

Detection of West Nile Virus in *Corvidae* Feather Pulp

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WNV in North American Birds

- ❖ High mortality
- ❖ Current testing methods



Viruses in Feather Pulp: History

- ❖ EEE
- ❖ Avian Leucosis Virus (ALV)
- ❖ WNV

Methods

- ❖ **2002 WNV Surveillance program**
- ❖ **American Crows and Blue Jays**
- ❖ **Samples:**
 - ❑ **Kidney/spleen pool**
 - ❑ **Cloacal swab**
 - ❑ **Immature flight feather**



Immature Flight Feather



Methods (2)

❖ VI, RT-PCR

❖ Determine virus quantity



Results: Virus Isolation

- ❖ 65/84 (77%) positive
 - ❑ All 65 positive in feather pulp
 - ❑ If negative on feather pulp, also negative in K/S and cloacal swab
 - Confirmed by RT-PCR
 - ❑ Feather pulp more sensitive than cloacal swab or k/s pool ($p < 0.001$)
 - ❑ K/S vs. Cloacal Swab: $p > 0.5$

Results: Virus quantity

<u>Sample</u>	<u>n</u>	<u>Median (range) (log PFU/0.1mL)</u>
K/S pool	7	1.0 (<1.0-3.3)
Cloacal Swab	12	1.9 (<1.0-4.0)
Feather pulp	12	4.9 (3.5->7.4)

⊕ More virus in feather pulp than cloacal swab ($p=0.0005$)

Conclusions

Testing for WNV in feather pulp is relatively sensitive

Considerations for Surveillance

- ❖ Molting period
- ❖ Quick, efficient & safer sampling method
- ❖ Possible non-lethal sampling method
- ❖ Use in sub-clinical cases or other species?

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