Care and Treatment Plan: Minor Bites and Scratches – *Adult and Pediatric*

Definition[1–5]

The purpose of this DST is to discuss care and treatment related to minor wounds caused by animal (primarily cats and dogs) or human interactions, often resulting from an altercation or attack. Bites commonly present as puncture wounds or abrasions caused by interaction with teeth, but can also cause damage to underlying structures, including crush injuries. Scratches are injuries to the superficial layers of skin, and can be caused by interaction with teeth, nails or other objects during an physical interaction. Bites and scratches may also cause tissue tearing and, in some cases, tissue loss due to the forces applied during the interaction. Infectious complications are more common with animal and human bites and scratches due to the associated bacterial pathogens, in comparison to wounds from other inanimate sources.

Registered Nurses with **Remote Nursing** Certified Practice designation (RN(C)) are authorized to manage and treat minor bites and scratches in adults and in children who are **2 years of age and older**, dependant on assessment of severity.

Significant bites or scratches that have damaged multiple layers of skin tissue or any underlying anatomical structures, as well as any moderate to severe injuries to the hands or feet, or with risk of permanent functional or aesthetic harm (facial wounds), are not considered minor and require an immediate referral or consultation with a physician or nurse practitioner. The management of these higher risk presentations may require specialist follow up or surgical intervention and do not fall within the RN(C) scope of practice.

Note: In BC, the term pediatrics is often defined as an individual under the age of 19.[6] For the purposes of certified practice DSTs, pediatrics refers to individuals under the age of 19 unless otherwise specified.

Note: A consultation refers to the RN(C) collaborating with members of the care team, such as a physician, nurse practitioner, or pharmacist, to support decision-making processes related to the diagnosis, treatment, and management of the diseases, disorders, and conditions that the RN(C) are authorized to diagnose, treat, and manage. A referral is when an RN(C) refers a patient to a medical care provider for further treatment, care, or management. This occurs when patients are presenting with symptoms outside of what is provided in this document, including symptoms that require urgent referral.

Note: If any pattern of injuries to a child raise suspicion of intentional harm or abuse, contact should be made with the appropriate authorities, including referral or consultation with a physician or nurse practitioner.

Management and Intervention[2–5,7]

Goals of Treatment

- Clean and assess all wounds
- Reduce overall risk of infection
- Assess all injuries and determine level of care required, including potential referral or consultation
- Manage specific risks of infection from blood borne pathogens, tetanus and rabies according to BC Center for Disease Control (BCCDC) standards

Note: Most of the literature referenced relates to cat, dog and human bite and scratch concerns, due to the overwhelming prevalence of these sources of injury. If other species (including bats and rabies concern) are involved, or any RN(C) is unsure of specific requirements for their clients presentation, a referral and/or consultation with a physician or nurse practitioner is required.

Non-Pharmacologic Interventions

- Remove all jewelry from affected area.
- Thoroughly cleanse and irrigate each wound with normal saline or clean running water
- Remove any debris and devitalized tissue
- Elevation of the affected area to reduce swelling

Suturing[2–5,8,9]

Most animal or human bite and scratch wounds should be left to heal by secondary intension, or delayed primary closure only provided by a physician or nurse practitioner. Suture closure of low-risk **scratch** injuries may be considered if the RN(C) is

competent in the activity, taking into consideration the BCCNM Acting Within Autonomous Scope of Practice Standards and the contraindications listed below:

Contraindications to suturing (primary closure) by RN(C):

- Infected wounds
- **All bite wounds**, human or animal
- Any wounds to the hands, feet, face or genitals
- Deep puncture wounds that cannot be adequately irrigated
- Wounds involving crush injuries or any damage to structures below the superficial layers of skin (epidermis)
- Bites or scratches in any immunocompromised host
- Any wounds over a previously infected or ulcerated area
- Any wounds over a joint or under tension

Note: some small (<4cm), linear, well approximated, and low tension lacerations may benefit from light closure with tissue adhesives such as "Steri-Strip" bandages or "Glu-Stitch" liquid skin glue, rather than suturing. These techniques may be considered if the RN(C) is competent in the activity, taking into consideration the same contraindication as above.

Pharmacologic Intervention[2–5]

Prophylaxis for tetanus, rabies and blood borne pathogens should be provided when indicated, as per BCCDC standards:

- For tetanus prophylaxis, see BCCDC, Tetanus Diphtheria (Td) Absorbed Immunization Guideline
- For animal bite injuries, see BCCDC, Management of Specific Diseases - Rabies
- For human bite injuries, see BCCDC, Communicable Disease Control, Blood and Body Fluid Exposure Management

Note: Some infectious profiles (such as rabies with bat interactions) are well known and minor cases can be managed by an RN(C) by following established practice guidelines, as supported by employer policies, processes and/or resources. In any case where an RN(C) is unsure of treatment requirements, or what considerations are required for a specific species exposure, a referral or consultation should be made with a physician or nurse practitioner.

Decision to treat with antibiotics for minor bites or scratches from an animal or human:

- Antibiotics are always indicated for wounds that are suspected to be infected
- Antibiotics are indicated prophylactically in the following types of minor wounds within RN(C) scope:
  - Immunocompromised clients, including those with diabetes or known neutropenia
  - Any bite wound penetrating through the epidermis, particularly when occurring on the hands, face, or genitals or other highly vascular areas
  - Any puncture wound caused by a **cat**, including bites or scratches (claw injuries)
  - Any **human** bite wound that has broken the skin, including reverse bite injuries

Note: Many other indications for prophylactic antibiotics are listed in the literature but do not fall within the RN(C) scope of practice listed above, including moderate to severe wounds to the hands or face, or over joints. See the introduction section to clarification of cases that always require referral or consultation with a physician or nurse practitioner to support treatment.

Antibiotic Recommendations: Adult[2–5,10,11π]

Preferred oral antibiotic selections:

- Amoxicillin 875mg/Clavulanate 125mg orally twice daily
  - Duration: prophylaxis: 3-5 days; treatment: 5-10 days

π *Interdisciplinary Consultation*

Alternative oral antibiotic selection for clients with penicillin allergy:

- Cefuroxime 500mg orally twice daily **PLUS** Metronidazole (Flagyl) 500mg orally twice daily
  - Duration: prophylaxis: 3-5 days, treatment: 5-10 days

Alternative oral antibiotic selection for clients with penicillin AND cefuroxime (ß-lactam) allergy:

- Doxycycline 100mg orally twice daily **PLUS** Metronidazole 500mg orally twice daily, **OR**
  - Duration: prophylaxis: 3-5 days; treatment: 5-10 days

Antibiotic Recommendations: Pediatrics[2–5,10,11π]

Note: Weight-based pediatric doses should not exceed recommended adult doses unless otherwise specified by daily maximum dosing parameters.

Preferred oral antibiotic selections:

- Amoxicillin/Clavulanate 15mg/kg/**dose** orally three times daily (max 500mg/**dose**)
  (dosing based on amoxicillin component)
  - Duration: prophylaxis: 3-5 days; active infection: 7-10 days

Alternative oral antibiotic selection for clients with penicillin allergy:

- Cefuroxime 15mg/kg/**dose** orally twice daily (max 500mg/**dose**)
  PLUS
  Metronidazole (Flagyl) 10mg/kg/**dose** orally twice daily (max 500mg/**dose)**
  - Duration: prophylaxis: 3-5 days; active infection: 7-10 days

Alternative oral antibiotic selection for clients with penicillin AND cephalosporin (ß-lactam) allergy:

Clients ≤ 8 years old:

- Clindamycin 10mg/kg/**dose** orally three times daily (max 450mg/**dose**)
  PLUS
  Sulfamethoxazole-Trimethoprim (Septra DS) 4-6mg/kg/**dose** orally twice daily (max 320mg/**dose**)
  - Duration: prophylaxis: 3-5 days; active infection: 7-10 days

Clients > 8 years old:

- Doxycycline 1-2mg/kg/**dose** orally twice daily (max 100mg/**dose)**
  PLUS
  Metronidazole (Flagyl) 10mg/kg/**dose** orally twice daily (max 500mg/**dose**)
  - Duration: prophylaxis: 3-5 days; active infection: 7-10 days

Note: doxycycline is not recommended for children under 8 years old due to risks of dental staining

Note: All ß-lactam antibiotics (including cefuroxime) are contraindicated for severe delayed type IV mediated reactions in patients with penicillin allergies. For mild penicillin allergies, cephalosporins are considered safe, as the risk of cross-reactivity is < 3%. RN(C)s are encouraged to consult a pharmacist, physician or nurse practitioner when needed, to determine the most appropriate treatment selection related to each patient's specific risk factors.[π]

In case of allergies to the above antibiotics, recurrent infection, culture and sensitivity swab results showing resistance to available antibiotics or unavailability of the previously listed antibiotics, consult with or refer to a physician or nurse practitioner.

Pregnant and Breastfeeding Women[12,13π]

When administering, dispensing, or prescribing a medication to an individual who is pregnant or breastfeeding, RN(C)s are encouraged to consult with interdisciplinary team members such as a pharmacist, physician, or nurse practitioner, as risks and

[π] *Interdisciplinary Consultation*

benefits of medication use may vary depending on patient-specific considerations. The considerations noted here are restricted to medications that are directly contraindicated.

- Acetaminophen, Amoxicillin-Clavulanate, Cefuroxime, and Cloxacillin may be used as above
- Ibuprofen is not recommended for **pregnancy**, particularly after 20 weeks gestation
- Metronidazole (Flagyl) is contraindicated in **pregnancy**, unless no other alternatives are available
    - Evidence shows limited risk, but confirms that alternatives should be chosen when available[π]
- Doxycycline is contraindicated for **pregnant** clients
- Doxycycline may be used for **breastfeeding** clients
- Sulfamethoxazole-Trimethoprim (Septra DS) should not be used during **pregnancy** or **breastfeeding**

Potential Complications[2–5,14]

- Cellulitis or abscess formation
- Sepsis or toxic shock
- Osteomyelitis or septic arthritis
- Compartment syndrome
- Nerve damage
- Permanent damage to bone or connective tissue structures
- HIV, Syphilis and Hepatitis B/C infection
  (can result from contaminated exposure to blood or body fluids from human bites only)
- Tetanus or infection
- Loss of mobility or function
- Cosmetic damage
- Psychological trauma (PTSD)
- Rare complications such as necrotizing fasciitis, endocarditis, meningitis or other novel infections

Client Education and Discharge Information[2–5,14]

- Counsel client about appropriate use of medications (dose, frequency, compliance)
- Encourage proper hygiene of all affected areas, including maintaining clean and dry conditions for healing
- If redness, swelling, pain or purulent drainage increases, return to clinic for assessment
- Return to clinic for assessment if onset of fever or signs of systemic infection
- Educate on benefits of prophylactic immunization for those in regular contact with animals
- Educate client regarding options to report a dog attack/bite to police, animal control officer or appropriate official

Monitoring and Follow-Up[2–5]

- If diagnostic swab results show resistance to the initiated anti-microbial selection, clients are to be alerted immediately and changed to a selection that demonstrates susceptibility
- Return to clinic of worsening/changing symptoms or development of fever
- Return to clinic in 48-72 hours for re-assessment regardless of treatment selection

Consultation and/or Referral[2–5]

Consult with or refer to a physician or nurse practitioner:

- RN(C)s should consider consultation or referral when they are unable to meet the BCCNM Registered Nurse (Certified Practice): Acting within Autonomous Scope of Practice standard

- If any diagnostic test results are returned showing evidence of an alternative diagnosis other than minor bites and scratches, a consultation or referral with a physician or nurse practitioner is required
- Any injuries/wounds are already significantly infected at time of assessment
- All cases where the animal species involved in the interaction is unknown, or from a species other than: cat, dog or human
    - Known or suspected interaction with bats must be referred for consideration of rabies risk
- All cases where the RN(C) suspects IV antibiotics **may** be needed
- All cases where suturing **may** be required, but is outside the scope of practice of RN(C)
- All immunocompromised clients (including diabetes, neutropenia, HIV, etc)
- All human bite wounds over the knuckle or potentially involving other underlying structures (bones, tendons, etc)
    - Human bite wounds to the hands/knuckles particularly related to closed-fist injuries or "fight bites" require special considerations and always require a referral or consultation
- All facial bites, or bites with risk of permanent functional or cosmetic damage
- All severe wounds, taking into consideration size/number of injuries, and significance of tissue tearing or loss
- All cases where there is any loss of function identified to any anatomical or nervous system

Documentation

As per agency policy and BCCNM standards.

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