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Key Points – Ebola Virus Disease, West Africa

Newly updated information is indicated in red

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Summary Key Messages

- This is the largest Ebola outbreak in history and the first in West Africa.
- The outbreak in West Africa is worsening, but CDC, along with other U.S. government agencies and international partners, is taking active steps to respond to this rapidly changing situation.
- Ebola poses no substantial risk to the U.S. general population.
- **On August 8, the World Health Organization (WHO) declared that the current Ebola outbreak is a Public Health Emergency of International Concern (PHEIC).**
 - **The PHEIC declaration underscores the need for a coordinated international response to contain the spread of Ebola.**
 - **Information about the PHEIC declaration is available on the WHO website <http://www.who.int/mediacentre/news/statements/2014/ebola-20140808/en/#>.**
- A person infected with Ebola virus is not contagious until symptoms appear.
- The virus is spread through **direct contact** with the bodily fluids (blood, urine, feces, saliva, and other secretions) of an infected person, or with objects like needles that have been contaminated with the virus.
 - Ebola is **not** spread through the air or by food or water.
- As of August 8, no confirmed Ebola cases have been reported in the United States, other than the two U.S. health workers evacuated from Liberia.

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- As a precaution, CDC is actively working to educate American healthcare workers about how to isolate known and suspected Ebola patients and how they can protect themselves from infection.
- Early recognition of Ebola is important for providing appropriate patient care and preventing the spread of infection. Healthcare providers should be alert for and evaluate any patients suspected of having Ebola virus disease. A case definition for Ebola virus disease is available at <http://www.cdc.gov/vhf/ebola/hcp/case-definition.html>.
- CDC and its partners at U.S. ports of entry are not doing enhanced screening of passengers traveling from the affected countries. However, CDC works with international public health organizations, other federal agencies, and the travel industry to identify sick travelers arriving in the United States and take public health actions to prevent the spread of communicable diseases.
- CDC also is assisting with exit screening and communication efforts in West Africa to prevent sick travelers from getting on planes.
- CDC recommends that people avoid nonessential travel to Guinea, Liberia, and Sierra Leone.
- CDC recommends that people practice enhanced precautions if traveling to Nigeria.
- Recommendations and guidance may change as new information becomes available.

Ebola Cases and Deaths (West Africa)

- **As of August 4, 2014, a cumulative total of 1711 suspected and confirmed cases of Ebola and 887 deaths have been reported.**
 - Guinea reported **495** cases, including **363** fatalities
 - Sierra Leone reported **691** cases, including **286** fatalities
 - Liberia reported **516** cases, including **282** fatalities
 - Nigeria reported **9** cases, including **1** fatality
 - On July 25, the Nigerian Ministry of Health confirmed that a man in Lagos died from Ebola infection. The man had been in a hospital since arriving at the Lagos airport from Liberia. Additional Ebola cases have since been reported.
- The mortality rate in some Ebola outbreaks can be as high as 90%, but in this outbreak it is currently around 55%-60%.
- For specific areas where cases have been identified, see CDC's [Ebola outbreak webpage](#).

Ebola in U.S. Health Workers (in Liberia)

- Two U.S. citizens working at a hospital in Monrovia, Liberia, were confirmed to have Ebola virus infection in late July.
- Both patients were safely transported to a hospital in the United States. A CDC Health Alert Network (HAN) notice describing the report of the two American health workers and providing

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guidance to U.S. healthcare workers and hospitals regarding Ebola virus disease was distributed by CDC on July 28 (<http://emergency.cdc.gov/han/han00363.asp>).

Background on Ebola Virus Disease

- Ebola virus disease (EVD), also known as Ebola hemorrhagic fever, is a rare and deadly disease caused by infection with one of the Ebola virus strains (Zaire, Sudan, Bundibugyo, or Tai Forest virus).
- Ebola viruses are found in several African countries. The first Ebola virus was discovered in 1976 in what is now the Democratic Republic of the Congo near the Ebola River. Since then, outbreaks have appeared sporadically in Africa.
- The natural reservoir host of Ebola virus is not known. However, based on evidence and the nature of other similar viruses, researchers believe that Ebola virus is animal-borne, with bats probably being the most likely reservoir.
- Ebola virus is spread through direct contact (through broken skin or mucous membranes) with a sick person's blood or body fluids, such as urine, saliva, feces, vomit, and semen. It is also spread through contact with contaminated objects (like syringes) or infected animals.
- The incubation period, from exposure to when signs or symptoms appear, ranges from 2 to 21 days.
- Genetic analysis of the virus indicates it is closely related to variants of Ebola virus (species *Zaire ebolavirus*) identified earlier in the Democratic Republic of the Congo and Gabon.

Symptoms

- The most common symptom of Ebola is fever.
- Other symptoms include headache, joint and muscle aches, sore throat, and weakness, followed by diarrhea, vomiting, and stomach pain.
- Other possible symptoms that might be seen in patients are skin rash, red eyes, and internal and external bleeding.

Risk

- Healthcare providers caring for Ebola patients and the family and friends in close contact with Ebola patients are at the highest risk of getting sick because they may come in contact with the blood or body fluids of sick patients.
- People also can become sick with Ebola after coming in contact with infected wildlife.

Prevention

- There is no vaccine for Ebola. If you must travel, make sure to do the following:
 - Practice careful hygiene. Avoid contact with blood and body fluids.
 - Do not handle items that may have come in contact with an infected person's blood or body fluids.

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- Avoid funeral or burial rituals that require handling the body of someone who has died from Ebola.
- Avoid contact with animals or raw meat.
- Avoid hospitals where Ebola patients are being treated. The U.S. Embassy or consulate is often able to provide advice on facilities.
- Seek medical care immediately if you develop fever, headache, achiness, sore throat, diarrhea, vomiting, stomach pain, rash, or red eyes.
 - Limit your contact with other people when you go to the doctor. Do not travel anywhere else.
- After you return, pay attention to your health.
 - Monitor your health for 21 days if you were in an area with an Ebola outbreak, especially if you were in contact with blood or body fluids, items that have come in contact with blood or body fluids, animals or raw meat, or hospitals where Ebola patients are being treated or participated in burial rituals
 - Seek medical care immediately if you develop fever, headache, achiness, sore throat, diarrhea, vomiting, stomach pain, rash, or red eyes.
 - Tell the doctor about your recent travel and your symptoms before you go to the office or emergency room. Advance notice will help the doctor care for you and protect other people who may be in the office.

Treatment

- There is no known, proven treatment for Ebola. Standard treatment for Ebola is limited to treating the symptoms as they appear and supportive care.
- Experimental treatments have been tested and proven effective in animals, but have not yet been tested in humans.
 - ZMapp, being developed by Mapp Biopharmaceutical Inc., is an experimental treatment for use with individuals infected with Ebola virus. The product is a combination of three different monoclonal antibodies that bind to the protein of the Ebola virus.
 - It is too early to know whether ZMapp is effective or not, since the drug is still in an experimental stage and has not yet been tested in humans for safety or effectiveness. Some patients infected with Ebola virus do get better spontaneously or with supportive care.
 - The best way to know if treatment with the product is efficacious is to conduct a randomized controlled clinical trial in people to compare outcomes of patients who receive the treatment to untreated patients. No such studies have been conducted to date.

What CDC is Doing

- CDC has activated its Emergency Operations Center (EOC) to help coordinate technical assistance and control activities with partners.

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- On August 6, CDC elevated the EOC to a Level 1 activation, its highest level, because of the significance of the outbreak.
- CDC is in regular communication with other U.S. government agencies participating in the response, the ministries of health from the affected countries, the World Health Organization (WHO), and other international partners.
- CDC has deployed several teams of public health experts to the West Africa region. About 30 field staff are deployed in Guinea, Sierra Leone, Liberia, and Nigeria, assisting with various response efforts, including surveillance, contact tracing, database management, health education, and other activities.
 - Over the next month, CDC plans to send additional public health experts to the affected countries to help them establish emergency operations centers that can develop a structured and effective way of responding to the outbreak.
 - CDC staff are assisting with setting up a response structure, contact tracing, providing advice on exit screening and infection control at major airports, and providing training in the affected countries.
- CDC has issued a Warning, Level 3 notice for U.S. citizens to avoid nonessential travel to the West African nations of Guinea, Liberia, and Sierra Leone. CDC also has issued an Alert, Level 2 travel notice to advise enhanced precautions for people traveling to Nigeria.
 - At this time, CDC is not doing enhanced screening of arriving travelers at U.S. airports, seaports, or land borders.
 - CDC is working closely with Customs and Border Protection (CBP) and other partners at ports of entry (primarily international airports) to use routine processes to identify travelers who show signs of infectious disease. In response to the outbreak, these processes have been enhanced through guidance and training. CDC's quarantine station staff are asked to respond as needed, for example by evaluation of ill travelers identified by CBP officers.
 - If an ill traveler is identified during or after a flight, CDC will conduct an investigation of exposed travelers and work with the airline, federal partners, and state and local health departments to notify them and take any necessary public health action.
 - CDC is assisting with exit screening and communication efforts in West Africa to prevent sick travelers from getting on planes.
 - CDC has released interim guidance for airline flight crews, cleaning personnel, and cargo personnel that can be found at <http://www.cdc.gov/quarantine/air/managing-sick-travelers/ebola-guidance-airlines.html>.
- CDC is actively working to educate American healthcare workers on how to isolate patients and how to protect themselves from infection.
 - On August 1, CDC sent out a Health Alert Network (HAN) advisory (<http://www.bt.cdc.gov/han/han00364.asp>) informing U.S. healthcare workers of guidelines for evaluating U.S. patients suspected of having Ebola.
 - CDC has developed guidance for U.S. healthcare providers outlining how to prevent and control infections in hospitalized patients with known or suspected Ebola. This guidance

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can be found at <http://www.cdc.gov/vhf/ebola/hcp/infection-prevention-and-control-recommendations.html>.

- On Monday, July 28, CDC sent out a HAN advisory (<http://emergency.cdc.gov/han/han00363.asp>) urging U.S. healthcare workers to be alert for signs and symptoms of Ebola in patients who have a recent travel history to countries where the outbreak is occurring.
- CDC continues to update its communications products and webpages with new information on the Ebola outbreak for the general public and specific audiences.
 - A Questions and Answers on Ebola document (<http://www.cdc.gov/vhf/ebola/outbreaks/guinea/qa.html>) was posted on CDC's Ebola website and will be updated regularly.
 - CDC is working with partners to display Ebola-specific travel messages for electronic monitors and posters at ports of entry to reach travelers from West Africa.
- CDC is using social media as a way to share credible, fact-based information and to dispel misconceptions about Ebola.
 - CDC hosted a Twitter chat on Ebola on August 4 that was the largest ever chat in CDC history. The chat provided an opportunity to provide the public with direct access to CDC's disease detectives. The potential reach of the chat was over 109 million.

CDC Recommendations and Guidance

Healthcare workers in West Africa

Healthcare workers who may be exposed to people with Ebola should follow these steps:

- Wear protective clothing, including masks, gloves, gowns, and eye protection.
- Practice proper infection control and sterilization measures. For more information, see "Infection Control for Viral Hemorrhagic Fevers in the African Health Care Setting" (<http://www.cdc.gov/vhf/abroad/vhf-manual.html>).
- Isolate Ebola patients from other patients.
- Avoid direct contact with the bodies of people who have died from Ebola.
- Notify health officials if you have been exposed to someone with Ebola.

Healthcare providers in the United States

- CDC encourages all U.S. healthcare providers to
 - Take good travel histories of their patients to determine if they have traveled to West Africa within the last three weeks.
 - Know the symptoms of Ebola – fever, headache, joint and muscle aches, weakness, diarrhea, vomiting, stomach pain and lack of appetite, and in some cases bleeding.
 - Know what to do if they have a patient with Ebola symptoms:
 - First, properly isolate the patient.
 - Then, follow infection control precautions to prevent the spread of Ebola. Avoid contact with blood and body fluids of infected people.

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- U.S. healthcare workers should follow CDC's "Infection Prevention and Control Recommendations for Hospitalized Patients with Known or Suspected Ebola Hemorrhagic Fever in U.S. Hospitals" (<http://www.cdc.gov/vhf/ebola/hcp/infection-prevention-and-control-recommendations.html>).
 - CDC recommends standard, contact, and droplet precautions for management of hospitalized patients with known or suspected Ebola. These precautions can be found in "2007 Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Setting" at http://www.cdc.gov/hicpac/2007IP/2007ip_part3.html.

Infection control

- Any U.S. hospital that is following CDC's infection control recommendations and that can isolate a patient in their own room is capable of safely managing a patient with Ebola virus disease.
 - These patients need intensive supportive care; any hospital that has this capability can safely manage these patients.
 - Standard, contact, and droplet precautions are recommended.
- Early recognition:
 - Early recognition is critical for infection control. Any patient with suspected Ebola needs to be isolated until diagnosis is confirmed or Ebola is ruled out.
 - Healthcare providers should consider travel history, symptoms and risks of exposure before recommending Ebola diagnosis.
- Patient placement:
 - Patients should be placed in a single patient room (containing a private bathroom) with the door closed.
 - Facilities should maintain a log of all persons entering the patient's room
- Protecting healthcare providers:
 - All persons entering the patient room should wear at least: gloves, gown (fluid resistant or impermeable), eye protection (goggles or face shield), and a facemask
 - Additional PPE might be required in certain situations (e.g., copious amounts of blood, other body fluids, vomit, or feces present in the environment), including but not limited to double gloving, disposable shoe covers, and leg coverings
 - Healthcare providers should frequently perform hand hygiene before and after all patient contact, contact with potentially infectious material, and before putting on and upon removal of PPE, including gloves.
- Patient care equipment:
 - Dedicated medical equipment (preferably disposable, when possible) should be used for the provision of patient care.
 - All non-dedicated, non-disposable medical equipment used for patient care should be cleaned and disinfected according to the manufacturer's instructions and hospital policies.
- Patient care considerations:
 - Limit the use of needles and other sharps as much as possible.
 - Phlebotomy, procedures, and laboratory testing should be limited to the minimum necessary for essential diagnostic evaluation and medical care.

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- All needles and sharps should be handled with extreme care and disposed in puncture-proof, sealed containers
- Avoid aerosol-generating procedures. If performing aerosol-generating procedures use a combination of measures to reduce exposures from patients with Ebola hemorrhagic fever. (See CDC's guidance for more details on how to perform aerosol generating procedures safely: <http://www.cdc.gov/vhf/ebola/hcp/infection-prevention-and-control-recommendations.html>.)
- Environmental infection control:
 - Diligent environmental cleaning and disinfection and safe handling of potentially contaminated materials is paramount, as blood, sweat, emesis, feces and other body secretions represent potentially infectious materials.
 - Healthcare providers performing environmental cleaning and disinfection should wear recommended PPE (described above) and consider use of additional barriers (e.g., shoe and leg coverings) if needed.
 - Face protection (face shield or mask with goggles) should be worn when performing tasks such as liquid waste disposal that can generate splashes.
 - Follow standard procedures, per hospital policy and manufacturers' instructions, for cleaning and/or disinfection of:
 - Environmental surfaces and equipment
 - Textiles and laundry
 - Food utensils and dishware
- Duration of precautions:
 - The duration of precautions should be determined on a case-by-case basis, in conjunction with local, state, and federal health authorities.
- For more details on infection control in U.S. hospitals, see <http://www.cdc.gov/vhf/ebola/hcp/infection-prevention-and-control-recommendations.html>

Travelers

- CDC has issued a Warning, Level 3 travel notice for 3 countries. U.S. citizens should avoid all nonessential travel to Guinea, Liberia, and Sierra Leone.
- CDC has issued an Alert, Level 2 travel notice for Nigeria. Travelers to Nigeria should take enhanced precautions to prevent Ebola.
- If you travel to any of the four affected countries, make sure to do the following:
 - Practice careful hygiene. Avoid contact with blood and body fluids.
 - Do not handle items that may have come in contact with an infected person's blood or body fluids.
 - Avoid funeral or burial rituals that require handling the body of someone who has died from Ebola.
 - Avoid contact with animals or raw meat.
 - Avoid hospitals where Ebola patients are being treated. The U.S. Embassy or consulate is often able to provide advice on facilities.
 - Seek medical care immediately if you develop fever, headache, achiness, sore throat, diarrhea, vomiting, stomach pain, rash, or red eyes.

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- Limit your contact with other people when you go to the doctor. Do not travel anywhere else.
- Pay attention to your health after you return.
 - Monitor your health for 21 days if you were in an area with an Ebola outbreak, especially if you were in contact with blood or body fluids, items that have come in contact with blood or body fluids, animals or raw meat, or hospitals where Ebola patients are being treated.
 - Seek medical care immediately if you develop fever, headache, achiness, sore throat, diarrhea, vomiting, stomach pain, rash, or red eyes.
 - Tell the doctor about your recent travel and your symptoms before you go to the office or emergency room. Advance notice will help the doctor care for you and protect other people who may be in the office.
- Visit the CDC Travelers' Health website (<http://wwwnc.cdc.gov/travel/>) for more information about the outbreak and for other health recommendations to the specific countries.

Airline flight crews, cleaning personnel, and cargo personnel

- CDC's Interim Guidance about Ebola Virus Infection for Airline Flight Crews, Cleaning Personnel, and Cargo Personnel is posted on CDC's website at <http://www.cdc.gov/quarantine/air/managing-sick-travelers/ebola-guidance-airlines.html>.

Monitoring and movement of people with Ebola

- CDC has developed interim guidance to provide public health authorities and other partners a framework for evaluating people's risk of exposure to Ebola and initiating appropriate public health actions based on exposure risk and clinical assessment. The interim guidance describes public health actions for people with high risk, low risk, and no known exposure to Ebola. The guidance is available on CDC's website <http://www.cdc.gov/vhf/ebola/hcp/monitoring-and-movement-of-persons-with-exposure.html>.

Laboratory specimen collection, transport, and testing

- **Error! Reference source not found.** CDC has developed interim guidance for laboratorians and other healthcare personnel who collect or handle specimens in the United States on the appropriate steps for collecting, transporting, and testing specimens from patients who are suspected to be infected with Ebola virus. The guidance is available on CDC's website <http://www.cdc.gov/vhf/ebola/hcp/interim-guidance-specimen-collection-submission-patients-suspected-infection-ebola.html>.

For More Information about Ebola

- CDC will continue to post new information about the Ebola outbreak on the following websites as it becomes available:

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- CDC Ebola Hemorrhagic Fever site: <http://www.cdc.gov/vhf/ebola/index.html>
- CDC Travelers' Health site: <http://wwwnc.cdc.gov/travel/notices>
- World Health Organization (WHO) Ebola virus disease (EVD) site:
<http://www.who.int/csr/disease/ebola/en/>