

California Arbovirus Surveillance Bulletin # 37

Week 44 Monday, November 8, 2010

Weekly Summary

WEEKLY COMMENTS



Humans

Three new human cases of West Nile virus (WNV) were reported last week from Kern (1) and Sacramento (2) counties. In addition, an asymptomatic WNV infection was reported in a blood donor from Contra Costa County. To date this year, 96 WNV cases have been reported from 17 counties. Of the 96 individuals, 61 (64%) developed neuroinvasive disease. The median age for all cases for which data are available is 55 years (range: 10-89 years); 53 (55%) are male. Two WNV-associated fatalities have been reported from Fresno and Merced counties. At this time last year, 98 human cases had been reported from 17 counties.

Horses

No new horse cases were reported last week. In 2010, 19 horses from 11 counties have tested positive for WNV infection and 5 fatalities have been reported. At this time last year, 17 horse cases of WNV had been reported from 11 counties.

Dead Birds & Squirrels

Seven WNV positive dead birds were reported last week from Kern (1), Orange (3), Santa Clara (1), Shasta (1), and Yolo (1) counties. Additionally, two WNV positive tree squirrels were reported last week from Orange (1) and Sacramento (1) counties.

In 2010, 408 recently-infected* WNV positive dead birds have been reported from 27 counties, and 23 WNV positive squirrels have been reported from 8 counties. An additional 179 chronic WNV infections have been detected in birds from 29 counties (see www.westnile.ca.gov for more details). At this time last year, 498 birds from 36 counties and 10 tree squirrels from 7 counties had tested positive for WNV. Year-to-date totals from last year and previous years include both recent and chronic infections.

**In 2010, The University of California, Center for Vectorborne Diseases (CVEC) and the California Department of Public Health, Vector-Borne Disease Section began differentiating between chronic and acute infections in West Nile virus positive dead birds. Birds considered to have chronic infection with WNV are unlikely to have been infected recently with WNV and have limited surveillance utility.*

Mosquito Pools

Four WNV positive mosquito pools were reported last week from Los Angeles (3) and San Bernardino (1) counties. In 2010, 1,298 mosquito pools from 24 counties have tested positive for WNV. At this time last year, 1,062 WNV positive mosquito pools had been reported from 27 counties.

Sentinel Chickens

Two WNV seroconversions were reported last week from 2 flocks within Contra Costa (1) and Yolo (1) counties. In 2010, 279 WNV positive chickens have been detected among 62 flocks within 21 counties. At this time last year, 437 WNV positive chickens from 23 counties had been reported.

2009 & 2010 YTD West Nile Virus Comparisons		
	2009	2010
Total # Dead Bird Reports	14,883	10,092
# Positive Counties	42	35
# Human Cases	98	96
# Horse Cases	17	19
# Positive Dead Birds / # Tested	498 / 2,654	408 / 2,076
# Positive Mosquito Pools / # Tested	1,062 / 25,126	1,298 / 29,864
# Seroconversions / # Tested	437 / 23,624	279 / 25,212
# Positive Squirrels / # Tested	10 / 98	23 / 106

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YTD WNV Activity by Element and County, 2010

County	Humans	Horses	Dead Birds [^]	Mosquito Pools	Sentinel Chickens	Squirrels
Alameda	1		1			
Amador		1				
Butte	1	1	6	7	7	1
Colusa			1		5	
Contra Costa	3		8	4	3	
El Dorado			2			
Fresno	21	4	22	130	7	2
Glenn	2		3			
Imperial				10	15	
Kern	13	1	12	277	86	
Kings	1			65		
Lake				3		
Lassen		1				
Los Angeles	1		37	55	2	1
Madera	5	5	13	9	9	
Merced	1		14	9	8	
Mono			1			
Orange	1		15	19		2
Placer	3		9	36	4	
Riverside			1	70	42	
Sacramento	12	2	115	205	6	3
San Bernardino	3		10	38	11	2
San Diego			2	1		
San Joaquin	7	1	26	56	1	
San Mateo						6
Santa Clara			31	10		6
Santa Cruz			4			
Shasta			4			
Solano		1	1	1	2	
Stanislaus	11	1	34	86	21	
Sutter			1	26	13	
Tehama					1	
Tulare	10	1	21	168	26	
Yolo			14	11	5	
Yuba				2	5	
Totals	96	19	408	1,298	279	23

[^] Chronic infections are not included in county totals.

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TEST SUMMARIES

Human & Horse Cases

		Number Tested	WNV		WEE		SLE	
			Local	Imported	Local	Imported	Local	Imported
Humans Tested*	Week	22	3	0	0	0	0	0
	YTD	659	96	0	0	0	0	0
Horses Tested	Week	5	0	0	0	0	0	0
	YTD	180	19	0	0	0	0	0

Dead Birds & Tree Squirrels

		Number Tested	WNV Positive (recent only)
Dead Birds	Week	23	7
	YTD	2,076	408
Tree Squirrels	Week	2	2
	YTD	106	23

Sentinel Chickens & Mosquito Pools

		Number Tested	WNV Positive	SLE Positive	WEE Positive
Chicken Sera	Week	417	2	0	0
	YTD	25,212	279	0	0
Mosquito Pools: RT-PCR	Week	153	4	0	0
	YTD	28,816	1,279	0	0
Mosquito Pools: RAMP	Week	0	--	N/A	N/A
	YTD	1,048	19	N/A	N/A

NEW POSITIVES

Humans

WNV Cases							
ID	Report Date	County ¹	Age	Sex	Clin Pres	Onset Date	WNV Fatality?
10-0095	11/02/10	Sacramento	57	M	WNF	09/14/10	No
10-0096	11/02/10	Sacramento	65	M	WNND	08/18/10	No
10-0097	11/04/10	Kern	37	M	WNND	n/a	No
Presumptively Viremic Blood Donors (Asymptomatic Infections)							
BD10-0018	11/04/10	Contra Costa	>18	M			

¹County of residence

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Dead Birds and Squirrels

County	Submitting Agency	City	Zip Code	Species	Date Reported	Virus	Test Type
Kern	Kern MVCD	Bakersfield	93301	American Crow	10/22/2010	WNV	RT-PCR
Orange	Orange Co VCD	Anaheim	92802	American Crow	10/12/2010	WNV	RT-PCR
Orange	Orange Co VCD	Fullerton	92833	American Crow	10/18/2010	WNV	RT-PCR
Orange	Orange Co VCD	Orange	92867	American Crow	10/18/2010	WNV	RT-PCR
Orange	Orange Co. VCD	Fullerton	92832	Fox Squirrel	10/18/2010	WNV	RT-PCR
Sacramento	Sacramento-Yolo	Sacramento	95628	Fox Squirrel	10/21/2010	WNV	RT-PCR
Santa Clara	Santa Clara Co VCD	Campbell	95008	American Crow	10/25/2010	WNV	VecTest
Shasta	Shasta MVCD	Redding	96003	American Crow	10/20/2010	WNV	RAMP
Yolo	Sacramento-Yolo MVCD	Davis	95616	American Crow	10/25/2010	WNV	RT-PCR

Mosquito Pools

County	Site Code	Pool #	Species	# in pool	City	Collected	Virus	Method
Los Angeles	GRLA2164	1696	Culex quinquefasciatus	50	Downey	10/26/2010	WNV	RTPCR
Los Angeles	GRLA2954	1713	Culex quinquefasciatus	44	Cerritos	10/26/2010	WNV	RTPCR
Los Angeles	GRLA2230	1726	Culex quinquefasciatus	50	Diamond Bar	10/29/2010	WNV	RTPCR
San Bernardino	WVAL6007	998	Culex quinquefasciatus	5	Ontario	10/25/2010	WNV	RTPCR

Sentinel Chickens

County	Site Code	City	Date Bled**	Virus	Band 01
Contra Costa	CNTR7402	Oakley	10/25/2010	WNV	1426
Yolo	SAYO145022	Davis	10/18/2010	WNV	2659

**Date bled is equivalent to the probable date of seroconversion. The filter paper bleed date is reported as the date bled when whole blood is requested & tested for confirmation.

NATIONAL COMMENTS

As of November 2, 2010, 894 human cases of WNV had been reported nationwide in 39 jurisdictions: Alabama (3), Arizona (148), Arkansas (6), California (92), Colorado (79), Connecticut (7), District of Columbia (2), Florida (11), Georgia (12), Idaho (1), Illinois (50), Indiana (8), Iowa (6), Kansas (7), Kentucky (3), Louisiana (20), Maryland (21), Massachusetts (7), Michigan (29), Minnesota (7), Mississippi (7), Missouri (3), Nebraska (37), Nevada (2), New Hampshire (1), New Jersey (29), New Mexico (21), New York (127), North Dakota (9), Ohio (4), Pennsylvania (29), South Carolina (1), South Dakota (20), Tennessee (4), Texas (69), Utah (2), Virginia (2), Wisconsin (2), and Wyoming (6). Of the 894 cases, 544 (61%) had neuroinvasive disease. A total of 37 WNV-related fatalities have been reported in Arizona (9), California (2), Colorado (4), Florida (2), Illinois (3), Kentucky (1), Maryland (2), Michigan (3), Nebraska (1), New Jersey (2), New York (3), Texas (4), and Virginia (1).

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TEST PROTOCOLS

Humans:

Specimens are tested by local laboratories with an IgM or IgG immunofluorescent assay (IFA) and/or an IgM enzyme immunoassay (EIA). Specimens with inconclusive results are forwarded to the California Department of Public Health Viral and Rickettsial Disease Laboratory (VRDL) for further testing or confirmation by plaque reduction neutralization test (PRNT).

*Human denominator data only includes specimens tested at VRDL and does not include additional negative specimens that are tested by local agencies only.

Horses:

Serum or brain tissue specimens from horses displaying neurological symptoms are submitted to the California Animal Health and Safety Laboratory (CAHFS) and tested by EIA and PRNT.

Dead Birds and Tree Squirrels:

Dead birds and tree squirrels are necropsied at CAHFS laboratory at University of California, Davis. Oral swabs from American Crows and kidney tissue from all other dead birds and squirrels are forwarded to the UC Davis Center for Vectorborne Diseases (CVEC) for West Nile virus testing using the singleplex RT-PCR Taqman assay and confirmed with a second primer set. The WNV Dead Bird Surveillance Coordinator, Erin Parker, can be reached directly at (510) 412-6254.

Sentinel Chickens:

Dried blood spot specimens from sentinel chickens are submitted to the California Department of Public Health Vector-Borne Disease Laboratory and tested for the presence of antibodies to West Nile, western equine encephalomyelitis (WEE), and St. Louis encephalitis (SLE) viruses by EIA and IFA. Positive samples are confirmed by western-blot or PRNT.

Mosquito Pools:

Mosquito pools are submitted to CVEC and screened for WEE, SLE, and WNV viral RNA using a Taqman multiplex RT-PCR. CVEC will cease confirmation testing on PCR-positive pools of *Cx. tarsalis* and *Cx. quinquefasciatus* but will continue to confirm multiplex PCR-positive results for other mosquito species using singleplex RT-PCR.

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Website Information: For updated information on WNV in California, please visit the California WNV website, www.westnile.ca.gov, or the California Vectorborne Disease Surveillance System website, www.calsurv.org. For national information on WNV and other arboviruses, please visit the CDC website, www.cdc.gov, and the USGS website, www.westnilemaps.usgs.gov
