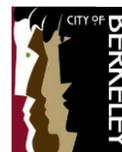




Erica Pan, MD, MPH
 Interim County Health Officer
 Alameda County Public Health Department
 Alameda County Health Care Services Agency
 (510) 267-8000
 www.acphd.org



Lisa B. Hernandez, MD, MPH
 Health Officer
 Health, Housing & Community Services Department
 Public Health Division
 (510) 981-5300
 www.ci.berkeley.ca.us/publichealth

JOINT HEALTH ADVISORY

TRAVEL ASSOCIATED DISEASES: EBOLA, DENGUE, MALARIA, AND MEASLES

July 31, 2019

Alameda County Public Health Department (ACPHD) and the City of Berkeley Public Health Division (COBPHD) regularly receive reports of malaria, dengue, and measles in persons with a history of international travel. Ebola Virus Disease (EVD) has also re-emerged in an outbreak in the Democratic Republic of the Congo. As the early symptoms of these diseases are non-specific, travel history is essential for timely diagnosis. Patients may not be aware of pre-travel recommendations for measles immunization or malaria chemoprophylaxis; proactive questioning about planned or recent travel assists with prevention, appropriate infection control, and diagnosis.

ACTIONS REQUESTED OF CLINICIANS:

	EBOLA	DENGUE	MALARIA	MEASLES
ASK patients about recent or planned travel				
SIGNS & SYMPTOMS	Fever and headache, muscle pain, vomiting, diarrhea, abdominal pain, or unexplained hemorrhage; AND 21 days before symptom onset, risk factors such as: Travel to an area with active disease transmission ; OR direct contact with the body fluids or human remains of a patient with confirmed or suspected EVD	Fever, headache, body aches, nausea, chills, diarrhea, rash, or bleeding manifestations and a history of travel to an area with dengue transmission	Fever, chills, sweats, headaches, nausea, vomiting, body aches, or general malaise and a history of travel to areas with malaria transmission within the past 12 months	Fever ≥ 101°F and maculopapular rash starting on the face , may have prodrome of mild fever, cough, coryza, and conjunctivitis
PREVENT	Advise patients to avoid direct contact with the body fluids or human remains of a patient with confirmed or suspected EVD	Teach patients mosquito bite prevention	Prescribe chemoprophylaxis, if appropriate and teach patients mosquito bite prevention	Before international travel: 1 dose MMR if 6-11 mo. old; 2 doses MMR at least 28 days apart if ≥ 12 mo. old
TEST	Call ACPHD immediately for guidance and instructions For Berkeley residents, call COBPHD	≤ 10 days after symptom onset : RT-PCR > 10 days after symptom onset : ELISA for IgM and IgG antibodies (paired acute and convalescent sera)	Blood smear	Measles PCR (OP swab & urine). Avail. at Alameda County Public Health Lab. Call ACPHD for approval & specimen pick-up. For Berkeley residents, call COBPHD.
INFECTION CONTROL	Standard, contact, and airborne precautions Consult with ACPHD/COBPHD	Standard precautions		Standard & airborne precautions
REPORT	ACPHD: 510-267-3250 M-F 8:30am-5:00pm; 925-422-7595 after hours. COBPHD: 510-981-5292 M-F 8:00-5:00pm; 510-981-5911 after hours. For measles and EVD, call before patient leaves facility			

BACKGROUND AND DISEASE-SPECIFIC INFORMATION

EVD: The World Health Organization (WHO) has declared the ongoing Ebola outbreak in the Democratic Republic of the Congo to be a Public Health Emergency of International Concern. As of 7/28/2019, 2687 confirmed and probable cases and 1803 deaths were reported. The WHO does not currently recommend closure of borders, restrictions on travel or trade, or entry screening at airports or other ports of entry. Although the risk of importation of EVD to Alameda County is low, health care providers should institute protocols to obtain travel history to ensure early consideration of EVD and immediate infection control. If there is suspicion of EVD in a patient based on travel history and clinical presentation, immediately isolate the patient in a private room with in-room bathroom or a covered bedside commode and rapidly report to ACPHD or COBPHD.

WHO page on EVD: <https://www.who.int/ebola/en/>

CDC guidance on infection control: <https://www.cdc.gov/vhf/ebola/clinicians/evd/infection-control.html>

CDPH guidance for healthcare providers:

<https://www.cdph.ca.gov/Programs/CID/DCDC/Pages/EbolaHealthProfessionals.aspx>

DENGUE: The incidence of dengue in the US has increased in recent decades. Most cases in the US are imported, although dengue is endemic in some parts of the US, including Puerto Rico and the US Virgin Islands. From 2014-2018, there were 55 confirmed and probable cases in Alameda County and 7 in the City of Berkeley. There may be additional cases that were not confirmed by RT-PCR.

Dengue can be caused by four related viruses (dengue virus 1-4). For diagnosis, the California Department of Public Health (CDPH) recommends both RT-PCR and serology for specimens obtained within 7-10 days of symptom onset. RT-PCR is more sensitive and specific than serology tests and can distinguish between the four virus types. For specimens collected after 7-10 days of symptom onset, order ELISA for IgM and IgG antibodies on paired acute and convalescent sera. For IgG, a plaque reduction neutralization test (PRNT) should also be done. Send specimens directly to CDPH for testing if dengue PCR is not available through your clinical laboratory.

ACPHD infographic on dengue testing: <http://www.acphd.org/media/411108/chikungunya-or-dengue.pdf>

CDC page on dengue: <https://www.cdc.gov/dengue/healthcare-providers/index.html>

CDPH specimen shipping guidelines:

https://www.cdph.ca.gov/Programs/CID/DCDC/Pages/VRDL_Specimen_Submittal_Forms.aspx

MALARIA: Malaria transmission typically occurs in tropical and subtropical regions where *Anopheles* mosquitoes are found. There were 62 confirmed cases in Alameda County and 7 cases in Berkeley from 2014-2018. Malaria can be prevented through chemoprophylaxis and by avoiding mosquito bites. However, only 16% of the confirmed cases in Alameda County from 2014-2018 reported taking chemoprophylaxis, indicating missed opportunities for prevention.

CDC recommendations for chemoprophylaxis by country: https://www.cdc.gov/malaria/travelers/country_table/a.html

CDC malaria treatment guidelines: <https://www.cdc.gov/malaria/resources/pdf/treatmenttable.pdf>

MEASLES: Measles is a highly contagious disease that has caused several outbreaks in Europe, the Philippines, and parts of Africa in 2019. As of 7/25/2019, 1164 cases have been confirmed in the US in 2019, the greatest number of cases reported in this country since 1992. Several outbreaks have occurred in California this year, and while there was only one City of Berkeley case, there is ongoing risk and need for clinician vigilance and **immediate reporting of suspected cases to ACPHD or COBPHD before the patient leaves the health care facility**. Before international travel, clinicians should confirm that patients are up to date on measles immunizations; infants 6-11 months old should receive one dose of MMR, and persons 12 months of age and older should receive 2 doses of MMR. Infants who get one dose before 12 months of age should receive two more doses of MMR at 12-15 months and another separated by at least 28 days.

CDC MMR vaccine recommendations: <https://www.cdc.gov/vaccines/vpd/mmr/hcp/recommendations.html>

CDPH guide for measles testing: <http://eziz.org/assets/docs/IMM-1269.pdf>

CDC Health Information for International Travel 2020 (Yellow Book):

<https://wwwnc.cdc.gov/travel/page/yellowbook-home-2014>