Case Study

Ringworm Outbreak at Kitchener-Waterloo Humane Society

Dr LeeAnn Sealey DVM, Medical Director







Cat A - Malificent Stray kitten female 8 weeks





Natural Response by Shelter Staff

Woods Lamp Positive

PCR test result in 24 hours positive for Microsporum

Treatment plan Isolation Itraconazole H2O2 baths



2 Weeks Go By





Week
 July 20 –
 Cat A arrives by officer
 July 21 PCR - Microsporum

3 August 3 – Cat B shows lesion Aug 4 PCR - Microsporum



Cat B - Michael Kitten 8 weeks old

- Housed in shelter since July 12
- Litter of 5 plus mom
- All adopted except him
- Held back for Chronic Herpes in eye
- Lesion found by RVT's after weekend during rounds.







INVESTIGATE and PLAN

Exposure Mom and littermates =5 Every kitten housed in kitten room July 12-20 plus Adoption Pod for July 20 – Aug 2 Hospital July 13 and July 21

= A LOT OF CATS WITH MOST ADOPTED ALREADY

Plan - Adopted

- Through locations and dates ID all in contact animals both Cat A and Cat B
- ✓ Notify all adopters of an exposure
- ✓ Offer PCR screen for anyone concerned about their new pet.

Plan – In Shelter Screen with PCR cats in Pod with Michael =3 cats Screen remaining cats from surgery days = 1 Collect cats into "dirty rooms" who have been in shelter Scrub down empty rooms to make "Clean" rooms for new intakes. Notify Staff and Volunteers

Plan – Treatment Call A Friend for Help THS – Dr. Linda Jacobson



Treatment Plan

- Kittens itraconazole 5mg/kg
 - 21 day treatment, then pulse every other week
 - Forms Sporanox or Itrafungal
- Adult Cats and Dogs terbenafine 30mg/kg
 - 21 day treatment, then pulse
 - Form compounded by Summit, Apotex product
- Baths lime sulfur
 - Twice weekly
 - Residual action



Challenge 1 Quest for Lime Sulfur

- Sources are hard to find in Canada
 - Consider EDR from US.
 - Pro proper route Con takes a long time, paper work
 - Garden supply
 - Pro easily accessible Con questionable source, off label, purity, dilution
 - Other routes Amazon ?!?!?!?
 - Pro easy to order, fast delivery once route established
 - Con slightly less than "proper"
- Imaverol (Enilconazole)
 - Pro available, does not smell
 - Con quite a bit more expensive
 - Not Labelled for cats



Testing Plan

- PCR for diagnosis/ screening
 - IDEXX fast turn around for volume = 1 day
 - Typical 1-3 day return
 - False positives
- Cultures
 - Culture must be taken the day of the dip, prior to the dip best time to have no residual lime sulfur on fur
 - Tooth brush make sure to collect a good sample
 - Test after 1 week (7 days meds and 2 dips)
 - Repeat weekly culture until 2 negatives
 - Two week turn around at IDEXX for neg.



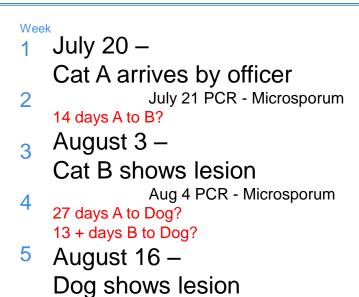


Point of Origin from Michael is discovered and it is not a spread within the Shelter

Bad News!!!!!!

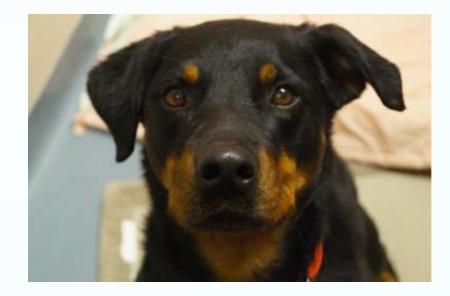
New Case Found





Aug 16 PCR - Microsporum





Nova

4 year old Rott mix RACL repair by TPLO July 17th Physiotherapy by RVT Lesion on inner thigh noted at recheck rads PCR positive - Microsporum Treatment – Isolation, Terbinafine and lime sulfur baths



Challenge 2 Tracking Transmission

With a known in shelter spread, Tracking the route of transmission was critical

Who? What? Where? When?



RVT
 Rehab excercises
 On her stifle
 Immediately after treating Michael



Week

- July 20 -Cat A arrives by officer July 21 PCR - Microsporum 2
- August 3 3 Cat B shows lesion Aug 4 PCR - Microsporum 4
- August 16 -5 Dog shows lesion Aug 16 PCR - Microsporum

August 24 – 6 Cat C lesion found at SECOND LOCATION Aug 25 PCR - Microsporum



Cat C – Templeton - SPHS DSH 2 yrs old Housed in shelter since July 10 Chronic Herpes virus in eye requiring enucleation Lesion in axilla well developed found at rounds PCR positive – Microsporum Treatment - isolation and itrafungal, lime sulfur



The Spread Surgery July 20 Catheter removal July 21





Week July 20 –

- 1 Cat A arrives by officer
- August 3 –
 Cat B shows lesion
- 4 August 16 –

8

5 Dog shows lesion

August 24 – 6 Cat C lesion found

9 Sept 14 -Cat D lesion found



Cat D – Nub Nub Kitten 8 weeks old intake August 28 Tail amputation with degloved chin repair Chronic herpes Lesion – tiny bit of alopecia noted on toes by foster at reche Response – Sheer Disbelief UNTIL



PCR positive – Trichophyton Treatment – foster and itrafungal, lime sulfur

WHOLE NEW PLAN !!!!!!!

- Two shelters now exposed
- Foster home exposed
- New isolation needed**
- Start identifying and screening in contact cats



Week July 20 –
 1 Cat A arrives by officer

2

August 3 –
 Cat B shows lesion

4

8

- August 16 –
- ⁵ Dog shows lesion
- ⁶ August 24 –
 7 Cat C lesion found
 - Sept 14 -
- 9 Cat D lesion found

Sept 18 Cat E found during screening



Cat E Baby kitten not responding to treatment Chronic herpes Lesion – none Sampled in screening PCR positive – Trichophyton Treatment – opted to say Good bye



Challenge 3 Isolation Challenges

- How do you isolate animals for so many weeks????
- Nova dedicated volunteer
- Kittens isolation room
 - Separate cages?
 - Or let them out loose in the room together
- Trichophyton kitten



First Culture Results

- Kitten A
- Aug 18 sample positive
- Aug 29 sample positive
- Sept 6 sample positive

Kitten B

- Aug 29 sample positive
- Sept 6 sample positive

Nova

• Aug 29 sample – positive

Lime sulfur arrives Aug 28th

Aug 18th and 29th sample explained

Disappointment for the Sept 6th samples.

Quickly returned as positive WHY????



Challenge 4 Who is giving the baths??

- Not a nice job
- Volunteers???
- Staff??





Protocol Change Made 1st week of Sept. RVT's bath animals

Culture Results

	Maleficent - A		Michael - B		Nova - C
•	Aug 18 sample – positive	•	Aug 29 sample – <mark>positive</mark>	•	Aug 29 sample – positive
•	Aug 29 sample – positive	•	Sept 6 sample - positive	•	Sept 8 sample – negative
•	Sept 6 sample – positive	•	Sept 12 sample – positive	•	Sept 15 sample – negative
•	Sept 12 sample – negative		Sept 18 sample – negative		



When it works!

Templeton

Aug 24th diagnosis

August 24th start meds and baths

Samples sent

- Sept 9 sample negative
- Sept 16 sample negative
- Sept 27 sample negative

Nub Nub

Sept 14th diagnosis

Sept 14th start meds and baths

Samples sent

- Sept 23 sample negative
- Sept 30 sample negative
- Oct 7 sample negative



Maleficent – A Shelter entry – July 20 PCR confirmed – July 21 Cleared – Oct 10 Length of Treatment – 11 weeks Adopted – Oct 15 Length of Stay – 12 weeks



Michael - B Shelter entry – July 12 PCR confirmed – Aug 3 Cleared – Oct 10 Length of Treatment – 10 weeks Adopted – Oct 14 Length of Stay – 13.5 weeks



Nova Shelter entry - June 23 PCR confirmed – Aug 16 Cleared – Sept 29 Length of Treatment – 6 weeks Adopted - ???? TPLO #2 – Oct 4 Length of Stay - ????



Templeton - C Shelter entry – July 10 PCR confirmed – Aug 24 Cleared – Oct 2 Length of Treatment – 5.5 weeks Adopted – Oct 11 Length of Stay – 13 weeks

NubNub - D Shelter entry – Aug 28 PCR confirmed – Sept 14 Cleared – Oct 13 Length of Treatment – 4 weeks Adopted – Oct 13 Length of Stay – 6.5 weeks





Testing and Costs

Michael – B -exposed 25 cats -tested 3 from pod + 1 from sx. day + 1 skin lesion dog + 2 from family returned -7 cats all neg. Templeton - C -exposed 12 cats -from surgery already checked

- + 2 cats in isolation
- tested 2 with skin lesions
- 4 cats all neg.

NubNub – D

-exposed over 30 cats -both locations including 2 kitten rooms, clinic and intake -tested 12 KW + 3 SP kittens still in care – one positive

Total PCR tests = 35 (6 cases + 27 in contacts + 2 repeats) @ \$34.75 = \$1216.25

> Total Cultures = 24 @ \$50.20 = \$1204.80

Nova -Exposed 1 dog -Tested neg



Summary

- Not an outbreak
 - 3 different sources
 - Each spread to only one animal
- Watch Immunocompromised individuals
- Isolate, Test, Implement Treatment quickly
- Track, Examine, then Test only those you really need to
- Not every animal needs the same outcome
- Hand washing is not enough!!!!!
- Be upfront and honest with staff, volunteers and adopters.

