



MONITORING WEST AFRICAN TRAVELERS FOR EBOLA VIRUS DISEASE IN LOS ANGELES COUNTY: A COMPLETE REVIEW

OVERVIEW

The outbreak of Ebola virus disease (EVD) in West Africa was the largest outbreak of EVD in history, and the first Ebola outbreak which resulted in transmission of this disease in the US. The outbreak in West Africa began in March 2014. However, implementation of a nationwide monitoring system in the US did not begin until a West African traveler was diagnosed in Dallas, Texas with EVD in September of that year, and EVD subsequently spread to two nurses who treated this patient.

Starting in October 2014, US government officials responded by initiating questioning of airplane passengers from West Africa for possible EVD exposure and screening these travelers for fever. This occurred at five US airports in New York, New Jersey, Illinois, Virginia, and Georgia. Combined, these five airports receive more than 94% of passengers from Guinea, Liberia, and Sierra Leone, the three countries that were most affected during this EVD outbreak. On October 21, the Department of Homeland Security announced that all passengers from Liberia, Sierra Leone, and Guinea would be required to fly into one of those five airports. On October 23, the Centers for Disease Control and Prevention (CDC) announced that all passengers from these countries also would receive 21-day monitoring while in the US [1].

On October 21, 2014, the Los Angeles County Department of Public Health (LAC DPH) was notified of the first traveler to our jurisdiction. Traveler monitoring for EVD ultimately ended on January 4, 2016. This report provides a summary of the entire Ebola traveler monitoring effort in Los Angeles County (LAC).

METHODS

In order to assess traveler risk of developing EVD and to implement daily symptom monitoring, LAC DPH created the EVD Exposure Risk Assessment Form and the EVD Daily Symptom Monitoring Log based on guidance materials released by the CDC. CDC guidance also was used to assign travelers to one of four risk groups: no identifiable risk, low risk, some risk, and high risk [2]. Initial data was collected on travelers by the US Customs and Border Protection and the CDC during a screening process at one of the five airports accepting travelers from Ebola affected countries. Data were then received by LAC DPH through the California Department of Public Health (CDPH). Upon notification, LAC DPH personnel visited the travelers and conducted an interview to complete the EVD Risk Assessment Form. Travelers were then monitored daily by district public health nurses for EVD symptoms for up to 21 days after the travelers' last potential exposure to EVD. The primary EVD symptom assessed was fever, but symptoms monitored also included: severe headache, abdominal pain, diarrhea, vomiting, muscle pain, weakness or fatigue, and unexplained bleeding or bruising (hemorrhage). Low risk travelers were contacted daily by a LAC DPH Public Health Nurse (PHN) by telephone. Travelers that were determined to be at some risk for developing EVD were contacted daily by LAC DPH staff either in-person or through video conferencing. None of the travelers in LAC were determined to be at high risk for developing EVD. Travelers who reported fever or other symptoms of EVD were evaluated by an LAC DPH physician to determine whether further follow-up or



EVD testing was necessary. If the traveler met the criteria, they were tested for EVD by polymerase chain reaction (PCR) at the LAC DPH Public Health Laboratories.

Early in the response, the initial paper based protocol was merged into an electronic surveillance system which centralized the data and allowed for conducting queries. Analyses were performed using SAS® and Microsoft Access. Surveillance data were summarized daily and reports were disseminated to key stakeholders, which described LAC DPH's ongoing traveler monitoring activities and the current health status of those being monitored.

This report covers the entire traveler monitoring period, which started on October 21, 2014 and ended on January 4, 2016.

RESULTS

Over the full course of the US response, 269 travelers were referred to LAC DPH for monitoring. Of these, 20 travelers were not monitored, either because it was determined that they were never exposed to EVD or because they were not residents of LAC (Figure 2). Of the 249 travelers monitored by LAC DPH, 40 (16%) reported EVD-related symptoms during at least one monitoring event. In nearly all cases, symptoms resolved quickly and without need for further assessment. LAC DPH determined that medical assessment was needed for eight travelers, however only four met the criteria for EVD testing—none of those tested were positive for EVD, and all eight medically assessed travelers had a non-EVD diagnosis (Figure 2).

Most of the travelers that LAC DPH monitored came from Sierra Leone (120, 48%), followed by Liberia (69, 28%), and Guinea (47, 19%). Six travelers (2%) reported travel from two EVD-affected countries. The largest proportion of travelers (82, 33%) were in an EVD-affected area for business, followed by travel for vacation or visiting family (63, 25%). Many of the travelers LAC DPH monitored (49, 20%) were permanent residents of one of the EVD-affected areas (Table 1).

Of the 249 travelers: 193 were monitored for the full 21-day infectious period, 32 were not monitored for the full period either because they left the country or because CDPH authorized ending their monitoring. A total of 24 travelers transferred to other jurisdictions during their monitoring period. Only two travelers to LAC (0.8%) had contact with an EVD case within their incubation period. The majority of travelers in LAC (238, 96%) were low risk for their entire monitoring period, four were some risk, and seven were considered to be some risk for part of their monitoring period and later were downgraded to low risk (Table 1). None of the travelers to LAC were considered at high risk for developing EVD. Travelers were mostly male (144, 58%), only one traveler was pregnant, and 11 (4%) were under age 18.

CONCLUSION

LAC DPH was able to adapt existing surveillance systems to meet the needs of the Ebola response. Through this system, LAC DPH was able to detect symptomatic travelers, determine need for further assessment and activate a countywide response as necessary. The protocols and data sys