



West Nile Virus in Chicago, 2002

Local Surveillance Issues



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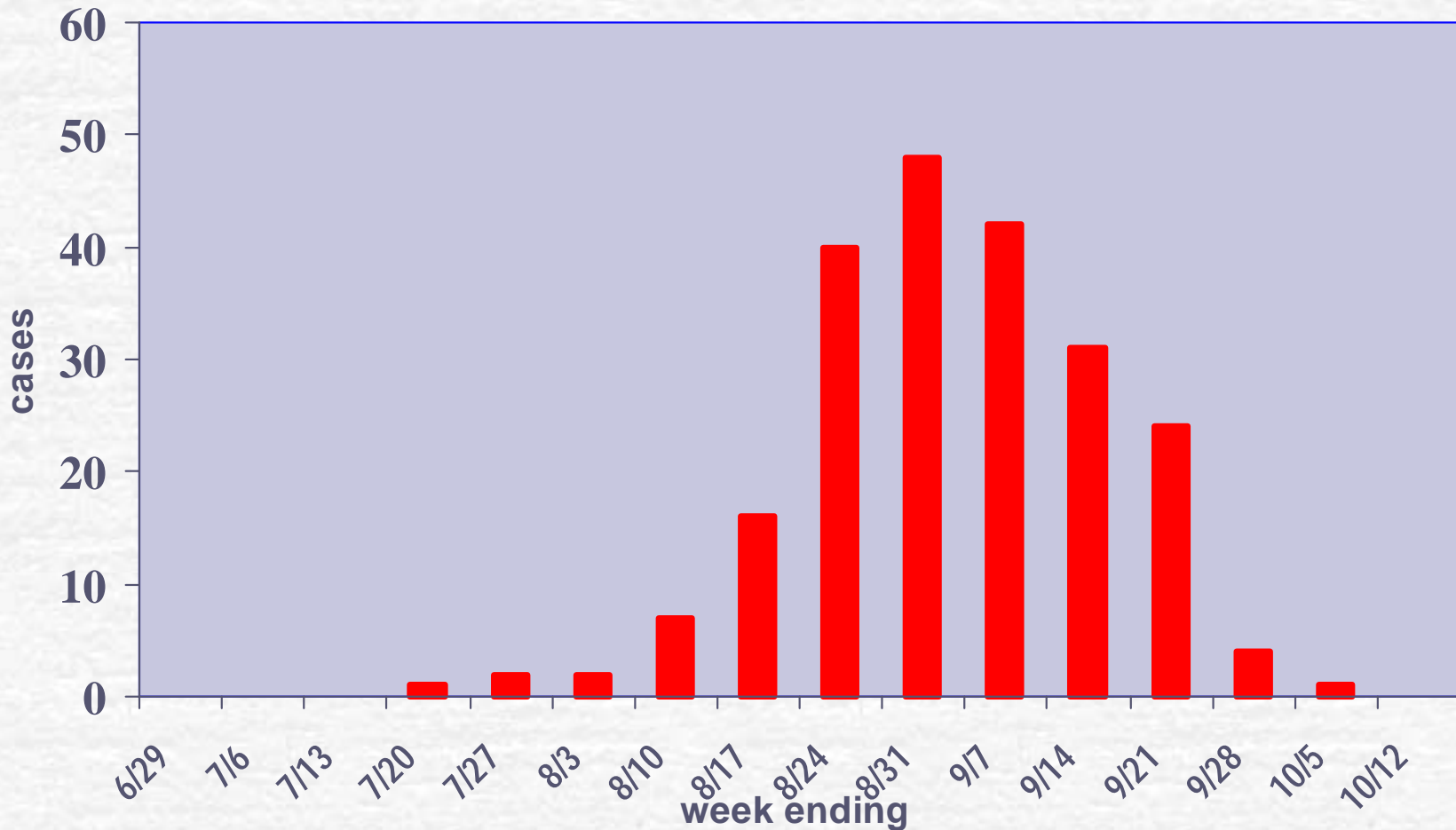
Plan of Presentation

- ☛ **Local perspective**
- ☛ **Crows:** dead crow sightings correlated with subsequent human risk
- ☛ **Humans:** surveillance for fever & aseptic meningitis had value
- ☛ **Mosquitoes:** early warning system?

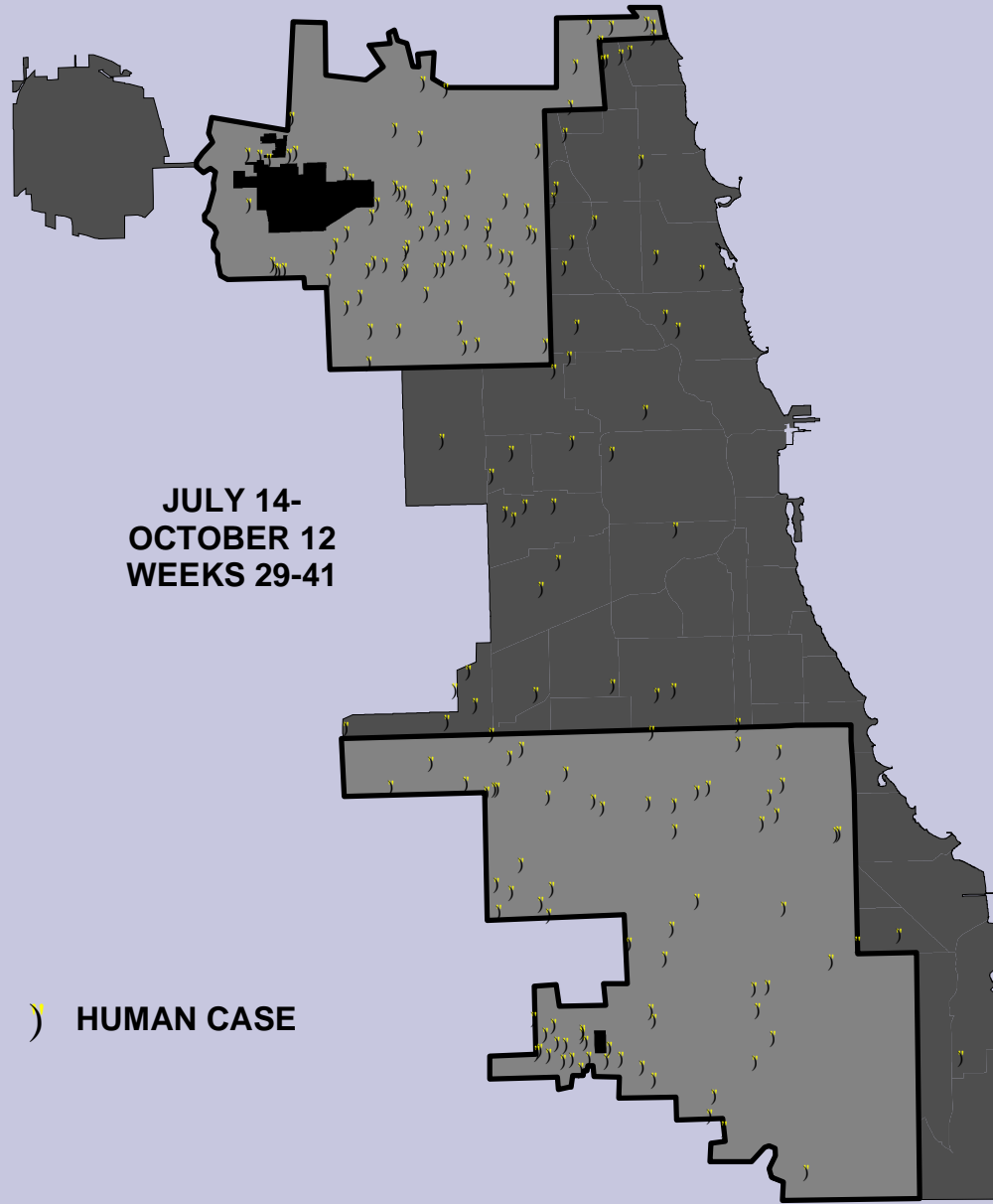
City of Chicago

- Population 2.9 Million
- Single municipality
- No mosquito abatement district
- Large SLE outbreak in 1975
- WNV detected in Sept, 2001 but no human cases until 2002

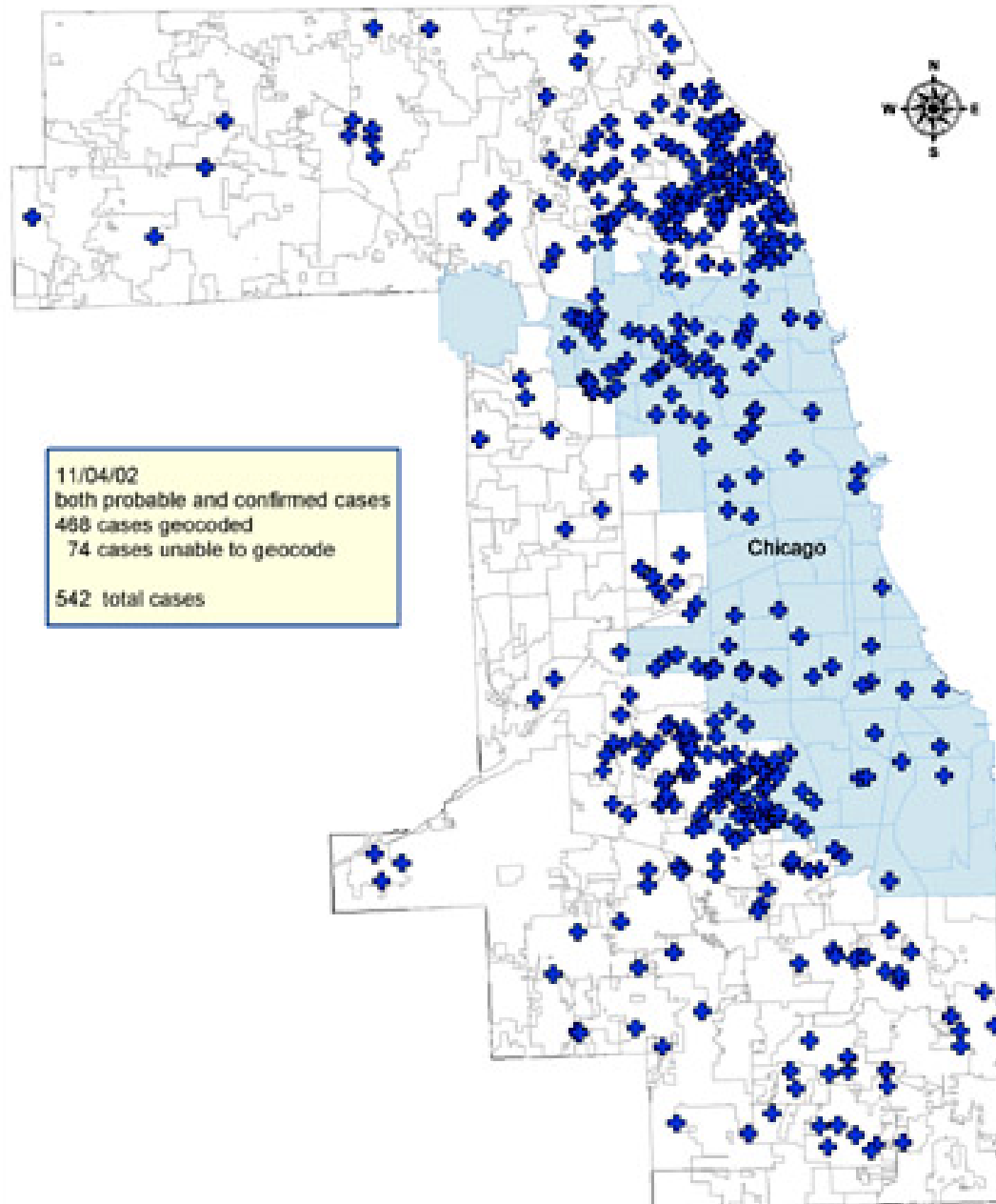
Cases by Week of Onset (N=218)



2002 CHICAGO CUMULATIVE HUMAN WEST NILE VIRUS CASES



Cook County West Nile Virus Human Cases



Case Rates, Selected Local Jurisdictions

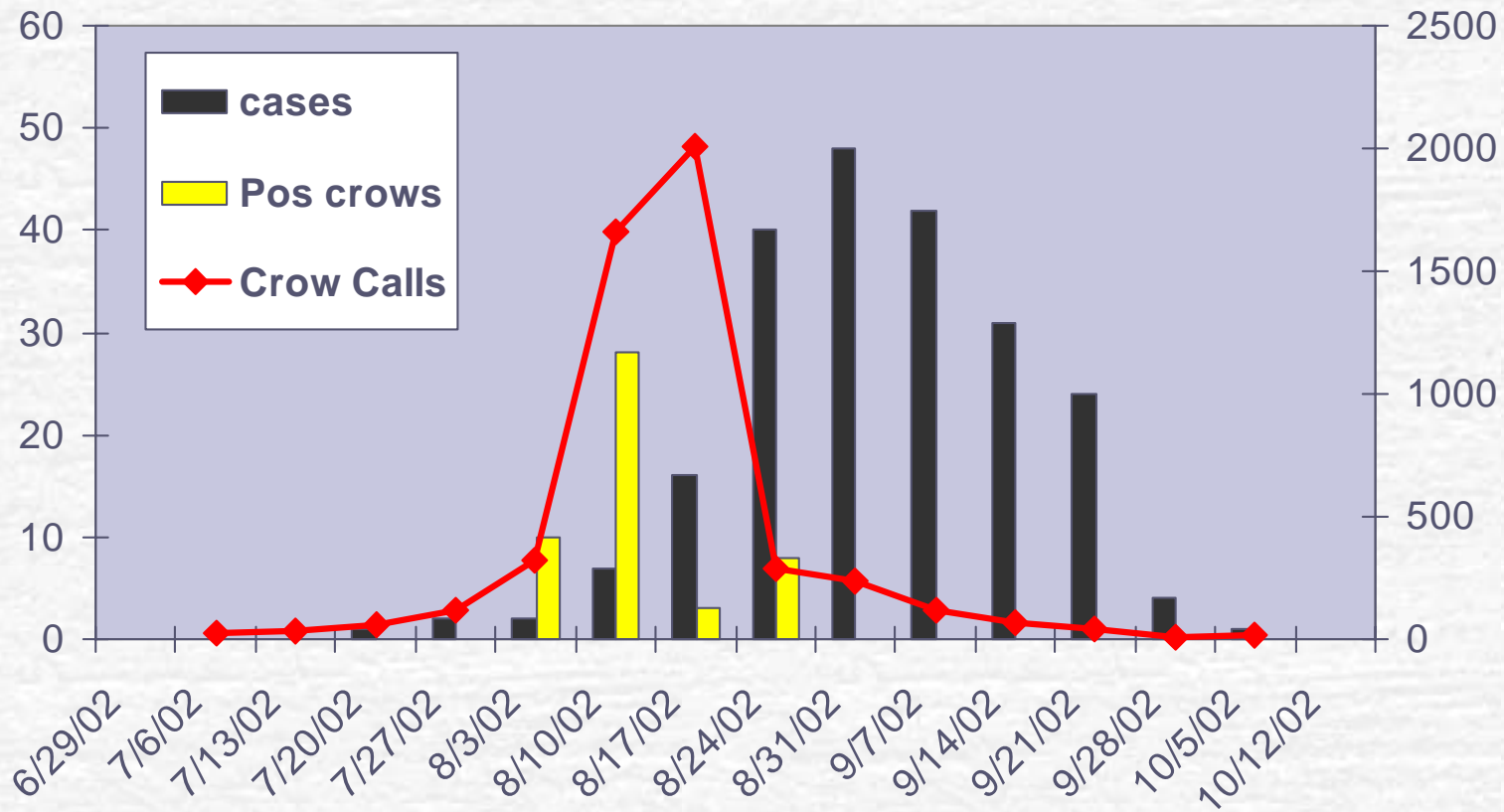
<u>Locality</u>	<u>Pop</u>	<u>Cases</u>	<u>Rate</u>
St. Tammany, LA	200k	39	20
St. Louis City, MO	348k	56	16.1
Cuyahoga, OH	1.4 M	215	15.6
Suburban Cook, IL	2.5 M	387	15.6
Oakland, MI	1.2 M	181	15.1
Chicago	2.9 M	203	7.1

For illustration only: provisional and unofficial



CROWS

Crows vs Human Cases

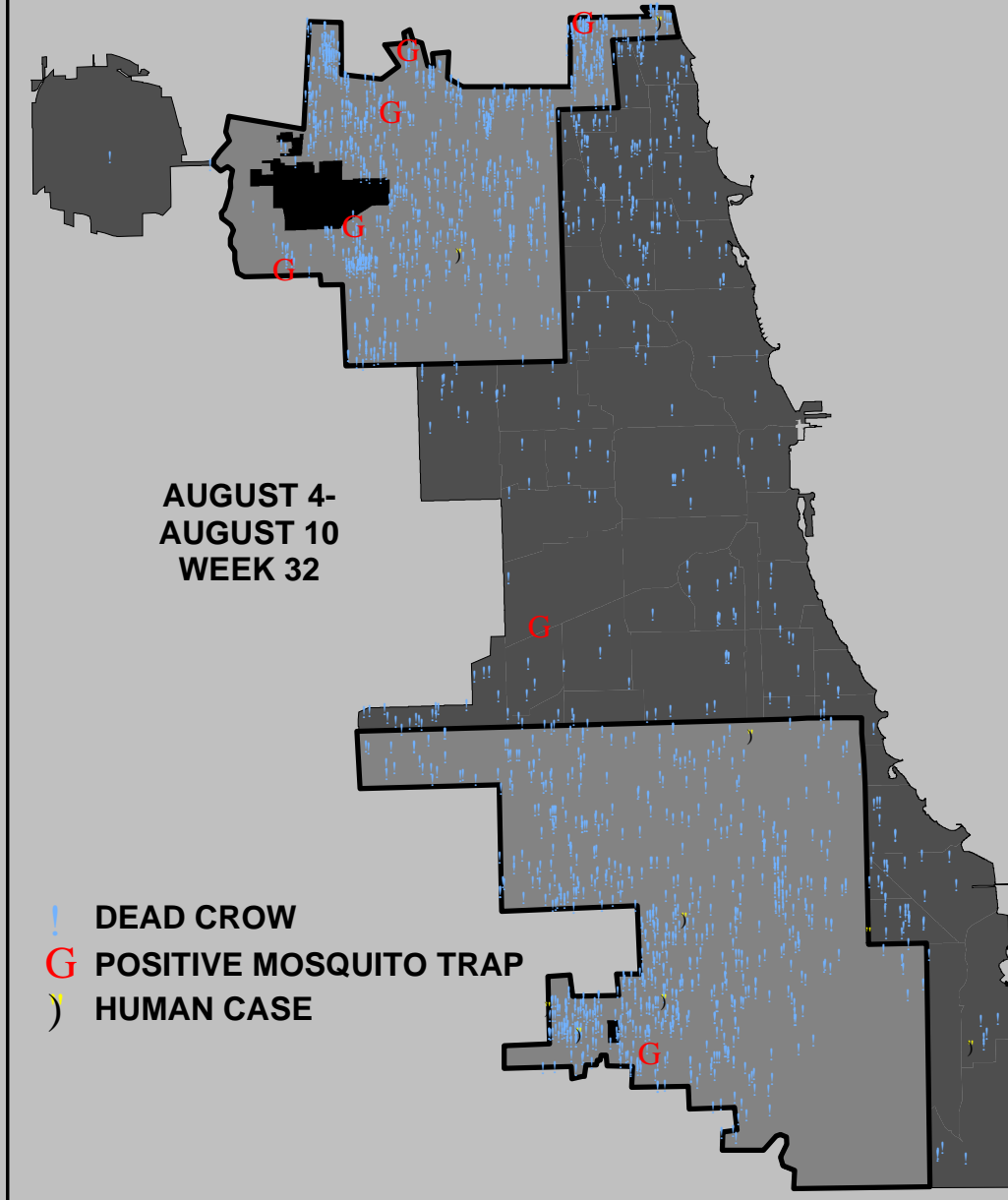


2002 CHICAGO CUMULATIVE WEST NILE VIRUS SURVEILLANCE

AUGUST 10

AUGUST 4-
AUGUST 10
WEEK 32

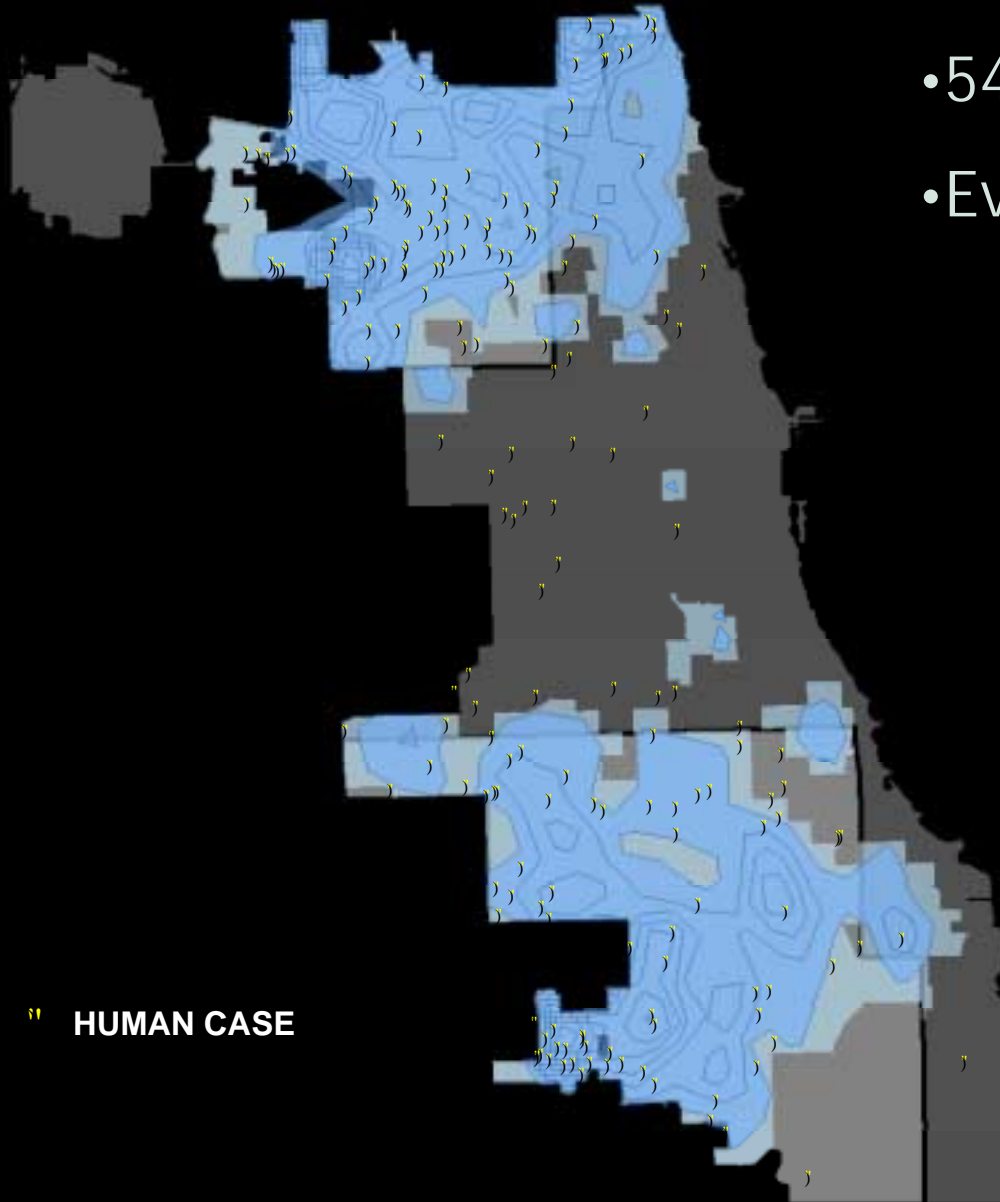
- ! DEAD CROW
- G POSITIVE MOSQUITO TRAP
-) HUMAN CASE



High Crow Mortality Areas

- HCMA – area containing densest 90% of dead crow reports at week 32 (before human cases were known)
- Enlarged to conform to census tracts
- Case-rates then determined in and out of HCMA

- 80.5% of cases within HCMA
- 54.1% of city surface area
- Eventual Case Rates:
 - Inside HCMA – 9.4
 - Outside HCMA – 3.1



Dead Birds, Chicago 2002

- Epizootic in the city overlapped epidemic
- Areas with more dead crow sightings had greater subsequent human risk
- Large numbers give more geographic info



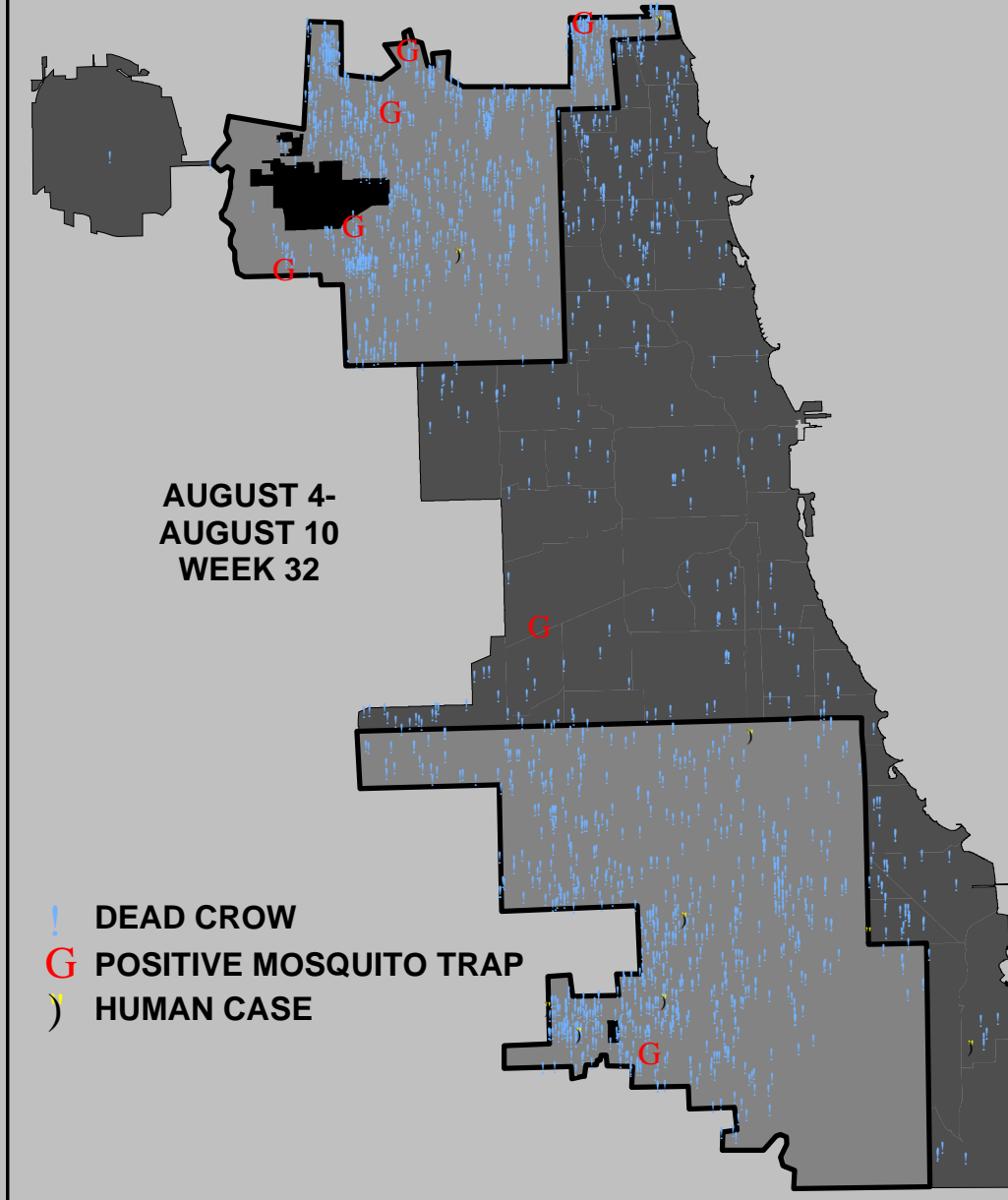
HUMANS

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Arbovirus Surveillance

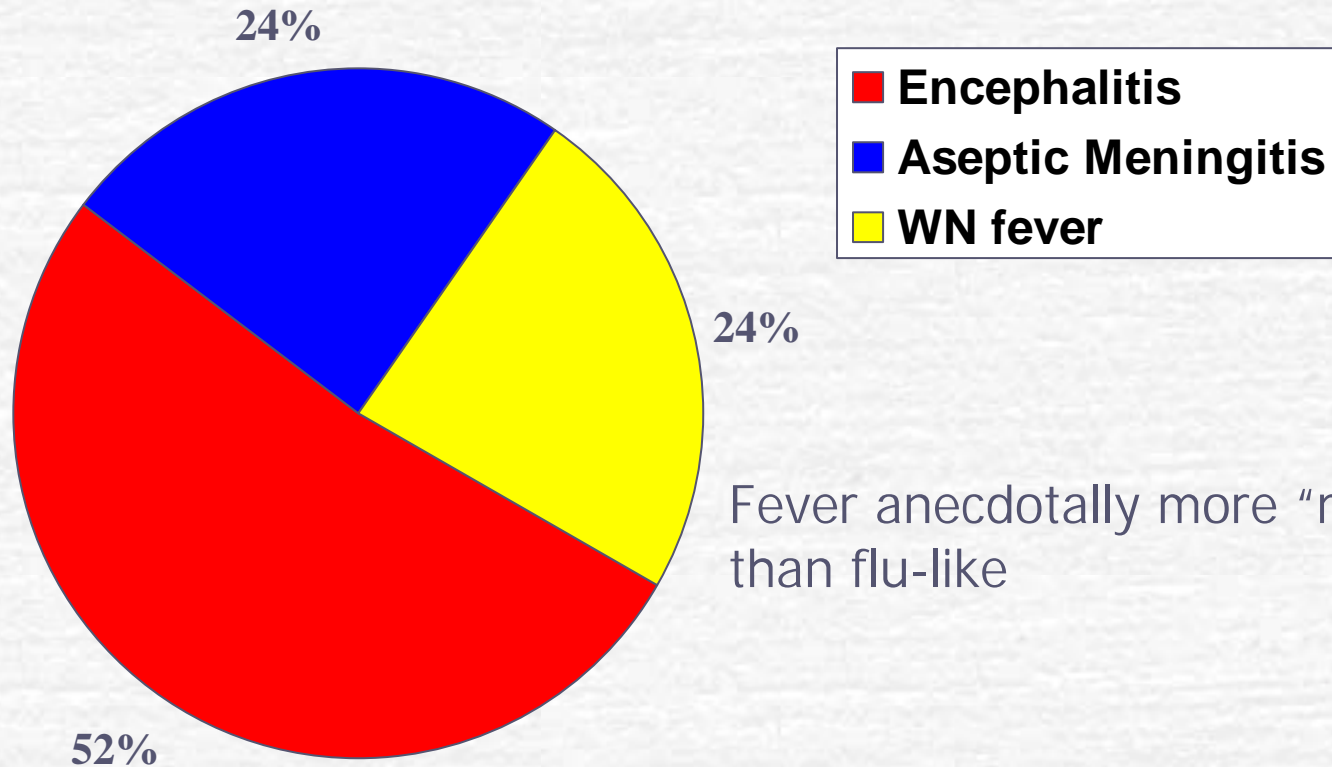
- Human surveillance lab based
- Lab testing prioritized for encephalitis cases, not encouraged or denied for fever
- Positive lab reports announced promptly
- Local effort to classify clinical syndromes, “weed out fever cases”

Issues in human case surveillance

- ☛ Confidence in laboratory is important
- ☛ Laboratory reporting timely but sketchy
- ☛ Classifying syndromes took substantial follow up

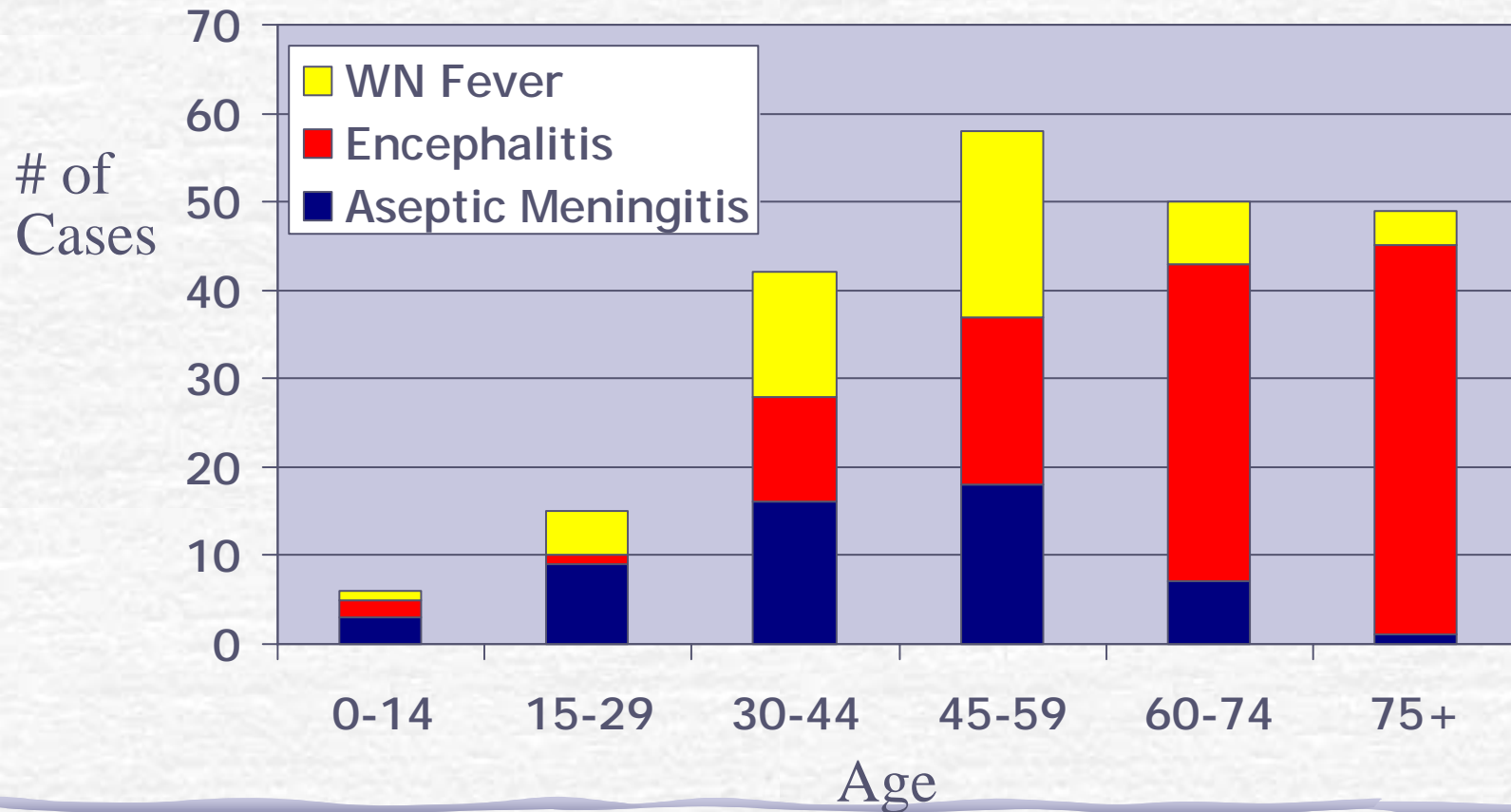
Clinical Presentation

N=221

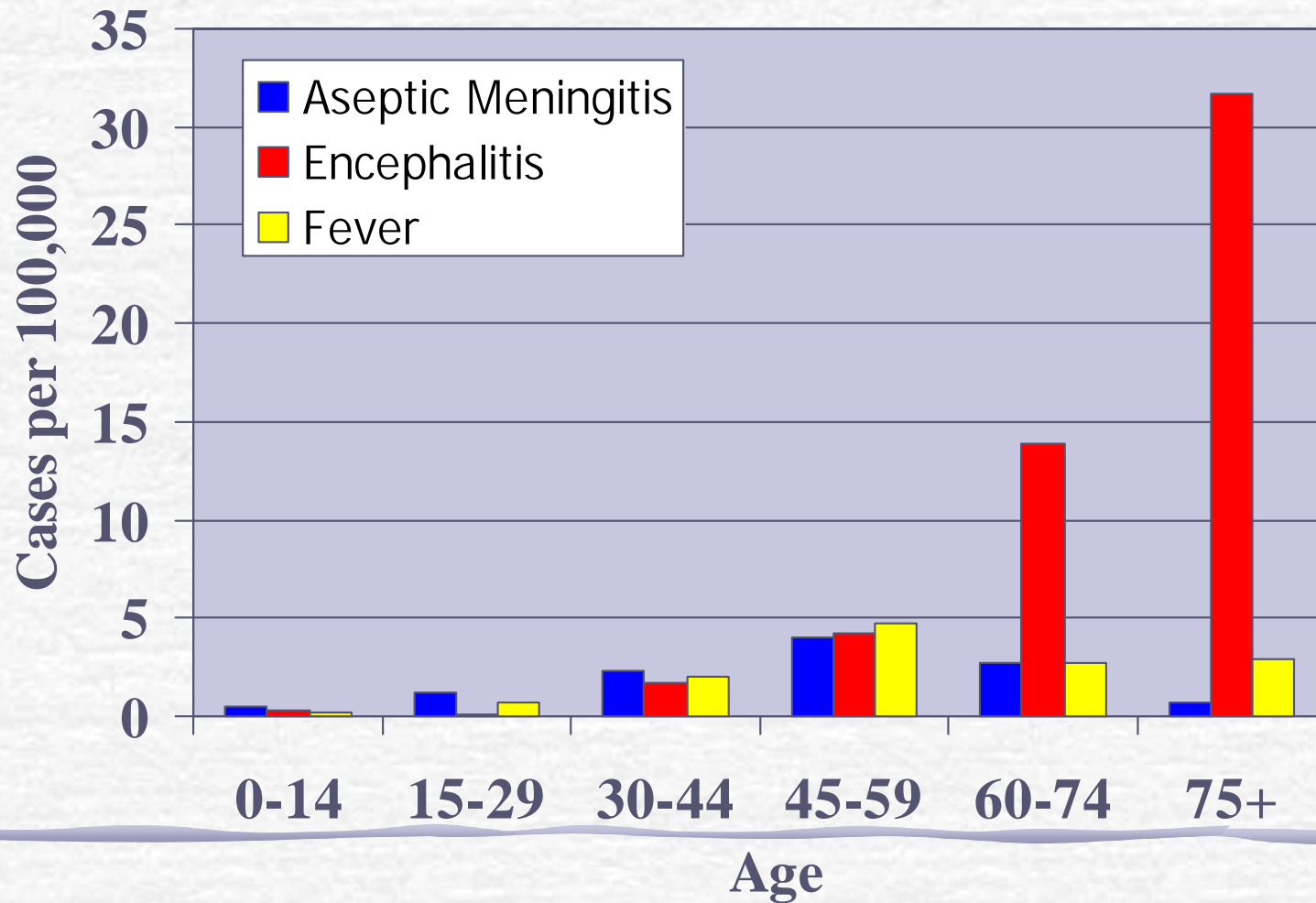


Fever anecdotally more "mono-like" than flu-like

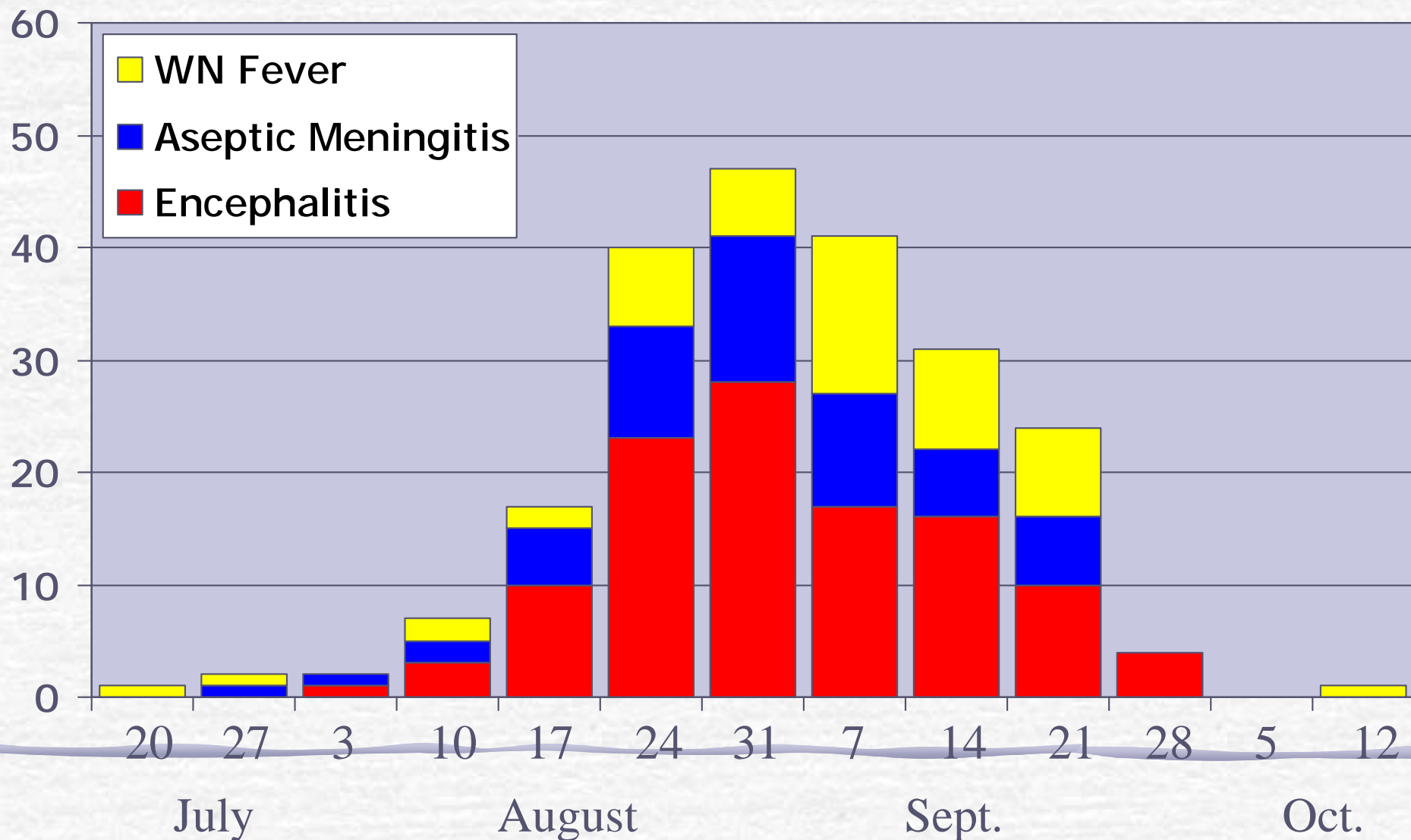
Number of Cases by Age and Diagnosis, (N=220)



Case Rates by Age and Diagnosis (N=220)



Diagnosis by Onset (N=218)



Surveillance for WN Fever

Pro

- Increased sensitivity for early cases
- Public health impact
- Already in case counts
- Costly to distinguish syndromes

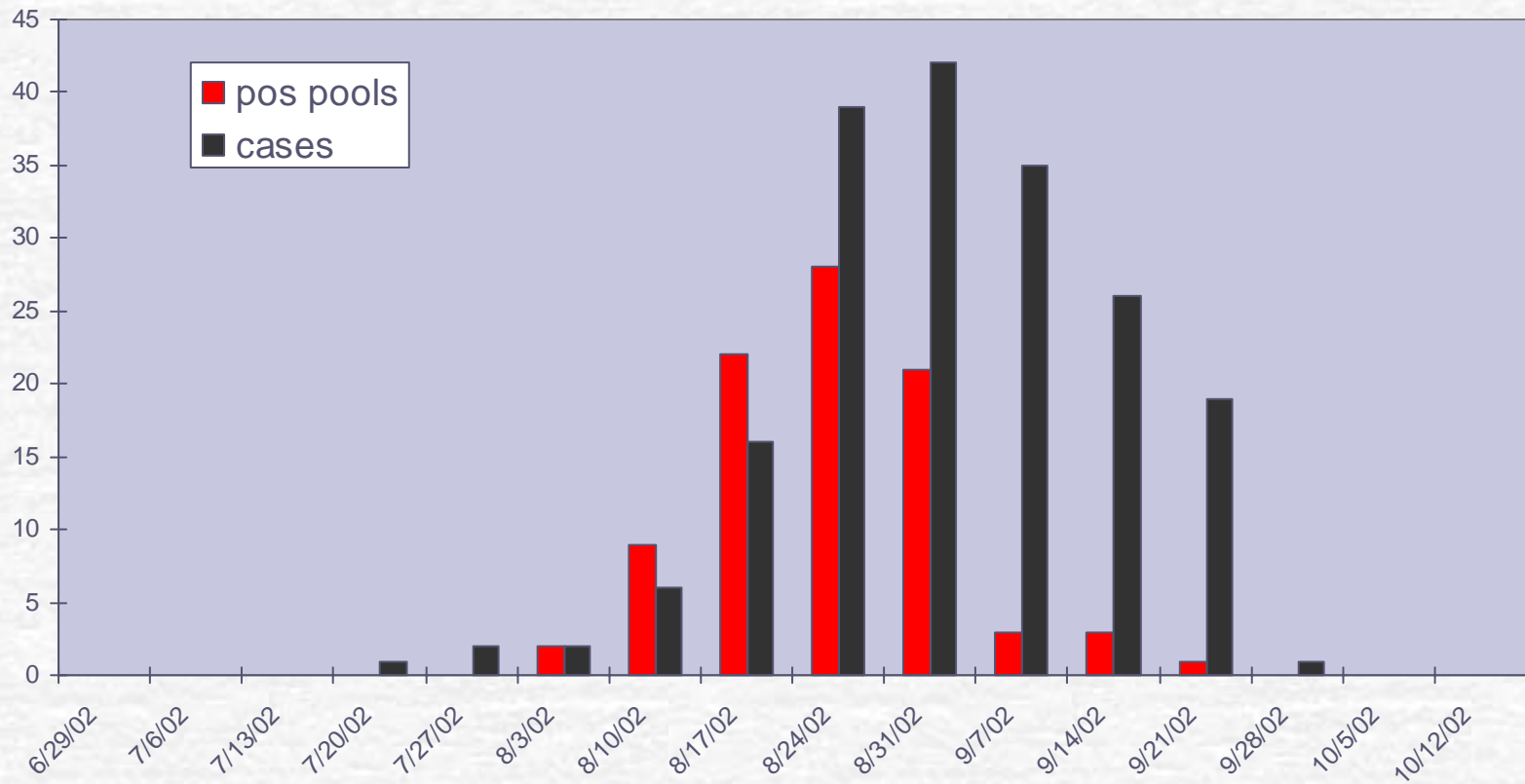
Con

- Milder illness taxes resources
- Convalescent serum specimens (subsequent years)
- Variation in diagnostic access and intensity



MOSQUITOES

Pos Mosquito Pools vs Human Cases



Summary

- ☛ Birds: dead crow sightings correlated with subsequent human risk
- ☛ Humans: surveillance for fever & aseptic meningitis had value
- ☛ Mosquitoes: positive pools concurrent with cases in Chicago, 2002.



Acknowledgments

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THANK YOU