

California Arbovirus Surveillance Bulletin #29

Week 38 Friday, September 23, 2016



Weekly Update

Humans

This week, serologic test results from the U.S. Centers for Disease Control and Prevention confirmed a case of St. Louis encephalitis virus (SLEV) disease in Sacramento County. This is the first case of SLEV disease reported in California since 1997. The individual developed neurologic symptoms in July and had no recent history of travel outside Sacramento County. Sacramento County's last human SLEV case occurred in 1971 and the last SLEV detection was in sentinel chickens in 1986.

St. Louis encephalitis virus has recently re-emerged in California. In 2015, SLEV was detected for the first time since 2003 in both mosquitoes and sentinel chickens from the Coachella Valley in Riverside County. To date this year, SLEV activity has been detected in either mosquitoes or sentinel chickens from 7 counties: Kern, Kings, Los Angeles, Orange, Riverside, San Bernardino, and Tulare. Human SLEV cases are rare and similar in presentation to West Nile virus (WNV) disease. The majority of persons infected with SLEV have no symptoms or only mild non-specific flu-like illness. However, in some individuals, especially the elderly, SLEV can cause severe neurologic illness similar to WNV. Testing to distinguish between SLEV and WNV can be conducted at the CDPH Viral and Rickettsial Diseases Laboratory. Questions about human WNV and SLEV testing and reporting may be directed to Dr. Jackie Wong of the Vector-Borne Disease Section at (510) 412-4650 (Jacklyn.Wong@cdph.ca.gov).

West Nile virus

A total of 35 new cases of WNV illness were reported this week from the following 12 counties: Butte (2), Kings (1), Los Angeles (13), Madera (1), Monterey (1), Placer (3), San Diego (6), Stanislaus (1), Sutter (2), Tehama (1), Tulare (3), and Yolo (1). **These are the first human cases reported from Monterey, Placer, and Tulare counties in 2016.** To date this year, 234 cases of WNV illness have been reported from 27 counties. Of the 234 case-patients, 171 (73%) had neuroinvasive illness, and 5 fatalities have been reported from Los Angeles (2), Sacramento (1), San Diego (1), and Yolo (1) counties. The median age of the individuals is 60 years (range: 8-91 years) and 137 (59%) are male. Dates of symptom onset range from June 17 to September 14. In addition, 29 asymptomatic WNV-positive blood donors have been reported from Fresno (2), Los Angeles (7), Madera (1), Orange (3) Sacramento (2), San Diego (2), San Luis Obispo (1), Stanislaus (4), Sutter (2), Tehama (1), Tulare (1), and Yolo (3) counties.

Dead Birds

This week, a total of 41 dead birds tested positive for WNV from the following 12 counties: Contra Costa (3), Los Angeles (7), Orange (4), Riverside (2), Sacramento (3), San Diego (5), San Mateo (1), Santa Clara (7), Solano (4), Sonoma (1), Ventura (2), and Yolo (2). In 2016, 1,276 dead birds have tested positive for WNV from 33 counties, whereas at this time last year, 967 WNV positive birds had been reported from 36 counties.

Mosquito Pools

West Nile virus

A total of 69 WNV positive mosquito pools were reported this week from the following 16 counties: Butte (2), Contra Costa (1), Fresno (3), Lake (1), Los Angeles (29), Madera (5), Riverside (1) Sacramento (7), San Bernardino (1), San Joaquin (2), Santa Clara (1), Shasta (1), Sonoma (1), Stanislaus (6), Tulare (2), and Yolo (6). In 2016, 3,249 WNV positive mosquito pools have been reported from 30 counties, whereas at this time last year, 2,768 WNV positive mosquito pools had been reported from 29 counties.

St. Louis encephalitis virus

A total of 5 SLEV positive mosquito pools were reported this week from Riverside County. To date this year, 156 SLEV positive mosquito pools have been reported from: Kern (65), Kings (2), Los Angeles (2), Orange (2), Riverside (84), and Tulare (1) counties. At this time last year, 35 SLEV positive mosquito pools had been reported from Riverside County.

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Sentinel Chickens

West Nile virus

A total of 16 WNV seroconversions were reported this week from 11 flocks in 3 counties: Butte (1), Los Angeles (13), and Solano (2). To date this year, 295 WNV seroconversions have been detected in 72 flocks located in 17 counties, whereas at this time last year, 314 WNV seroconversions had been detected in 78 flocks located in 21 counties.

St. Louis encephalitis virus

No new SLEV seroconversions were reported this week. In 2016, 2 SLEV seroconversions have been detected in one flock located in San Bernardino County. At this time last year, 3 SLEV positive chickens from 2 flocks in Riverside County had been reported.

YTD WNV Activity by Element and County, 2016				
County	Humans	Dead Birds	Mosquito Pools	Sentinel Chickens
Alameda		11	2	
Butte	20	21	48	38
Colusa	2			9
Contra Costa	1	26	9	5
El Dorado	1	4		
Fresno	8	6	178	
Glenn	3	4	11	10
Kern	8		78	
Kings	2	4	114	
Lake		4	39	4
Los Angeles	76	111	368	97
Madera	2	5	98	
Marin		5		
Merced		5	11	33
Monterey	1			
Napa		1	4	
Nevada		2		1
Orange	12	76	327	
Placer	3	27	102	6
Riverside	2	14	31	
Sacramento	18	408	451	
San Bernardino	3	5	78	18
San Diego	9	252	65	9
San Joaquin	5	35	334	
San Mateo		11	5	
Santa Clara	1	85	13	
Santa Cruz		2	3	
Shasta	1	3	12	3
Solano		11	16	7
Sonoma		8	2	
Stanislaus	16	10	252	
Sutter	9	10	68	32
Tehama	5			8
Tulare	3	3	256	
Ventura	2	32		
Yolo	12	71	256	2
Yuba	9	4	18	13
Totals	234	1,276	3,249	295

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2015 & 2016 YTD West Nile Virus Comparisons		
	2015	2016
Total # Dead Bird Reports	8,957	8,253
# Positive Counties	40	37
# Human Cases	201	234
# Positive Dead Birds / # Tested	967 / 2,552	1,276 / 2,577
# Positive Mosquito Pools / # Tested	2,768 / 29,656	3,249 / 36,951
# Seroconversions / # Tested	314 / 9,945	295 / 8,687

TESTING SUMMARIES

Humans

		WNV	SLE	WEE
Number of Cases Reported	Week	35	1	0
	YTD	234	1	0

Dead Birds

		Total Tested	WNV Positive
Dead Birds	Week	73	41
	YTD	2,577	1,276

Sentinel Chickens

		Total Tested	WNV +	SLEV +	WEEV +
Chicken Sera	Week	380	16	0	0
	YTD	8,687	295	2	0

Mosquitoes

		Positive / Total Tested					
		WNV	SLEV	WEEV	CHIK	DENV	ZIKA
Mosquito Pools	Week	69 / 1,557	5 / 1,343	0 / 1,343	0 / 62	0 / 62	0 / 62
	YTD	3,249 / 36,951	156 / 23,838	0 / 23,838	0 / 452	0 / 452	0 / 452

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NEW POSITIVES

Dead Birds

County	Agency	City	Zip Code	Species	Date Reported	Virus
Contra Costa	Contra Costa MVCD	Concord	94521	American Crow	9/22/2016	WNV
Contra Costa	Contra Costa MVCD	Martinez	94553	American Crow	9/20/2016	WNV
Contra Costa	Contra Costa MVCD	Walnut Creek	94598	American Crow	9/16/2016	WNV
Los Angeles	Los Angeles Co Veterinarian	Burbank	91505	American Crow	9/16/2016	WNV
Los Angeles	Los Angeles Co Veterinarian	Burbank	91506	American Crow	9/13/2016	WNV
Los Angeles	Los Angeles Co Veterinarian	Los Angeles	90048	American Crow	9/19/2016	WNV
Los Angeles	Los Angeles Co Veterinarian	Pasadena	91105	American Crow	9/13/2016	WNV
Los Angeles	Los Angeles Co Veterinarian	Pasadena	91107	American Crow	9/13/2016	WNV
Los Angeles	Los Angeles Co Veterinarian	Santa Clarita	91387	American Crow	9/19/2016	WNV
Los Angeles	Los Angeles Co West VCD	Los Angeles	90045	American Crow	9/14/2016	WNV
Orange	Orange Co VCD	Fountain valley	92708	American Crow	9/14/2016	WNV
Orange	Orange Co VCD	Ladera ranch	92694	American Crow	9/16/2016	WNV
Orange	Orange Co VCD	Lake forest	92630	American Crow	9/14/2016	WNV
Orange	Orange Co VCD	Rossmor	90720	American Crow	9/14/2016	WNV
Riverside	Northwest Mosquito VCD	Corona	92880	American Crow	9/9/2016	WNV
Riverside	Northwest Mosquito VCD	Norco	92860	American Crow	9/13/2016	WNV
Sacramento	Sacramento-Yolo MVCD	Galt	95632	Western Scrub-Jay	9/14/2016	WNV
Sacramento	Sacramento-Yolo MVCD	Rancho Cordova	95742	Western Scrub-Jay	9/19/2016	WNV
Sacramento	Sacramento-Yolo MVCD	Sacramento	95833	Yellow-billed Magpie	9/14/2016	WNV
San Diego	San Diego Co VCP	Carlsbad	92008	American Crow	9/19/2016	WNV
San Diego	San Diego Co VCP	Carlsbad	92009	American Crow	9/19/2016	WNV
San Diego	San Diego Co VCP	Encinitas	92024	American Crow	9/19/2016	WNV
San Diego	San Diego Co VCP	La Jolla	92037	American Crow	9/21/2016	WNV
San Diego	San Diego Co VCP	San Diego	92116	American Crow	9/19/2016	WNV
San Mateo	San Mateo Co MAD	San Carlos	94070	American Crow	9/16/2016	WNV
Santa Clara	Santa Clara Co VCD	Palo Alto	94301	American Crow	9/13/2016	WNV
Santa Clara	Santa Clara Co VCD	San Jose	95112	American Crow	9/19/2016	WNV
Santa Clara	Santa Clara Co VCD	San Jose	95121	American Crow	9/16/2016	WNV
Santa Clara	Santa Clara Co VCD	San Jose	95123	American Crow	9/11/2016	WNV
Santa Clara	Santa Clara Co VCD	San Jose	95131	American Crow	9/16/2016	WNV
Santa Clara	Santa Clara Co VCD	San Jose	95132	American Crow	9/12/2016	WNV
Santa Clara	Santa Clara Co VCD	San Jose	95132	American Crow	9/19/2016	WNV
Solano	Solano Co MAD	Fairfield	94533	American Crow	9/15/2016	WNV
Solano	Solano Co MAD	Vacaville	95687	American Crow	9/14/2016	WNV
Solano	Solano Co MAD	Vacaville	95687	American Crow	9/21/2016	WNV
Solano	Solano Co MAD	Winters	95694	Western Scrub-Jay	9/18/2016	WNV
Sonoma	Marin-Sonoma MVCD	Sonoma	95476	Western Scrub-Jay	9/16/2016	WNV
Ventura	Ventura Co Env Health Dept	Simi Valley	93063	American Crow	9/8/2016	WNV
Ventura	Ventura Co Env Health Dept	Thousand Oaks	91360	American Crow	9/9/2016	WNV
Yolo	Sacramento-Yolo MVCD	Davis	95616	American Crow	9/15/2016	WNV
Yolo	Sacramento-Yolo MVCD	Davis	95618	Western Scrub-Jay	9/19/2016	WNV

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Mosquitoes

County	Site Code	Pool #	Species	City	# in Pool	Trap Type	Collected	Virus
Butte	BUCO123	338	Cx. tarsalis	Oroville	50	CO2	9/14/2016	WNV
Butte	BUCO23	336	Cx. tarsalis	Biggs	50	CO2	9/14/2016	WNV
Contra Costa	CNTR8152	403	Cx. tarsalis	Knightsen	50	CO2	9/19/2016	WNV
Fresno	CNSL6128	441	Cx. quinquefasciatus	Riverdale	39	GRVD	9/13/2016	WNV
Fresno	FRWS400001	302	Cx. tarsalis	Mendota	49	CO2	9/15/2016	WNV
Fresno	FRWS4106	304	Cx. tarsalis	Mendota	50	CO2	9/15/2016	WNV
Lake	LAKE1404	648	Cx. stigmatosoma	Lakeport	5	REST	9/15/2016	WNV
Los Angeles	ANTV2037	59	Cx. tarsalis	Palmdale	1	CO2	9/20/2016	WNV
Los Angeles	GRLA2116	782	Cx. quinquefasciatus	South Gate	50	GRVD	9/15/2016	WNV
Los Angeles	GRLA2196	769	Cx. quinquefasciatus	South El Monte	12	GRVD	9/14/2016	WNV
Los Angeles	GRLA2414	5725	Cx. quinquefasciatus	Granada Hills	35	GRVD	9/15/2016	WNV
Los Angeles	GRLA2416	5721	Cx. quinquefasciatus	Panorama City	32	CO2	9/15/2016	WNV
Los Angeles	GRLA2419	5722	Cx. quinquefasciatus	Panorama City	50	GRVD	9/15/2016	WNV
Los Angeles	GRLA2438	5743	Cx. quinquefasciatus	Chatsworth	47	GRVD	9/16/2016	WNV
Los Angeles	GRLA2465	5730	Cx. quinquefasciatus	Los Feliz	50	GRVD	9/15/2016	WNV
Los Angeles	GRLA2492	5746	Cx. quinquefasciatus	La Canada Flintridge	15	GRVD	9/16/2016	WNV
Los Angeles	GRLA2500	5726	Cx. quinquefasciatus	Los Angeles	50	GRVD	9/15/2016	WNV
Los Angeles	GRLA2503	5727	Cx. quinquefasciatus	Los Angeles	37	GRVD	9/15/2016	WNV
Los Angeles	GRLA2936	5734	Cx. quinquefasciatus	Burbank	50	GRVD	9/15/2016	WNV
Los Angeles	GRLA2962	5744	Cx. quinquefasciatus	Chatsworth	32	GRVD	9/16/2016	WNV
Los Angeles	GRLA2995	5736	Cx. quinquefasciatus	Woodland Hills	50	GRVD	9/16/2016	WNV
Los Angeles	GRLA3044	770	Cx. quinquefasciatus	South El Monte	33	GRVD	9/14/2016	WNV
Los Angeles	GRLA3046	789	Cx. quinquefasciatus	Bellflower	21	GRVD	9/15/2016	WNV
Los Angeles	GRLA3053	774	Cx. quinquefasciatus	Hacienda Heights	16	GRVD	9/14/2016	WNV
Los Angeles	GRLA3054	778	Cx. quinquefasciatus	Bell Gardens	50	GRVD	9/15/2016	WNV
Los Angeles	GRLA3055	780	Cx. quinquefasciatus	Maywood	50	GRVD	9/15/2016	WNV
Los Angeles	GRLA3056	781	Cx. quinquefasciatus	Cudahy	50	GRVD	9/15/2016	WNV
Los Angeles	GRLA3057	783	Cx. quinquefasciatus	Huntington Park	50	GRVD	9/15/2016	WNV
Los Angeles	GRLA3058	785	Cx. quinquefasciatus	Lynwood	50	GRVD	9/15/2016	WNV
Los Angeles	GRLA3063	795	Cx. quinquefasciatus	Watts	29	GRVD	9/16/2016	WNV
Los Angeles	GRLA3064	796	Cx. quinquefasciatus	West Athens Village	46	GRVD	9/16/2016	WNV
Los Angeles	GRLA3068	800	Cx. quinquefasciatus	Wilmington	50	GRVD	9/16/2016	WNV
Los Angeles	GRLA3132	5749	Cx. quinquefasciatus	Eagle Rock	48	GRVD	9/16/2016	WNV
Los Angeles	LACW1080	421	Cx. erythrothorax	Playa Vista	50	CO2	9/15/2016	WNV
Los Angeles	SGVA24	512	Cx. quinquefasciatus	Altadena	50	GRVD	9/21/2016	WNV
Los Angeles	SGVA4	520	Cx. quinquefasciatus	Arcadia	50	GRVD	9/21/2016	WNV
Madera	MADR178	387	Cx. tarsalis	Madera	13	CO2	9/16/2016	WNV
Madera	MADR178	389	Cx. quinquefasciatus	Madera	50	CO2	9/16/2016	WNV
Madera	MADR178	395	Cx. quinquefasciatus	Madera	50	CO2	9/16/2016	WNV
Madera	MADR178	397	Cx. quinquefasciatus	Madera	50	CO2	9/16/2016	WNV
Madera	MADR3334	381	Cx. tarsalis	Madera	50	CO2	9/16/2016	WNV
Riverside	COAV200	3445	Cx. tarsalis	Mecca	8	CO2	9/22/2016	SLEV
Riverside	COAV35	3329	Cx. tarsalis	Mecca	50	CO2	9/20/2016	SLEV
Riverside	COAV46	3345	Cx. tarsalis	Mecca	50	CO2	9/20/2016	SLEV
Riverside	COAV8	3393	Cx. tarsalis	Mecca	50	CO2	9/20/2016	SLEV
Riverside	COAV8	3394	Cx. tarsalis	Mecca	36	CO2	9/20/2016	SLEV
Riverside	NWST27	200	Cx. quinquefasciatus	Corona	50	CO2	9/13/2016	WNV
Sacramento	SAYO213017	7205	Cx. pipiens	Sacramento	3	GRVD	9/15/2016	WNV

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Sacramento	SAYO224012	7323	Cx. pipiens	Rancho Cordova	25	CO2	9/20/2016	WNV
Sacramento	SAYO234025	7279	Cx. tarsalis	Elk Grove	25	CO2	9/20/2016	WNV
Sacramento	SAYO234025	7282	Cx. pipiens	Elk Grove	1	GRVD	9/20/2016	WNV
Sacramento	SAYO243016	7469	Cx. pipiens	Elk Grove	50	CO2	9/22/2016	WNV
Sacramento	SAYO243025	7059	Cx. pipiens	Elk Grove	50	CO2	9/15/2016	WNV
Sacramento	SAYO252014	7384	Cx. pipiens	Walnut Grove	8	GRVD	9/20/2016	WNV
San Bernardino	WVAL5011	2194	Cx. quinquefasciatus	Fwy I-15	18	GRVD	9/21/2016	WNV
San Joaquin	SJCM8083	2444	Cx. pipiens	Escalon	50	CO2	9/20/2016	WNV
San Joaquin	SJCM8159	2454	Cx. pipiens	Stockton	38	CO2	9/20/2016	WNV
Santa Clara	STCL4613	312	Cx. pipiens	San Jose	25	CO2	9/21/2016	WNV
Shasta	SHAS242	467	Cx. tarsalis	Cottonwood	16	CO2	9/20/2016	WNV
Sonoma	MARN564	675	Cx. erythrothorax	Petaluma	50	CO2	9/20/2016	WNV
Stanislaus	TRLK1306	1149	Cx. tarsalis	Patterson	50	CO2	9/20/2016	WNV
Stanislaus	TRLK1306	1150	Cx. tarsalis	Patterson	50	CO2	9/20/2016	WNV
Stanislaus	TRLK1615	1084	Cx. tarsalis		50	CO2	9/16/2016	WNV
Stanislaus	TRLK1673	1090	Cx. tarsalis	Patterson	50	CO2	9/16/2016	WNV
Stanislaus	TRLK1673	1091	Cx. tarsalis	Patterson	50	CO2	9/16/2016	WNV
Stanislaus	TRLK9768	1143	Cx. tarsalis	Grayson	50	CO2	9/20/2016	WNV
Tulare	DLTA7730	2442	Cx. quinquefasciatus	Woodlake	19	GRVD	9/20/2016	WNV
Tulare	DLTA8520	2468	Cx. quinquefasciatus	Visalia	30	GRVD	9/20/2016	WNV
Yolo	SAYO125016	7138	Cx. pipiens	Woodland	4	CO2	9/15/2016	WNV
Yolo	SAYO125018	7161	Cx. tarsalis	Woodland	37	CO2	9/15/2016	WNV
Yolo	SAYO135016	7167	Cx. tarsalis	Woodland	50	CO2	9/15/2016	WNV
Yolo	SAYO135016	7427	Cx. tarsalis	Woodland	50	CO2	9/22/2016	WNV
Yolo	SAYO136010	7155	Cx. tarsalis	Woodland	50	CO2	9/15/2016	WNV
Yolo	SAYO145016	7122	Cx. tarsalis	Davis	14	CO2	9/15/2016	WNV

Sentinel Chickens

County	Site Code	City	Date Bled	Virus	Band 01	Band 02	Band 03
Butte	BUCO0005	Honcut	9/13/2016	WNV	1447		
Los Angeles	GRLA2056	Long Beach	9/8/2016	WNV	1224	1228	1230
Los Angeles	GRLA2132	Wilmington	9/9/2016	WNV	1212		
Los Angeles	GRLA2223	Rowland Heights	9/8/2016	WNV	1206	1207	
Los Angeles	LACW1002	Torrance	9/9/2016	WNV	2311		
Los Angeles	LACW1005	El Segundo	9/14/2016	WNV	2328	2329	
Los Angeles	LACW1006	Playa Del Rey	9/14/2016	WNV	2331		
Los Angeles	LACW1009	Los Angeles	9/7/2016	WNV	2344		
Los Angeles	LACW1049	Inglewood	9/14/2016	WNV	2380	2383	
Solano	SOLA0125	Cordelia	9/14/2016	WNV	1885		
Solano	SOLA0015	Winters	9/14/2016	WNV	1868		

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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.

Dead Birds

Oral swab samples from corvids are collected onto RNA preservation cards and tested by the University of California, Davis Arbovirus Research and Training laboratory (DART) for West Nile virus by the singleplex RT-PCR Taqman assay and confirmed with a second primer set. Some local agencies test birds using the RAMP© test or conduct RT-PCR on tissue samples.

Sentinel Chickens:

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

Mosquito Pools:

Mosquito pools submitted to DART are tested for West Nile, western equine encephalomyelitis, and St. Louis encephalitis viral RNA using a Taqman multiplex RT-PCR. Invasive *Aedes* mosquitoes (*Ae. aegypti* and *Ae. albopictus*) are also tested for chikungunya, dengue, and Zika viral RNA.

Prepared by the Vector-Borne Disease Section (Infectious Diseases Branch), California Department of Public Health, 850 Marina Bay Parkway, Richmond, CA 94804. Questions concerning this bulletin should be addressed to Tina Feiszli by phone (510) 412-6253 or email: tina.feiszli@cdph.ca.gov.

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.
