



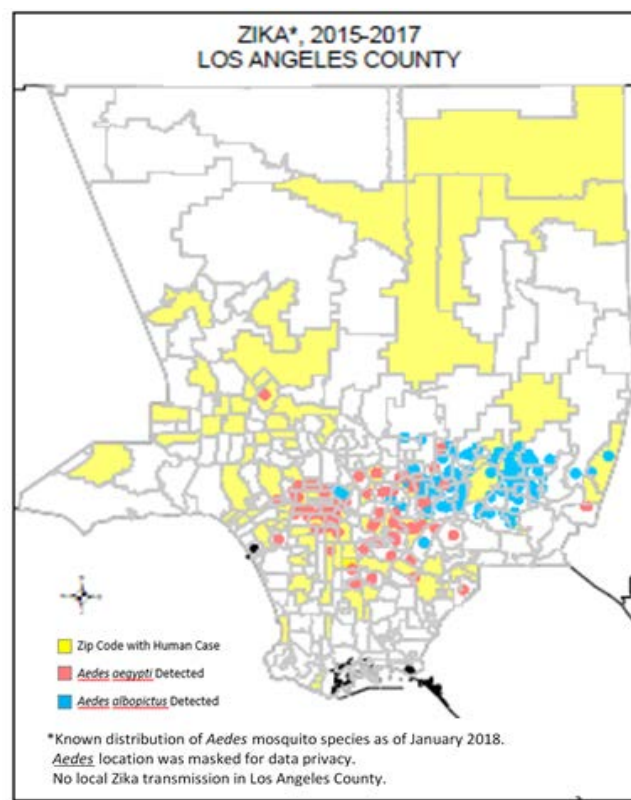
## MOBILIZING THE LARGEST COMMUNITY OUTREACH TO FIGHT MOSQUITO-BORNE DISEASES—LOS ANGELES COUNTY, 2017

### BACKGROUND

According to the Centers for Disease Control and Prevention (CDC), Los Angeles County was one of the seven highest jurisdictions for potential Zika outbreak based on the extent of *Aedes* infestations, close proximity to the Mexico border, and high population density. LAC has also had a high number of West Nile Virus (WNV) cases compared to the population and relative to the United States over the past six years. Over the last 5 years, [LAC has experienced yearly outbreaks of WNV](#)<sup>1</sup> with an average of 221 cases per year, approximately 10% of the national burden (Table 1). Additionally, the significant spread and increased detection of *Aedes* mosquitoes in new local areas, coupled with the high volume of international travel and our dense population, provide the ideal elements for a potential local outbreak of dengue, Chikungunya, or Zika if these viruses are introduced into the environment by an infected traveler (Map 1). Despite these significant health risks, mosquito-borne disease knowledge, perceived risk, and prevention behaviors are low among residents in the county. In September 2017, the LAC Department of Public Health (DPH) organized and coordinated an unprecedented weeklong county-wide boots-on-the-ground outreach campaign (titled: [It's Not Just a Bite!](#))<sup>2</sup> to distribute educational materials aimed to increase WNV and Zika awareness and knowledge as well as promote preventive action. This campaign was the largest door-to-door campaign ever implemented by LAC DPH to fight a communicable disease.

Total Cases	U.S.	LAC
<b>2013</b>	2900	165
<b>2014</b>	2549	218
<b>2015</b>	2520	300
<b>2016</b>	2437	153
<b>2017</b>	2249	268

**Map 1. Locations of Zika Cases & Aedes Mosquitoes**



<sup>1</sup> LAC DPH. ACDC. West Nile virus data LAC. <http://publichealth.lacounty.gov/acd/WNVData.htm>

<sup>2</sup> LAC DPH. ACDC. *It's Not Just a Bite*: Mosquito abatement and education campaign 2017. <http://publichealth.lacounty.gov/acd/WNVBite.htm>



## METHODS

Under the emergency response structure, a central command center was organized with four area command centers to coordinate and monitor the event. Several materials were developed including: 1) educational materials for WNV, Zika, and general mosquito-borne disease knowledge, which were translated into multiple languages (English, Spanish, Chinese, Tagalog, and Korean); 2) just-in-time training materials; and 3) scripts for outreach volunteers as well as staff answering the phones. Over 300 County of Los Angeles staff volunteers were recruited from all departments and programs, most of whom did not routinely work with arboviral diseases. DPH deployed 100 two-person teams for 5 days to distribute posters and flyers to public venues across the county including city council halls, libraries, schools, parks and places of worship. The campaign led to the distribution of approximately 55,000 educational materials to over 14,000 venues (Table 2). Environmental Health inspectors further distributed materials during routine site visits at permitted facilities. A digital tool kit was disseminated to city contacts and partners throughout LAC to be used, distributed and printed according to local needs and resources. The on-the-ground effort was complemented by a social media campaign through online platforms such as Twitter, Instagram, and Facebook, which further increased reach of campaign and engaged residents online. The campaign attracted considerable press coverage and media attention which also amplified the reach of these important messages.

**Table 2. Venues Reached in Countywide Campaign**

Venue	Number
City council/District Office	233
Chamber of Commerce	85
Places of Worship	955
Schools	1,374
Parks	342
Libraries	233
Senior Centers & Residential Facilities	515
Organizations for Pregnant Women	318
Theaters & Outdoor Concert Venues	70
Stores, Pharmacies & Other	9,989
<b>Total</b>	<b>14,114</b>

## RESULTS

To assess the reach and impact of the outreach campaign, in November 2017, DPH conducted a 27-question two-stage cluster community survey in four LAC cities. This was enacted in partnership with Department of Mental Health Promotores and public health students from the University of California Los Angeles Fielding School of Public Health, California State University Northridge, and University of Southern California. The survey questions assessed exposure to and recall of campaign messages and attempted to identify attitudes and behaviors regarding mosquitoes and mosquito-borne diseases. A total of 464 surveys were completed over two days. Approximately 60% of respondents reported exposure to the campaign through at least one of the following: posters, flyers, community meetings, social media, or news articles. Analyses showed that exposure to the materials was associated with a significant increase in awareness and knowledge of both WNV and Zika (Table 3). Table 4 shows modes of exposure that were significantly associated with increased awareness and/or knowledge of WNV and Zika. Those who



reported exposure to campaign through posters, social media, or news articles had increased Zika awareness and/or knowledge. However, exposure to flyers or community meetings was not found to be associated with a similar increase. Exposure to posters was associated with increased WNV awareness and knowledge, but exposure to flyers, social media, news articles, and community meetings was not. The data did not reveal an increase in mosquito prevention behavior linked to the campaign among those surveyed. Multiple interventions sustained over time, particularly in specific types of materials, may be required to change habits, beliefs and actions regarding prevention of mosquito-borne diseases.

	Exposed	Non-exposed	P-value
<b>Zika</b>			
Awareness	213 (65%)	116 (35%)	<0.001
Knowledge	212 (64%)	118 (36%)	<0.001
Concern	160 (66%)	81 (34%)	0.300
<b>WNV</b>			
Awareness	210 (63%)	126 (38%)	0.002
Knowledge	207 (62%)	127 (38%)	0.008
Concern	129 (62%)	79 (38%)	0.817
<b>Engaged in mosquito prevention</b>	222 (60%)	151 (40%)	0.240

<b>Zika awareness</b>	<b>OR</b>	<b>95% CI</b>	
Social media	2.61	1.47	4.65
Poster	2.29	1.32	3.96
<b>Zika knowledge</b>			
News articles	1.90	1.22	2.95
Social media	1.84	1.16	2.92
Poster	1.73	1.09	2.74
<b>WNV awareness</b>			
Poster	1.96	1.14	3.38
<b>WNV knowledge</b>			
Poster	1.82	1.17	2.84

## DISCUSSION

Overall, the [It's Not Just a Bite!](#) campaign was an extraordinary effort to reach and engage the diverse communities in LAC about mosquito-borne disease prevention. In an era where emerging and re-emerging pathogens are increasingly being identified and can spread at record speed through global trade and travel, it is essential for health departments to not only be able to detect these threats but to also be able to rapidly organize and mobilize staff to communicate and engage with the community. The LAC DPH



mosquito-borne disease outreach campaign proved that extensive and rapid community outreach can be successfully accomplished through the mobilization of diverse public health staff and was a valuable learning exercise that can be adapted and quickly deployed for other emergency large-scale responses in the future.