

## Ringworm Protocol (simple/no cultures)

### Background:

- Dermatophytosis (Ringworm) is a fungal infection affecting the skin and hair of animals. It is zoonotic, meaning it can affect people as well, and therefore is a public health concern.
- It is highly infectious, contagious, as well as challenging and time consuming to treat.
- There are three common species of ringworm: *Microsporum canis*, *Trichophyton metagrophytes*, and *M. gypseum*. *M. canis* is spread via contact with infected animals and contaminated environment, while the other two species are less common and spread via rodents and soil contamination.
- Ringworm spores are very durable in the environment and can persist on surfaces for months to years.
- Not all animals exposed to ringworm will develop lesions, but cats and immunocompromised (young, old, ill, stressed) animals are more susceptible to infection.

### Recognition of Disease

- All cats should be screened with a Wood's Lamp at intake. Any cat with lesions *must* be screened at intake.
  - Wood's lamps pick up the majority of cases of *M. canis*. A negative Wood's lamp does not rule out ringworm, the animal still may be positive.
- Common places to screen carefully are: eyes, ears, paws and tail
  - Lesions commonly have:
    - Alopecia (loss of hair)
    - Crusting
    - Erythema (redness)
    - Lesions do not have to be circular

### Diagnosis

- Wood's Lamp
  - Under a Wood's lamp, the hair shafts will glow bright apple-green. This color cannot be washed off or brushed away.
  - Be careful because other items may glow as well, such as doxycycline (bright yellow), urine (yellow) and other medications. These can often be washed away and do not glow the apple-green color.

### Treatment

- Treatment consists of both topical and oral antifungal medication.
- Lime Sulfur Dip
  - Topical (on the skin) therapy is a key component in treating ringworm
    - Kittens/puppies should be at least 2-3 weeks old before receiving lime dip treatments
    - These animals may need supplemental heat to stay warm after dipping
  - Dips should occur twice weekly, at a concentration of 8oz lime sulfur to 1 gallon of warm water.
  - The animal should be completely soaked to the skin with a spraying tool (i.e. spray bottle or garden sprayer), not submerged in the dip solution.

- The more sensitive areas (around the face and ears) should be sponged with a wet lime sulfur soaked washcloth or cotton pad, as these areas are typically the most difficult to resolve.
    - Do not rinse off the dip, but simply towel dry them. It is very important to keep animals warm after their lime sulfur dip treatments.
    - For very small patients, they may be blown dry with a hair dryer to prevent hypothermia. Provide warming support in the kennel after treatment.
  - Oral Medications
    - Cats should be re-weighed weekly to determine if dosage needs to change
    - Terbinafine - 40mg/kg PO SID. This is a tablet that has to be cut to size for cats
      - See dosing chart
      - If an animal becomes lethargic or inappetent (not eating) or has severe diarrhea during treatment, please alert the med staff.
    - Itraconazole is an alternative medication that can be used if terbinafine is ineffective in a particular animal.
  - All treatment should be documented in the shelter software.
  - Duration of treatment
    - Without fungal culture to confirm cure, animals should be treated for one week after clinical resolution of lesions *and* negative Wood's lamp exam.
    - Typical treatment is 4-6 weeks.
    - Without fungal culture, there is a chance that animals without lesions may remain positive/contagious. In shelter, these animals should be monitored daily for development of lesions. Adopters/fosters should keep these pets separate for 2 weeks and monitor for development of lesions; they should be notified of zoonotic potential and instructed to use appropriate PPE.

### **PPE in Isolation/when handling animals with ringworm**

- In the ringworm isolation room and when handling animals, the following PPE should be worn at all times.
  - Isolation Gown or Tyvek suit
  - Shoe Covers
- When handling animals:
  - Gloves should always be worn when handling animals, and should be changed between kennels

### **Housing and Decontamination**

- For cats/dogs in individual kennels (stainless steel banks)
  - The run/kennel will be disinfected following normal disinfection protocol (Rescue for 10min contact time). Make sure to clean out any organic material first (urine/feces, debris, litter, etc)
  - Blankets and toys need to be immediately removed and laundered in hot water, longest cycle.
  - Any dens or other hard items (toys, wire kennels) will need to be cleaned with Rescue.
- Floors in isolation or exposed rooms should be dusted with a swiffer mop and followed by a mop with Rescue

### **Spay/Neuter**

- Animals undergoing treatment for ringworm may be spayed/neutered but should be housed appropriately, handled with PPE, and should be done last in the line-up.
- Notify medical staff of their status and provide kennel signage.

### Dosing Charts

Terbinafine Weight (lbs)	Tablet (250mg)
1	Use liquid
2	Use liquid
3	1/4 tab
4	1/4 tab
5	1/2 tab
6	1/2 tab
7	1/2 tab
8	3/4 tab
9	3/4 tab
10	3/4 tab
11	3/4 tab
12	1 tab
13	1 tab
14	1 tab
15	1 tab

Itraconazole (Weight lbs)	Dose (mls)
1	0.2
2	0.5
3	0.7
4	0.9
5	1.1
6	1.4
7	1.6
8	1.8
9	2.0
10	2.3
11	2.5
12	2.7
13	3.0
14	3.2
15	3.4

**Terbinafine 250mg tablets**

**Itrafungal 10mg/ml**