Information on the U.S. Ebola Cases
October 16, 2014

The Ebola Virus

The Ebola Virus is a type of viral hemorrhagic fever. It is not airborne. It is contracted through contact with the bodily fluids of infected patients who do not become contagious until they exhibit symptoms. The incubation period for Ebola is generally eight to 10 days; but it can be as short as two days or as long as 21 days. The symptoms of Ebola, listed below, are similar to flu like symptoms, making the consideration of a travel history very important when diagnosing the illness.

The symptoms of Ebola are:

- Fever (greater than 38.6°C or 101.5°F)
- Severe headache
- Muscle pain
- Weakness
- Diarrhea
- Vomiting
- Abdominal (stomach) pain
- Unexplained hemorrhage (bleeding or bruising)

In the last decade, there have been five cases of viral hemorrhagic fever imported to the United States (four cases of Lassa fever and one case of Marbug). According to the Centers for Disease Control and Prevention, none of those cases resulted in any further transmission in the U.S.[1]

Additional information about the Ebola virus is available at www.cdc.gov.

Cases in the United States

On September 30, 2014, the CDC confirmed the first imported case of Ebola in the United States. Laboratory testing was done at the Texas Public Health Laboratory in Austin, Texas, one of 12 labs in the United States certified to test for the virus. The lab received its certification to test for Ebola in August 2014.[2]

The patient, Thomas Eric Duncan, flew from Liberia on September 19th with layovers in Brussels and Washington, D.C. and arrived in Dallas on September 20th. He underwent exit screening prior to departing Liberia. He did not have a fever. However, he apparently did not answer truthfully on his exit-screening questionnaire about his contact with a young woman who later died from Ebola. Despite his lack of symptoms, had he indicated that contact, per CDC exit screening protocols which the impacted countries are reportedly following, he would not have been permitted to travel until he waited 21 days to see if he

[1] Press Release, Centers for Disease Control and Prevention, First Imported Case of Ebola Diagnosed in the U.S. (Sept. 30, 2014).
[2] Statement of Dr. David Lakey, Press Conference, Centers for Disease Control and Prevention, Sept. 30, 2014.

developed symptoms. Liberian officials are considering whether to prosecute Duncan for answering untruthfully.

Mr. Duncan did not exhibit symptoms of illness until September 24th. On September 26th Duncan initially sought medical attention at the Texas Health Presbyterian Hospital in Dallas. While he was asked about his travel history and indicated he had recently traveled from Liberia, this information was not communicated to the entire medical team. As a result, he was seen and discharged as the medical team made a judgment that the clinical presentation was not typical of Ebola at that time.[3] Duncan returned to the hospital via ambulance on September 28th and was admitted, isolated, and tested for the virus based on travel history and symptoms.[4]

The evening of the diagnosis, a 10-person team from the CDC, consisting of three senior epidemiologists, five epidemic intelligence service officers, one support staffer, and one media specialist, arrived in Dallas and has been working with State and local public health officials. These officials are working to care for the patient and identify and monitor, known as contact tracing, any individuals that came in contact with him when he began to exhibit symptoms and therefore was contagious.[5] Those individuals will be monitored for symptoms for 21 days. Because Duncan was not sick while en route to Dallas from Liberia, the CDC determined it was unnecessary to monitor those travelling on the same flight.

As of October 5, 2014, the CDC in conjunction with State and local public health officials identified 114 who may have had contact with Duncan. Of those individuals, 10 were determined to have had definite contact with him, while 38 may have had contact with him. Those 48 people are being monitored for symptoms and undergoing twice-daily temperature checks. Thus far, no one has exhibited symptoms and their 21 day quarantine will end on Sunday, October 19. [6]

Due to concerns that the individuals were not complying with requests to stay home, potentially impeding the monitoring effort, Texas officials issued a control order requiring four individuals who had direct contact with Duncan in the apartment in which he was staying to remain quarantined in the apartment. Issues arose with the removal of contaminated materials, such as the sheets and towels Duncan had used while ill, from the apartment. Texas officials first had trouble identifying a company to remove the materials and sanitize the home and once they did, the company was unable to remove the materials because they lacked proper permits to transport them on Texas roads.

The Department of Transportation's (DOT) Pipeline and Hazardous Materials Safety Administration (PHMSA) issues permits for the transportation of hazardous materials, including infectious substances. Ebola is classified as a Category A infectious substance, and as such must be packaged and transported pursuant to DOT regulations. On October 3,

---

[3] Statement of Dr. Mark Lester, Press Conference with Texas officials, Oct. 1, 2014.
[4] Press Conference, Centers for Disease Control and Prevention, Sept. 30, 2014.
[5] Id.
[6] *Ebola Contact Tracing,* Centers for Disease Control and Prevention, Oct. 5, 2014, *available at:* http://www.cdc.gov/vhf/ebola/outbreaks/2014-west-africa/whats-new.html

2014, PHMSA issued an emergency special permit to an Illinois-based company to transport materials infected with, or believed to be infected with, the Ebola virus. The permit covers the entire state of Texas, permitting biohazard removal from Texas Health Presbyterian Hospital, the apartment where Duncan was staying, and any other location in the State should another case arise.[7] PHMSA has also issued guidance for the transportation of items contaminated with Ebola.

On October 8th Mr. Duncan passed away. His remains were handled in accordance with CDC guidance for burial procedure. Because the body is very infectious, CDC guidance states that personnel protective equipment should be used when handling the body. The body was sealed in two bags, disinfected for transport and cremated.[8]

On Friday, October 10th Nina Pham, a nurse who treated Mr. Duncan was admitted to Texas Health Presbyterian Hospital with Ebola Virus Disease (EVD) symptoms. Tests over the weekend confirmed she was positive for EVD.[9] Pham received a plasma transfusion from Dr. Brantly, an EVD survivor. Pham lived with her dog in an apartment. Dr. Frieden confirmed that the apartment has been cleaned. Judge Jenkins confirmed that her dog will be cared for in a controlled environment.

On October 15th Amber Vinson, a second nurse who treated Mr. Duncan, was diagnosed with EVD at Texas Health Presbyterian Hospital. On October 10th Vinson took Frontier Airlines Flight 1142 from Dallas to Cleveland, Ohio. She developed a 99.5 degree fever before boarding Frontier Airlines Flight 1143 back to Dallas on October 13th. Prior to boarding, Vinson contacted the CDC for guidance where CDC did not advise against boarding the flight. Current CDC guidance calls for a threshold fever of 100.4 degrees to be considered contagious.[10] The CDC is considering lowering the threshold.[11]

The CDC is contacting the 132 passengers who were on the same flight as Ms. Vinson on October 13th.[12] Additionally, the Ohio Department of Health is working with CDC to investigate all possible contact Vinson may have had while in Ohio.[13] Frontier Airlines placed the six crew members that may have come in contact with Vinson on paid leave for 21 days. Additionally, Frontier Airlines has removed the aircraft from service to

---

[7] Press Release, Department of Transportation, U.S. Department of Transportation Approves Special Permit for the Safe Transport of Ebola Infected Medical Waste for Disposal (Oct. 3, 2014).
[8] Thomas Eric Duncan: First Ebola death in U.S. CNN, available on: http://www.cnn.com/2014/10/08/health/thomas-eric-duncan-ebola/ (last accessed October 16, 2014).
[9] Ebola in America: Timeline of the Deadly Virus. ABC News, available on: http://abcnews.go.com/Health/ebola-america-timeline/story?id=26159719 (last accessed October 16, 2014).
[10] Ebola Outbreak: Get up to speed with the latest developments, CNN, available on: http://www.cnn.com/2014/10/16/health/ebola-up-to-speed/index.html (last accessed October 16, 2014).
[11] Id.
[12] Ohio Health Department Tracking Down Ebola Patient Amber Vinson's contacts on plane, in Ohio. Cleveland.com, available on: http://www.cleveland.com/healthfit/index.ssf/2014/10/ohio_health_department_trackin.html (last accessed October 16, 2014).
[13] Id.

decontaminate and remove the seat covers and carpet where the Ms. Vinson sat.[14] Vinson was flown to Emory University Hospital on October 15th.[15] On October 16th Pham was flown to NIH for treatment.

The CDC may put the 76 health care workers at Texas Health Presbyterian Hospital on TSA's do-not-board list.[16] One individual has been quarantined due to the contact she had with Vinson, six others have quarantined themselves. Two Ohio schools were closed on October 16th because one staffer flew on the same plane as Vinson (but not the same flight).[17]

Screening Protocols

Exit Screening

The CDC has worked with the governments of Liberia, Sierra Leone, and Guinea to establish exit screening of all departing airline passengers. Passengers have their temperature taken and are required to fill out a questionnaire, which inquires about contact with individuals who have, or have died from, Ebola. CDC officials have repeatedly stated their belief that the best way to prevent the spread of Ebola in the United States is to stop the outbreak in West Africa and prevent those who are sick or who have been exposed from boarding planes.

Anyone exhibiting symptoms is prohibited from boarding flights. Additionally, anyone who is not exhibiting symptoms, but has had "close contact," defined as being within three feet of a patient for a prolonged period of time or having "direct brief contact," such as a hand shake, with an infected person or a dead body, would be prohibited from boarding. In that case, an individual would be conditionally released (monitored by public health for 21 days) and would have controlled movement (must notify public health of travel plans for 21 days and may not take commercial transportation).[18]

On an October 4th conference call, Dr. Frieden, Director of the CDC, stated that 77 individuals have been prohibited from boarding flights in West Africa due to the screening protocols. Seventeen of those cases were in September. However, the exit screening process cannot stop all possible threats. The system cannot protect against individuals, like Mr. Duncan, who do not answer their exit screening questionnaires truthfully.

Entry Screening

---

[14] Ebola in America: Timeline of the Deadly Virus. ABC News, available on: http://abcnews.go.com/Health/ebola-america-timeline/story?id=26159719 (last accessed October 16, 2014).
[15] Id.
[16] Ebola Outbreak: Get up to speed with the latest developments, CNN, available on: http://www.cnn.com/2014/10/16/health/ebola-up-to-speed/index.html (last accessed October 16, 2014).
[17] Id.
[18] Interim Guidance for Monitoring and Movement of Persons with Ebola Virus Disease Exposure, Centers for Disease Control and Prevention, *available at:* http://www.cdc.gov/vhf/ebola/hcp/monitoring-and-movement-of-persons-with-exposure.html (last accessed Oct. 5, 2014).

Since October 1st U.S. Customs and Border Protection (CBP) has used the Automated Targeted System to identify travelers entering the U.S. through air and sea ports of entry that passed through West Africa. CBP Officers are providing these travelers with "tear sheets" that include information about Ebola symptoms and what to do should they feel sick. Should CBP Officers encounter passengers they believe to be ill with a communicable disease of concern, the officer refers the individual to secondary inspection where the Centers for Disease Control and Prevention's (CDC) Division of Global Management and Quarantine is contacted for further medical inspections and quarantine.

There are 20 CDC quarantine stations at international airports. A list of the location of those stations is included below in Appendix A. In airports without a CDC quarantine station, CBP works with local public health officials to ensure proper response. CBP has also posted health advisories, provided by the CDC, at the top 20 airports in the country advising travelers to self-report if they have traveled to certain regions and are experiencing symptoms. CBP Officers undergo training by the CDC and frequently receive updated information about issues of concern, including Ebola.

On October 8th CDC and the Department of Homeland Security announced additional entry screening measures at five U.S. airports: John F. Kennedy International Airport, Atlanta Hartsfield – Jackson International Airport, Washington Dulles International Airport, Newark Liberty International Airport, and Chicago O'Hare International Airport. Enhanced screening began at JFK on Saturday, October 11th and the other four on Thursday, October 16th. These five airports receive approximately 94% of travelers from Guinea, Liberia, and Sierra Leone.[19] All passengers arriving in the United States from those countries will have their temperature taken and be interviewed about their health and any potential exposure to Ebola. CBP Officers will also provide travelers with information on Ebola and its symptoms. Should a traveler have a fever, exhibit other symptoms, or have been exposed to Ebola, CBP will refer the traveler to CDC personnel for further evaluation to determine whether the traveler may continue to travel, should be taken to a hospital for medical treatment, or will be referred to the local health department for monitoring.[20]

Committee on Homeland Security Action

On October 10th the Committee on Homeland Security held a field hearing in Dallas, Texas entitled, "Ebola in the Homeland: The Importance of Effective International, Federal, State and Local Coordination." The hearing highlighted concerns and objectives of the Texas Task Force on Infectious Disease Preparedness and Response. Additionally, representatives from the CDC, OHA, and CBP discussed measures they have in place to combat Ebola.

Over the past month Chairman McCaul and the Subcommittee Chairmen Peter King,

---

[19] Press Release, Centers for Disease Control and Prevention and Department of Homeland Security, *Enhanced Ebola Screening to Start at Five U.S. Airports for All People Entering U.S. From Ebola-Affected Countries* (Oct. 8, 2014).
[20] Id.

Candice Miller, Jeff Duncan, Richard Hudson, and Susan Brooks have written to executive offices calling for a temporary suspension of visas to individuals from Guinea, Liberia, and Sierra Leone. Additional letters have called for increased screening at U.S. airports and the reestablishment of a Special Assistant to the President for Biodefense Policy.

House Actions

On October 16th Speaker Boehner released a list of all the actions the House of Representatives has taken thus far in response to the Ebola outbreak. Please see the following link to view the list of House actions: www.speaker.gov/ebola.

Appendix A

CDC Quarantine Stations

Table A-1. CDC Quarantine Stations by City and Location

City	Location
Anchorage, AK	Ted Stevens Anchorage International Airport
Atlanta, GA	Hartsfield-Jackson Atlanta International Airport
Boston, MA	Logan International Airport
Chicago, IL	O'Hare International Airport
Dallas/Ft. Worth, TX	Dallas/Ft. Worth International Airport
Detroit, MI	Detroit Metro Airport
El Paso, TX	CDC El Paso Quarantine Station
Honolulu, HI	Honolulu International Airport
Houston, TX	George Bush Intercontinental Airport
Los Angeles, CA	Los Angeles International Airport
Miami, FL	Miami International Airport
Minneapolis, MN	Minneapolis-St. Paul International Airport
Newark, NJ	Newark Liberty International Airport
New York, NY	John F. Kennedy International Airport
Philadelphia, PA	Philadelphia International Airport
San Diego, CA	CDC San Diego Quarantine Station
San Francisco, CA	San Francisco International Airport
San Juan, PR	Luis Muñoz Marin International Airport
Seattle, WA	Seattle-Tacoma International Airport
Washington, DC	Dulles International Airport

Source: CRS presentation of information posted on CDC website, available at http://www.cdc.gov/quarantine/quarantine-stations-us.html.

Notes: Information is current as of April 14, 2014.