

California Arbovirus Surveillance Bulletin # 33

Week 40 Monday, October 11, 2010

Weekly Summary

WEEKLY COMMENTS



Humans

Five new human cases of West Nile virus (WNV) were reported last week from Contra Costa (3), Fresno (1), and Stanislaus (1) counties. These are the first cases reported from Contra Costa County in 2010. In addition, an asymptomatic WNV infection was reported in a blood donor from Kings county. To date this year, 66 WNV cases have been reported from 12 counties. Of the 66 individuals, 44 (67%) developed neuroinvasive disease. The median age for all cases for which data are available is 56 years (range: 17-89 years); 35 (53%) are male. One fatality has been reported from Fresno County. At this time last year, 77 human cases had been reported from 16 counties.

Horses

Two new horse cases were reported last week from Butte and Lassen counties; this is the first detection of WNV in Lassen County in 2010, and the first horse case reported from Butte County this year. In 2010, 18 horses from 11 counties have tested positive for WNV infection and 5 fatalities have been reported. At this time last year, 15 horse cases of WNV had been reported from 11 counties.

Dead Birds & Squirrels

Eleven recently-infected* WNV positive dead birds were reported last week from the following 6 counties: Contra Costa (1), Riverside (1), Sacramento (4), Santa Clara (3), Tulare (1), and Yolo (1). This is the first WNV positive dead bird detected in Riverside County this year. Eight additional birds from five counties tested positive for chronic infection with WNV. There were no positive tree squirrels reported this week.

In 2010, 385 recently-infected* WNV positive dead birds have been reported from 26 counties, and 20 WNV positive squirrels have been reported from 8 counties. An additional 165 chronic WNV infections have been detected in birds from 29 counties (see www.westnile.ca.gov for more details). At this time last year, 471 birds from 35 counties and 9 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

Twenty-three WNV positive mosquito pools were reported last week from the following 9 counties: Fresno (2), Kern (8), Kings (3), Los Angeles (1), Riverside (1), Sacramento (5), San Bernardino (1), San Joaquin (1), and Stanislaus (1). In 2010, 1,267 mosquito pools from 24 counties have tested positive for WNV. At this time last year, 1,044 WNV positive mosquito pools had been reported from 27 counties.

Sentinel Chickens

Twelve WNV seroconversions were reported last week in 8 flocks from the following 6 counties: Contra Costa (1), Kern (2), Merced (1), Sacramento (1), Sutter (1), and Stanislaus (6). In 2010, 253 WNV positive chickens have been detected among 57 flocks within 20 counties. At this time last year, 390 WNV positive chickens from 22 counties had been reported.

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2009 & 2010 YTD West Nile Virus Comparisons		
	2009	2010
Total # Dead Bird Reports	14,235	9,562
# Positive Counties	41	35
# Human Cases	77	66
# Horse Cases	15	18
# Positive Dead Birds / # Tested	471 / 2,504	385 / 1,957
# Positive Mosquito Pools / # Tested	1,044 / 24,198	1,267 / 27,944
# Seroconversions / # Tested	390 / 21,325	253 / 22,540
# Positive Squirrels / # Tested	9 / 91	20 / 92

YTD WNV Activity by Element and County, 2010

County	Humans	Horses	Dead Birds [^]	Mosquito Pools	Sentinel Chickens	Squirrels
Alameda			1			
Amador		1				
Butte	1	1	6	7	6	1
Colusa			1		5	
Contra Costa	3		7	4	2	
El Dorado			2			
Fresno	21	3	22	129	7	2
Glenn	2		3			
Imperial				10	14	
Kern	7	1	11	272	80	
Kings				65		
Lake				2		
Lassen		1				
Los Angeles			32	49	2	1
Madera	5	5	13	9	8	
Merced			14	9	7	
Mono			1			
Orange			12	17		1
Placer	3		7	34	3	
Riverside			1	69	35	
Sacramento	5	2	113	203	7	2
San Bernardino	1		9	37	10	2
San Diego			2	1		
San Joaquin	4	1	26	50	1	
San Mateo						5
Santa Clara			30	10		6
Santa Cruz			4			
Shasta			3			
Solano		1		1	2	
Stanislaus	9	1	32	83	20	
Sutter			1	26	13	
Tehama					1	
Tulare	5	1	21	168	25	
Yolo			11	10		
Yuba				2	5	
Totals	66	18	385	1,267	253	20

[^] 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	19	5	0	0	0	0	0
	YTD	588	66	0	0	0	0	0
Horses Tested	Week	8	2	0	0	0	0	0
	YTD	163	18	0	0	0	0	0

Dead Birds & Tree Squirrels

		Number Tested	WNV Positive (recent only)
Dead Birds	Week	36	11
	YTD	1,957	385
Tree Squirrels	Week	4	0
	YTD	92	20

Sentinel Chickens & Mosquito Pools

		Number Tested	WNV Positive	SLE Positive	WEE Positive
Chicken Sera	Week	580	12	0	0
	YTD	22,540	253	0	0
Mosquito Pools: RT-PCR	Week	1,050	23	0	0
	YTD	26,916	1,248	0	0
Mosquito Pools: RAMP	Week	44	0	N/A	N/A
	YTD	1,028	19	N/A	N/A

NEW POSITIVES

Humans

WNV Cases							
ID	Report Date	County ¹	Age	Sex	Clin Pres	Onset Date	WNV Fatality?
10-0063	10/01/10	Fresno	61	M	WNND	n/a	NO
10-0064	10/06/10	Contra Costa	>18	M	WNND	08/09/10	NO
10-0065	10/06/10	Contra Costa	>18	M	WNND	09/03/10	NO
10-0066	10/06/10	Contra Costa	>18	F	WNND	09/12/10	NO
10-0067	10/07/10	Stanislaus	53	M	WNND	n/a	NO
Presumptively Viremic Blood Donors (Asymptomatic Infections)							
BD10-0015	10/06/10	Kings	>18	M			

¹County of residence

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Dead Birds & Squirrels

County	Agency	City	Zip	Species	Reported	Virus	Type of Infection	Method
Contra Costa	Contra Costa MVCD	Antioch	94509	American Crow	9/30/2010	WNV	Recent	RAMP
Riverside	Coachella Valley MVCD	Palm Springs	92262	Northern Mockingbird	9/23/2010	WNV	Recent	RT-PCR
Sacramento	Sacramento-Yolo MVCD	Sacramento	95816	American Crow	9/22/2010	WNV	Recent	RT-PCR
Sacramento	Sacramento-Yolo MVCD	Sacramento	95864	American Crow	9/23/2010	WNV	Recent	RT-PCR
Sacramento	Sacramento-Yolo MVCD	Galt	95632	Western Scrub-Jay	9/24/2010	WNV	Recent	RT-PCR
Sacramento	Sacramento-Yolo MVCD	Galt	95632	Western Scrub-Jay	9/29/2010	WNV	Recent	RT-PCR
Santa Clara	Santa Clara Co VCD	Milpitas	95035	American Crow	9/27/2010	WNV	Recent	VecTest
Santa Clara	Santa Clara Co VCD	San Jose	95136	American Crow	9/27/2010	WNV	Recent	VecTest
Santa Clara	Santa Clara Co VCD	Santa Clara	95051	American Crow	9/28/2010	WNV	Recent	VecTest
Tulare	Tulare MAD	Lindsay	93247	Western Scrub-Jay	9/23/2010	WNV	Recent	RT-PCR
Yolo	Sacramento-Yolo MVCD	Davis	95618	American Crow	9/29/2010	WNV	Recent	RT-PCR
Butte	Butte Co MVCD	Oroville	95965	White-crowned Sparrow	9/23/2010	WNV	Chronic	RT-PCR
Butte	Butte Co MVCD	Oroville	95965	House Sparrow	9/27/2010	WNV	Chronic	RT-PCR
Mendocino	Mendocino Co Env Health Div	Ukiah	95482	Cedar Waxwing	9/28/2010	WNV	Chronic	RT-PCR
Merced	Merced Co MAD	Atwater	95301	Western Scrub-Jay	9/24/2010	WNV	Chronic	RT-PCR
Placer	Placer MVCD	Roseville	95661	Brewer's Blackbird	9/28/2010	WNV	Chronic	RT-PCR
Sacramento	Sacramento-Yolo MVCD	Folsom	95630	Blue-grey Gnatcatcher	9/26/2010	WNV	Chronic	RT-PCR
Sacramento	Sacramento-Yolo MVCD	Folsom	95630	American Robin	9/27/2010	WNV	Chronic	RT-PCR
Sacramento	Sacramento-Yolo MVCD	Elk Grove	95758	European Starling	9/27/2010	WNV	Chronic	RT-PCR

Mosquitoes

County	Site Code	Pool #	Species	# in pool	City	Collected	Virus	Method
Fresno	CNSL4058	675	Culex quinquefasciatus	32	Fowler	9/30/2010	WNV	RTPCR
Fresno	FRWS4108	213	Culex tarsalis	50	Mendota	9/30/2010	WNV	RTPCR
Kern	KERN115	1315	Culex tarsalis	50	Bakersfield	9/28/2010	WNV	RTPCR
Kern	KERN2022	1357	Culex quinquefasciatus	22	Shafter	9/30/2010	WNV	RTPCR
Kern	KERN2028	1358	Culex quinquefasciatus	50	Bakersfield	10/1/2010	WNV	RTPCR
Kern	KERN3021	1313	Culex tarsalis	50	Wasco	9/28/2010	WNV	RTPCR
Kern	KERN3031	1318	Culex quinquefasciatus	50	Shafter	9/28/2010	WNV	RTPCR
Kern	KERN3032	1312	Culex quinquefasciatus	50		9/28/2010	WNV	RTPCR
Kern	KERN44	1349	Culex quinquefasciatus	50	Shafter	9/30/2010	WNV	RTPCR
Kern	KERN46	1352	Culex quinquefasciatus	50	Wasco	9/30/2010	WNV	RTPCR
Kings	KNGS3030	747	Culex tarsalis	50	Lemoore	9/28/2010	WNV	RTPCR
Kings	KNGS3030	749	Culex tarsalis	43	Lemoore	9/28/2010	WNV	RTPCR
Kings	KNGS8030	772	Culex tarsalis	50	Corcoran	9/30/2010	WNV	RTPCR
Los Angeles	GRLA2967	6390	Culex quinquefasciatus	37	Chatsworth	9/30/2010	WNV	RTPCR
Riverside	COAV10	2829	Culex tarsalis	49	Thermal	9/28/2010	WNV	RTPCR
Sacramento	SAYO222001	5743	Culex pipiens	13	Sacramento	10/1/2010	WNV	RTPCR
Sacramento	SAYO223006	5823	Culex pipiens	3	South Watt Avenue	10/5/2010	WNV	RTPCR
Sacramento	SAYO232005	5760	Culex erythrothorax	50	Sacramento	10/1/2010	WNV	RTPCR
Sacramento	SAYO232012	5748	Culex tarsalis	10	Elk Grove	10/1/2010	WNV	RTPCR
Sacramento	SAYO233010	5689	Culex tarsalis	16	Sacramento	10/1/2010	WNV	RTPCR
San Bernardino	WVAL6002	913	Culex stigmatosoma	43	Ontario	9/27/2010	WNV	RTPCR
San Joaquin	SJCM8027	906	Culex tarsalis	12	McDonald Isl. bridge	10/5/2010	WNV	RTPCR
Stanislaus	TRLK9737	1148	Culex tarsalis	32	Grayson	10/5/2010	WNV	RTPCR

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Sentinel Chickens

County	Site Code	City	Date Bled**	Virus	Band 01	Band 02	Band 03
Contra Costa	CNTR8152	Knightsen	9/27/2010	WNV	1416		
Kern	DLNO0060	Delano	9/30/2010	WNV	1507		
Kern	KERN0102	Buttonwillow	9/20/2010	WNV	1765		
Merced	MERC0502	Hilmar	10/1/2010	WNV	2243		
Sacramento	SAYO236001	Rancho Murieta	9/20/2010	WNV	2635		
Stanislaus	TRLK0402	Denair	9/30/2010	WNV	3395	3396	3401
Stanislaus	TRLK9703	Crows Landing	9/16/2010	WNV	3422	3426	
Stanislaus	TRLK9703	Crows Landing	9/30/2010	WNV	3424		
Sutter	SUYA0014	Sutter	9/30/2010	WNV	3329		

**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 October 5, 2010, 620 human cases of WNV had been reported nationwide in 35 states: Alabama (3), Arizona (114), Arkansas (5), California (60), Colorado (38), Connecticut (7), Florida (7), Georgia (11), Idaho (1), Illinois (18), Indiana (6), Iowa (3), Kansas (6), Kentucky (2), Louisiana (18), Maryland (9), Massachusetts (4), Michigan (21), Minnesota (5), Mississippi (5), Missouri (4), Nebraska (37), Nevada (2), New Jersey (20), New Mexico (12), New York (103), North Dakota (8), Ohio (2), Pennsylvania (13), South Dakota (20), Tennessee (2), Texas (45), Virginia (2), Wisconsin (2), and Wyoming (5). Of the 620 cases, 366 (59%) had neuroinvasive disease. A total of 23 WNV-related fatalities have been reported in Arizona (7), California (1), Florida (2), Illinois (1), Michigan (2), Nebraska (1), New Jersey (2), New York (3), Texas (3), and Virginia (1)..

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.

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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
