

**New York City  
H7N2 Feline Influenza Outbreak**

Our primary partners:

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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!




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**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






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### 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)."




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### H3N2 Canine Influenza - Feline Cases

- Previous reports in Korea
- **Only 1 shelter** (2016, publication in progress)
- Only 8 cases
- 9 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




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- ◆ 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




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### NYC Animal Care Centers

- Mimi
- Passed away Nov. 25<sup>th</sup>, 2016
- Identification of presumptive H3N2 on December 1<sup>st</sup>, 2016
- Dr. Robin Brennan contacts UW Shelter Medicine



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### 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?



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### 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



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Something doesn't fit



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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



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H7N2 LPAI Identified

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



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### 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




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### 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
- Maddie’s Fund
- Other Agencies




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### 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




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### Human health?

- Only two previous human cases reported
- Testing for over 350 exposed people
- 1 weak positive
- Test negative the next day



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### 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?



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### 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



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### 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?



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### Outcome

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



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### I think we won!

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



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## A Perfect Storm....

- ◆ 343 Dogs
- ◆ 631 Cats
- ◆ Operating over our capacity for care - space and staff
- ◆ Compassion Fatigue
- ◆ Unrealistic Expectations




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## Road to Recovery

- ◆ Lessons Learned
- ◆ New Policies
  - ◆ Kennel Capacity reduced through Portalization
  - ◆ Fast Track
  - ◆ Open Selection
  - ◆ Managed Intake
  - ◆ Enhanced SOPs and Training
  - ◆ Statistical Monitoring
  - ◆ Active Population Management




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## The End

- ◆ Fewer cats - 149
- ◆ Less Disease
- ◆ Happier Staff
- ◆ Happier Cats
- ◆ Lives Saved
- ◆ Lemons>>>>Lemonade :)

**WHY MY CAT IS SAD**  
INTRODUCED  
 My cat is sad because life has given him many, many lemons & he cannot use them to make lemonade because he is a cat.




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We did it!



QUESTIONS??

Need help?

Please contact us:  
[uwsheltermedicine@vetmed.wisc.edu](mailto:uwsheltermedicine@vetmed.wisc.edu)




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