated, as per BCCDC. A potential increased risk of thrombosis (blood clots) has been observed within 24 hours of

receipt of immune globulin products, especially when given in large doses (i.e., more than 10 mL). Additional risk factors include: age 45 years and older, history of thrombosis, or those with risk factors for thrombosis (e.g., obesity, high blood pressure, diabetes, prolonged periods of immobilization, use of estrogens, a history of heart disease, blood clotting disorders, indwelling central vascular catheters, or diseases that thicken the blood).<sup>4</sup>

- As per the BCCDC, The risk of HIV from a human bite is very low and in most circumstances HIV PEP is not required. In extreme circumstances, if either person is known to be HIV positive and the bite draws blood, causes very deep wounds, or the viral load is high then post exposure prophylaxis (PEP) could be considered after discussion with a specialist. If HIV PEP is given, the follow-up blood test should be done. There is no PEP available for HCV.<sup>4</sup>

**Note:** People who have experienced the following should not get tetanus immune, those who have:

- had a life - threatening reaction to a previous dose of any immune globulin or any of its components
- a condition called isolated immunoglobulin A deficiency;
- been immunized against measles, mumps, rubella or chickenpox within the past 14 days. <sup>5</sup>

### Goals of Treatment

- Prevent/control infection
- Preserve function
- Prevent infection from blood borne pathogens, tetanus, or transmission of rabies
- Determine need for tetanus, rabies, and blood borne pathogen diseases prophylaxis

### Non-pharmacological Interventions

- Thoroughly cleanse and irrigate with normal saline
- Remove any debris and devitalized tissue
- Consider suture repair of low-risk bite wound lacerations. These are non-infected wounds, have no evidence of damage to underlying structures and present within 8-12 hours of injury.

Do not suture or close:

- infected wounds
- Deep puncture wounds
- Bite wounds more than 8-12 hours old
- Crush injuries
- Bites in an immunocompromised host
- Cat or human bites
- Bites to the hand or foot

## PHARMACOLOGICAL INTERVENTION FOR HUMAN, CAT and DOG BITES

- Antibiotics are routinely given prophylactically for all human bites if there is moderate to severe tissue damage, deep puncture wounds or bites to the face, hand, foot or genitals that are more than a simple superficial abrasion.

- Assess for risks of blood borne pathogen transmission and treat appropriately
- Only 3-28% of dog bites become infected and routine prophylaxis is not recommended
- 28-80% of cat bites become infected. Antibiotics are routinely given prophylactically for cat bites as they have a greater prevalence of anaerobes and infection.
- Prophylaxis is required for elderly unvaccinated or partially vaccinated population
- Prophylaxis:

- Amoxicillin 500 mg/Clavulanate 125mg po tid for 3-5days

*Or*

- Amoxicillin 875 mg/Clavulanate 125 mg po bid for 3-5 days
- If allergic to penicillin:
  - Doxycycline 100 mg po bid for 3-5 days

- Treatment for infected bites or scratches:
  - Amoxicillin 500 mg/clavulanate 125mg po tid for 7-14 days

*Or*

- Amoxicillin 875 mg/clavulanate 125 mg po bid for 7-14 days
- If allergic to penicillin:
  - Doxycycline 100 mg po bid for 10 days

#### **Pregnant and Breastfeeding Women:**

- DO NOT USE doxycycline
- Amoxicillin/clavulanate as outlined above may be used
- Or
- Clindamycin 300-450 mg qid for 3-5 days

#### **Potential Complications (All Bites)**

- Septic arthritis
- Osteomyelitis
- Abscess formation
- Tendonitis
- Nerve damage
- Compartment syndrome
- Fracture
- Sepsis
- HIV, Syphilis and Hepatitis B and C as a result of exposure to body fluids – human bites only
- Tetanus and or Rabies

#### **Client Education and Discharge Information**

- Advise on condition, timeline of treatment and expected course of disease process
- Instruct to keep wound clean and dry
- Keep injured area elevated
- If redness, swelling or pain increases, return to clinic for assessment

- If appropriate, review measures to avoid animal bites

### **Monitoring and Follow Up**

- Return to clinic in 24 hours for re-assessment

### **Consultation and/or Referral**

- Refer all human bite wounds over the knuckle or having the potential to injure underlying structures to a physician or nurse practitioner
- Refer to a physician or nurse practitioner to consider intravenous (IV) antibiotics if infection has already occurred with a human bite
- A common location for the human bite is over the knuckles:
  - This injury is usually sustained when a closed fist strikes the teeth of an opponent
  - There is frequently penetration of the tendon sheath and/or the joint space
  - The hand must be examined with the fingers in a flexed position so that the deeper structures are in the identical position that they were when the injury was sustained
  - Only in that position can injury to the underlying structures be visualized through the open skin wound
  - Sometimes a foreign body such as a broken tooth is found in the wound
- Refer all facial bites to a physician or nurse practitioner
- Refer any concerns regarding rabies or unprovoked attacks to public health or a local medical health officer
- Encourage client to report a dog attack / bite to RCMP, animal control officer or appropriate official

### **DOCUMENTATION**

As per agency policy. Additional public health reporting may be required in relation to rabies prophylaxis.

## REFERENCES

More recent editions of any of the items in the Reference List may have been published since this DST was published. If you have a newer version, please use it.

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