

# Highlights of National WNV Planning Meetings

Montreal, Feb 15-17, 2006

San Francisco, Feb 23-24, 2006

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# Montreal Overview

- Mosquito Control Issues
  - Manitoba experience in particular
- Human Surveillance
- Laboratory/blood issues
- Corvid surveillance
- Mosquito surveillance
- Communications



# WNV Activity, Canada 2005

	<b>2003</b>	<b>2004</b>	<b>2005</b>
<b>Provinces with WNV activity</b>	NS, NB, QC, ON, MB, SK, AB	QC, ON, MB, SK, AB	QC, ON, MB, SK, AB
<b>Human Cases (deaths)</b>	1494 (10)	30 (0)	229 (12)
<b>Dead Birds</b>	1631/11287	416/6208	447/3960
<b>Domestic animals</b>	445	14	3
<b>Mosquito pools</b>	570	176	695



# Human Cases WNV, Canada, 2005



# Mosquito Control

- Manitoba discussion to follow
- Review of larviciding data in Quebec
  - Felt not effective but small areas treated
  - MB/SK some data showing effectiveness
  - Seen as ‘key’ in Ontario
- Discussion of need for standard protocols to evaluate effectiveness



# Mosquito Control

- Presentation from Suffolk County, New York
- Human health and ecological risk assessment of malathion and pyrethrin use for vector control
- Included actual measures of pesticides after spraying in the environment and in humans, animals, invertebrates, fish.
- Only short term effects on non-target flying insects



# Human Surveillance

- New Canadian Case definitions: WNND, WNnon-ND (small % with fever)
- Cohort study of WNv patients
- (WNnon-NS+WNNS)
  - >110 participants
  - Significant long-term disability from both WNNS and WN-nonNS
- Genetic risk factors for WNNS
  - No data yet



# Laboratory/Blood issues

- New lab testing protocol: initial test for IgM AND IgG (avidity testing)
- Organ testing in BC now only during WNV season unless risk factors
- CBS: minipool NAT unless + than SUT until 2 weeks negative (or over threshold)
- Hema-Quebec will be screening donors for travel and testing only in season



# Corvid Surveillance

- Most PTs planning status quo for 2006 although some discussion about stopping in areas with known transmission
- Most submissions urban; few rural
- Some rural areas considering sentinel sites
- SK- Live bird serosurvey of House Sparrows



# Mosquito Surveillance

- Atlantic Canada: low concern given few Cx and short season
- Quebec: focus on areas around Montreal
- Ontario: increasing mosquito surveillance and looking for other spp
- More reliance on mosquito data in prairies and identification of risk habitats



# Summary

- Continued coordination across the country
- What is the minimum program needed to effectively reduce the risk of WNV disease in the most cost effective manner?



# San Francisco, US National WNV Meeting

- Surveillance
  - Epidemiology/clinical studies
  - Field Biology/Ecology
  - Virology
  - Prevention and Control
- 
- General need to support on-going vector-borne illness programs



# Surveillance

- California the big OB in 2005 state BUT:
- Human cases in 42 States
- Increased season, human cases found  
**2 Jan-6 Dec, 2006**
- 2005: **2949 cases (116 deaths); 1288 WNNS**
- Median age 55 (2-84)
- US 1999-2005: 19,655 cases; 8390 WNNS;  
782 deaths



# Surveillance California 2005

## **54 counties have reported WNV activity in California**

- **928** individuals from **40** counties infected with WNV in 2005.
- **18** WNV-related fatalities.; **301** WNNS
- **456** horses\* tested positive for WNV in **43** counties, of these **200** have died or been euthanized.
- **3,046** dead birds in **52** counties tested positive for WNV.
- **1,242** mosquito pools from **29** counties tested positive for WNV.
- **1,053** sentinel chickens from **31** counties have tested positive for West Nile/Saint Louis Encephalitis (SLE)\*\*\* antibodies.

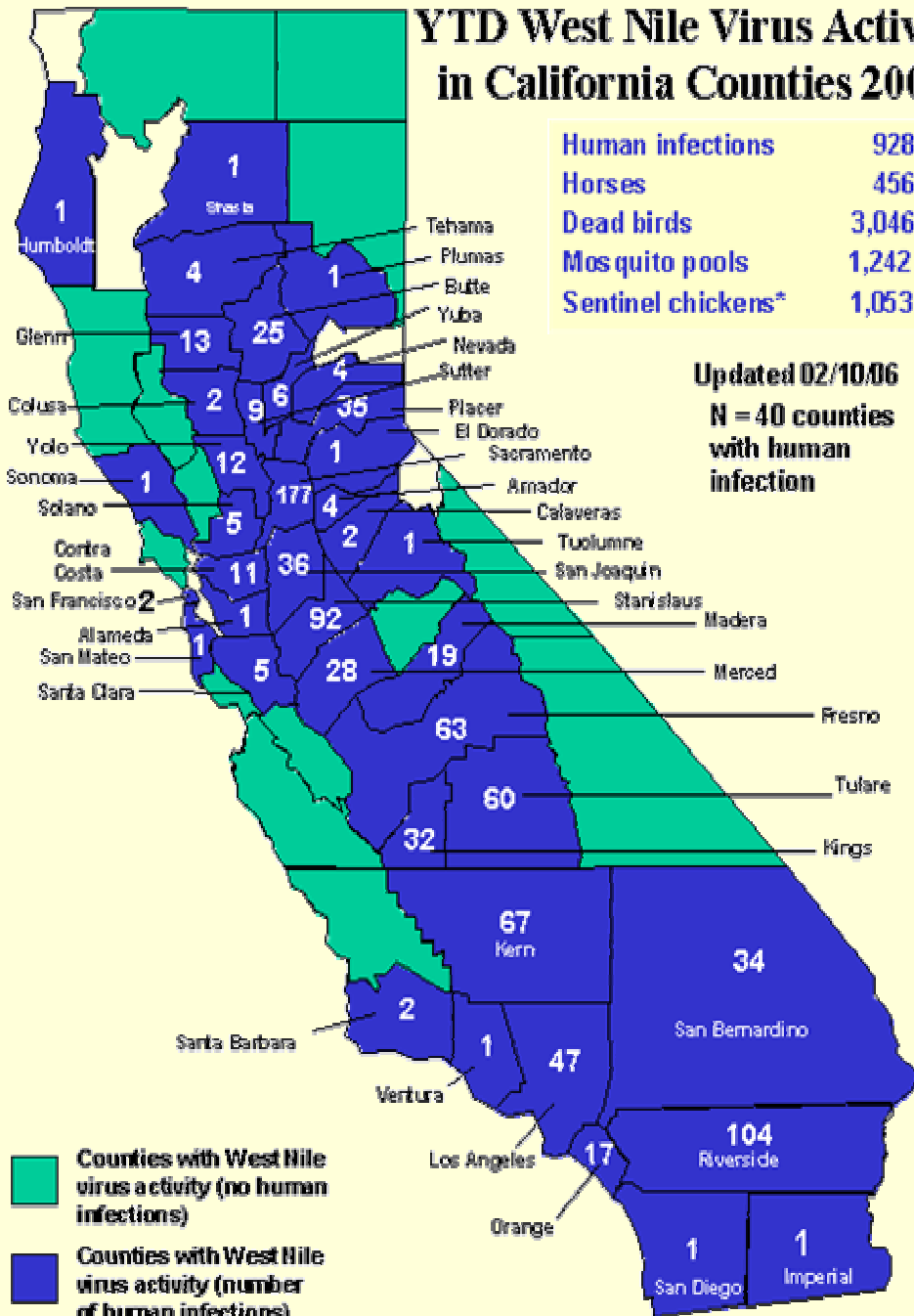
**3** dead birds from **Santa Clara County** tested positive for WNV in 2006.





# YTD West Nile Virus Activity in California Counties 2005

Human infections	928
Horses	456
Dead birds	3,046
Mosquito pools	1,242
Sentinel chickens*	1,053

Updated 02/10/06  
N = 40 counties  
with human  
infection



 Counties with West Nile virus activity (no human infections)  
 Counties with West Nile virus activity (number of human infections)



# Epidemiology/clinical studies

- Transmission from an organ donor to 3 of 4 recipients (IgM and IgG +/-NAT neg)
- Peak age groups for WNNS 70-79 and AFP 40-59 years
- Diabetes (OR 3.8) and HTN (OR 2.1) seem to be RF for WNNS
- Pediatric cases less frequent but similar spectrum of illness as adults (15% encephalitis/25% meningitis/7% AFP)



# Field Biology/Ecology

- CA: different urban and rural cycles
- Urban: *Cx pipiens*/house sparrows/crow roosts seem to interact
- Small mammals **may** play a role in transmission cycles (chipmunks, squirrels, rabbits)
- American Robins are the primary amplification hosts; function as community ‘super-spreaders’
- Dispersion of preferred feeding hosts leads to shifts in mosquito feeding habits to humans in the late summer



# Virology

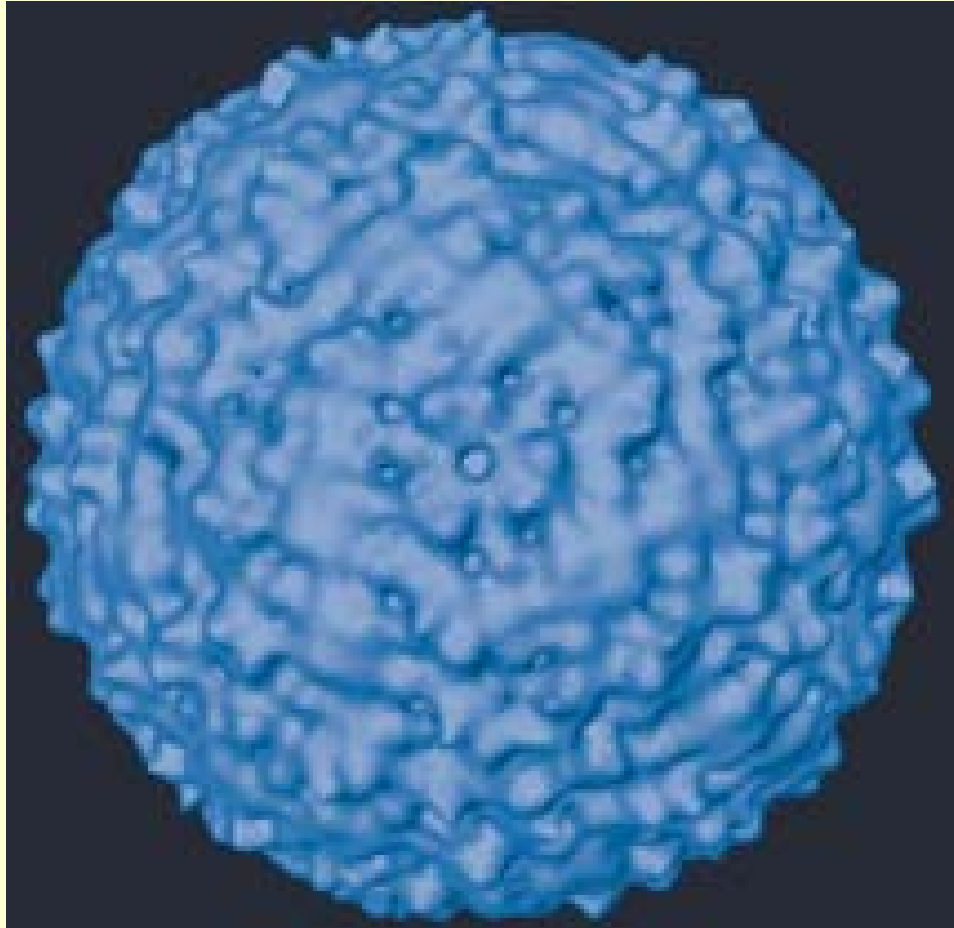


Image of WNV using Cryoelectron microscopy  
Richard Kuhn and his team, University of Purdue  
Published in Science, Funded by NIAID



**BC Centre for Disease Control**  
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# Prevention and Control

- Sacramento-Yolo Counties in California presented first controlled study that showed effectiveness of adulticiding in reducing risk of human illness with WNV
  - 2 treated areas; 2 comparable control areas
  - Aerial spray ULV malathion
  - IPM in both areas
  - Similar rates of personal protective measure
  - Similar larviciding programs



# Be Prepared, Not Surprised

