New York City
H7N2 Feline Influenza Outbreak

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Thanks!

• Maddie’s Fund
• ASPCA
• NY State Department of Agriculture
• NYC Department of Health
• USDA
• CDC
• All my staff at UW
• Cornell – Shelter Medicine
• Cornell Animal Health Diagnostic Center
• Tufts – Shelter Medicine
• Missouri – Shelter Medicine
• WVDL
• Blue Pearl and VERG South veterinary clinics in NYC
• Everyone who turned out for these cats!
Start with what we know
H3N2 canine influenza

- Mid-March to April 2015
- Outbreak of respiratory disease in Chicago
- First cases identified in dogs living in homes
- (not in shelters)
- Canine influenza was reported as negative on initial respiratory panels
- Risk factors:
  - Training classes
  - Visit to vet clinics
  - Doggy daycare
  - Boarding facilities
- Elevator apartment buildings?
- Shelters initially unaffected
- City of Chicago continues to struggle
- Mapping of new cases ongoing
- No cases reported in NYC

Canine Influenza H3N2 - Tidal Wave

"Hello,
We’ve been hit hard here these last couple days. It broke on Wednesday, with only approximately 5 dogs needing to be isolated and treated. By Thursday morning at 8am, I had to quarantine an entire ward (approximately 30 dogs). All are exhibiting signs including the dry honking cough. All dogs are stable, but it has spread to the remainder of our canine population (totaling about 55 dogs)."

H3N2 Canine Influenza - Feline Cases

- Previous reports in Korea
- Only 1 shelter (2016, publication in progress)
- Only 8 cases
- 8 cats in one ward
- Mild - moderate clinical signs
- Duration of shedding 10 -12 days
- All dogs in the shelter infected
- No cases in other shelters even with great opportunity for exposure
Described as Open Admission
- 3 Shelters, 2 Admission Centers
- City Contract - servant to community.
  Open 24/7
- All Animals
- Annual Intake - 30,000
  - 19,000 cats
  - 9,500 dogs
  - 1,500 other

A Perfect Storm....
- 343 Dogs
- 631 Cats
- Operating over our capacity for care - space and staff
- Compassion Fatigue
- Unrealistic Expectations

NYC Animal Care Centers
- Mimi
- Passed away Nov. 25th, 2016
- Identification of presumptive H3N2 on December 1st, 2016
- Dr. Robin Brennan contacts UW Shelter Medicine
NYC Animal Care Centers

- What questions should we ask?
- What do we want to know about other species in the shelter?
- What do we want to know about the diagnostics that were done?
- Is further testing possible?

Findings

- Some sick dogs in the shelter – moderate concern
- Many sick cats in the shelter
- Commercial lab
  - Idexx Laboratories
  - PCR specifically targeted to H3N2 and H3N8
- Sample submission sheet had been accidentally marked as canine
- Mimi’s cadaver was still in the shelter

Something doesn’t fit
UW / WVDL diagnostics – H7N2 LPAI

- Mimi
- Sampled other cats
- Continued sampling of dogs
- Influenza A broad based testing
- Followed by typing – H7 identified
- Reporting – Risk to agriculture
- Confirmation and sequencing through USDA – H7N2 low path avian influenza

H7N2 LPAI Identified

- Circulated in live bird markets 2000-2006
- Thought to be eradicated

Time line

- 11/12/16 Mimi enters the shelter
- 11/14/16 Mild ocular discharge
- 11/23/16 Breathing problems
- 11/25/16 Rapidly declining – euthanized
- 11/25/16 samples submitted to Idexx
- 12/1/2016 - Identification of presumptive H3N2
  - Dr. Robin Brennan contacts UW Shelter Medicine
Follow up / Intervention planning - Collaboration

• Population survey – diagnostic testing
• Large populations in two shelters
• Smaller group in SI
• Wave of infection moving through the feline population rapidly
• Other species consistently testing negative

• NYCACC
• USDA
• State Veterinarian
• New York City Public Health
• Other agencies
• Maddie's Fund

Intervention / Containment planning

• Avoiding depopulation
• Quarantine?
• Evaluating risk
• Potential cost?
• Transition plan
  • Stop potential spread
  • Quell panic
• Tracing potential spread / other cases
• Offering free diagnostics
• Confounding factors
• ASPCA steps into collaboration

Human health?

• Only two previous human cases reported
• Testing for over 350 exposed people

• 1 weak positive
• Test negative the next day
Epidemiology? Index case? Revised Timeline

- Alfred
- 10/26/16 shelter intake
- 10/31/16 neuter / adoption
- 11/4/16 illness
- 11/7/16 to emergency center
- 11/12/16 dies
- 11/12/16 Mimi enters the shelter
- Exposure?

Other shelters, other cats?

- 2 additional shelters
  - NYC
  - Long Island
- Several cats in private homes
- Cats in rescue homes
- All other cases connected to NYCACC case

Establishing quarantine

- Over 500 cats infected and required quarantine
- Unanswered questions about course of disease and defining cure
- Length of quarantine?
- Safety for workers?
- Treatment options?
Outcome

- Shedding period defined through extensive testing and follow up
- Seroconversion – Cornell university
- No new cases or positive tests reported since February 5th, 2017
- Vast majority of cats recovered

- Did we win?

I think we won!

- Only time will tell about the virus
- Lots of changes at NYCACC

Feline Influenza
A Shelter Operations Perspective
FELINE INFLUENZA

- Cat tests positive for influenza A (H7N2)
- Dr. Newbury comes to NYC at request of Dr. Brennen
- Further tests conducted by UWSM reveal 45 cats with same virus - no evidence of infection in dogs or rabbits
- Cat adoptions suspended / cat intake processed through New Hope diversion plan
- Quarantine facility selected and set-up within 5 days
- Over 450 cats transferred from all ACC Care Centers to Long Island City Facility
- Deep clean of all care centers/adoption vehicles and field fleet
- Resumed in-shelter cat intake

TACKLING THE CRISIS

Flexibility | Collaboration | Communication | Transparency

- Segregation of staff
- Daily Operations
  - Total segregation of staff
  - Enhanced PPE
  - Staff assignments
  - PPE
  - Intakes
  - Communication
  - Communication
  - Communication
  - Communication
  - Communication
Admissions Process
• Relocated admissions process to our mobile adoption units
• Independent work assignment
• Heavy collaboration with New Hope

Leadership
• Management essentially working 24 hours
• Utilizing leadership in one location to get others up to speed

Internal messaging
Daily conference calls
• Dec. 14th – Dec. 28th (32+ calls)
• Videos for quick compliance training
• Hands on training, utilizing personnel in new ways
• 2x daily staff meetings

Partnerships
• Jan. 16th – Jan. 31st (daily check in w/quarantine site)
• Feb. 1st – Feb. 27th (biweekly check in w/quarantine site)
TACKLING THE CRISIS
Flexibility | Collaboration | Communication | Transparency

Organizations
- NYCDOH+
- UW
- Maddie's
- ASPCA
- USDA
- CDC

Key Component: Point People
- Organizational leaders
- Medical decisions
- Inventory/logistics
- Placement

TACKLING THE CRISIS
Flexibility | Collaboration | Communication | Transparency

Messaging by constituency
Open and honest but on a need to know basis
- General public gets broad overview – DOHMH
- Veterinary community and other stakeholders are directed to UW for specific veterinary oriented press releases
- Primary stakeholders – adopters, rescue partners, staff, etc. are given all information as it becomes available

TACKLING THE CRISIS
Flexibility | Collaboration | Communication | Transparency
TACKLING THE CRISIS
Flexibility | Collaboration | Communication | Transparency

Effect on Intake

<table>
<thead>
<tr>
<th>Year</th>
<th>Intake</th>
<th>Stray</th>
<th>Spay/Neut</th>
<th>Return</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014/15</td>
<td>1600</td>
<td>1200</td>
<td>400</td>
<td>0</td>
</tr>
<tr>
<td>2015/16</td>
<td>1400</td>
<td>1000</td>
<td>400</td>
<td>0</td>
</tr>
<tr>
<td>2016/17</td>
<td>1200</td>
<td>800</td>
<td>400</td>
<td>0</td>
</tr>
</tbody>
</table>

LESSONS LEARNED

Source of Problem
Chronic overcrowding
- Cage capacity was 477
- Normal population was 740
- Highest populations routinely 810

NEW PROTOCOLS

Intake Options
- Intake by Appointments
- Tools for Rehoming
- New approach to community cats

How to Bring A Pet to ACC
1. You must schedule an appointment to bring in your animal so that we can prepare you the best and safest services.
2. Tell the staff about the medical history of your pet and the reason for your visit. It will help us to provide better services to your pet.
3. All pets must be on a leash or in a carrier. If your pet is not on a leash, we may have to sedate him or her before we can treat him or her.
NEW PROTOCOLS

Community Cats

You found a stray cat. **NOW WHAT?**

*Is the cat sick, injured, or in immediate danger?**

- **YES:** Call the ASPCA.
- **NO:** Leave the cat alone. There is a community cat on the loose, too.

**He has lived in a home, he can’t survive outside.**

NEW PROTOCOLS

House & Husbandry: Spot Cleaning

NEW PROTOCOLS

Housing & Husbandry: Cage Portals
AV6  messaging and managing intakes
Aurora Velazquez, 4/14/2017

AV5  housing and husbandry changes
Aurora Velazquez, 4/14/2017
NEW PROTOCOLS
Population Management
- Fast Track
- Open-selection

NEW PROTOCOLS
Daily Population Call

Daily Animal Count (all locations, 2017)
NEW PROTOCOLS

Results!

MARCH INTAKES

STATE OF THE SHELTER
Keeping population in check

<table>
<thead>
<tr>
<th>CAT ONLY</th>
<th>March 2015</th>
<th>March 2016</th>
<th>March 2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Daily Population</td>
<td>375</td>
<td>318</td>
<td>190</td>
</tr>
<tr>
<td>Live Release Rates</td>
<td>93.70%</td>
<td>94.40%</td>
<td>97.10%</td>
</tr>
<tr>
<td>Euthanasia Rates</td>
<td>6.30%</td>
<td>5.60%</td>
<td>2.90%</td>
</tr>
</tbody>
</table>

STATE OF THE SHELTER
Keeping population in check
- Current capacity: 497
- Current population: 382

Average Daily Population:
- March 2015: 375
- March 2016: 318
- March 2017: 190

Live Release Rates:
- March 2015: 93.70%
- March 2016: 94.40%
- March 2017: 97.10%

Euthanasia Rates:
- March 2015: 6.30%
- March 2016: 5.60%
- March 2017: 2.90%
LOOKING AHEAD

- Summer 2017
- No more crates!
- No more crowding!

QUESTIONS??
Need help?
Please contact us:
uwsheltermedicine@vetmed.wisc.edu

We did it!