# U.S. CDC's Response to the Ebola Outbreak

CAPSCA Global Meeting
Cairo, Egypt
November 17-19, 2014

Susan Lippold, MD, MPH

**Ebola Response, Global Migration Task Force** 

Division of Global Migration and Quarantine Centers for Disease Control and Prevention



#### **Global Migration Task Force**

#### Addressing Aviation Concerns

- Working with domestic and international partners
- Educating travelers
- Enhancing detection of and response to ill travelers entering the United States

#### Ebola Response in West Africa

- Technical assistance for exit screening
- Development of reporting tools

#### Activities in the U.S.

- Entry screening
- Monitoring and movement guidance
- Airplane contact investigations

#### **2014 Ebola Outbreak**

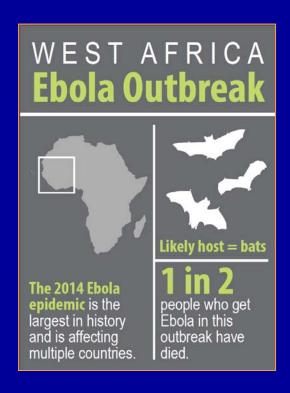


- This is the largest Ebola epidemic in history
- CDC's response to Ebola is the largest international outbreak response in CDC's history

http://www.cdc.gov/vhf/ebola/outbreaks/2014-west-africa/distribution-map.html

#### **Ebola Outbreak, West Africa**

 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
- For countries with Ebola transmission, recommendations were made to conduct exit screening of all persons at international airports, seaports and major land crossings.

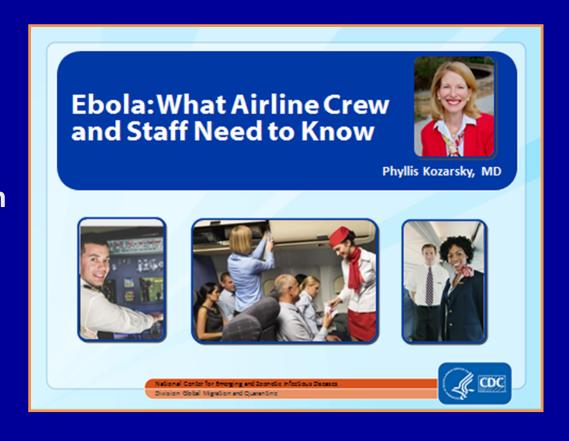
#### **Review of Transmission**

- Ebola virus is spread through direct contact (through broken skin or unprotected mucous membranes) with:
  - A sick person's blood or body fluids, including urine, saliva, sweat, feces, vomit, and semen
  - Contaminated objects (like needles and syringes)
  - Infected fruit bats and primates (apes and monkeys)
- Mosquitos or other insects cannot transmit Ebola virus
- It is not believed that pets (like dogs and cats) are at significant risk for Ebola

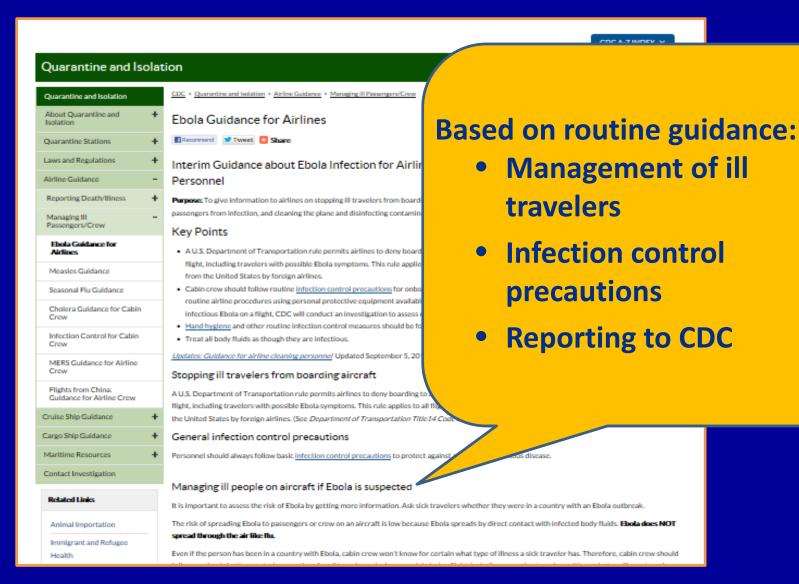
# AVIATION AND TRAVEL RELATED WORK

#### **Addressing Aviation Concerns**

- Ebola airline webcast available online for ondemand viewing
- Weekly discussions with international partners
  - WHO, ICAO, IATA, ACI
- Ongoing discussions with airlines

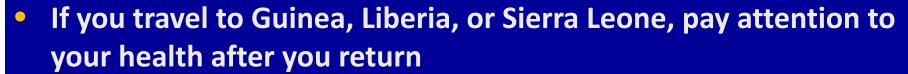


#### III Travelers: Detection and Response



## U.S. Travelers to West Africa

- CDC has issued a Warning, Level 3 travel notice for 3 countries
  - U.S. citizens should avoid nonessential travel to Guinea, Liberia, and Sierra Leone



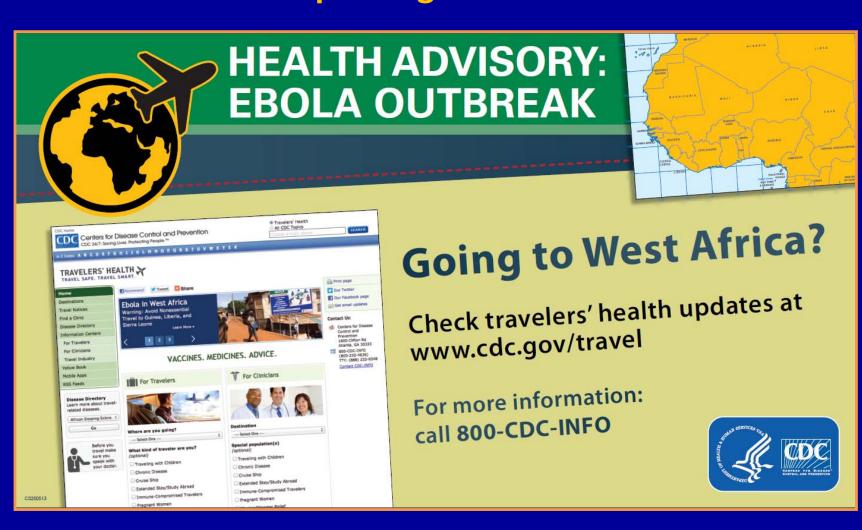
- Even if you weren't exposed, monitor your health for 21 days if you were in an area with an Ebola outbreak
- Seek medical care immediately if you develop fever, severe headache, muscle pain, fatigue, vomiting, diarrhea, stomach pain, or unexplained bleeding or bruising
  - Call in advance to tell the doctor about your recent travel before going to the office or emergency room



#### Travel to Guinea, Liberia, or Sierra Leone

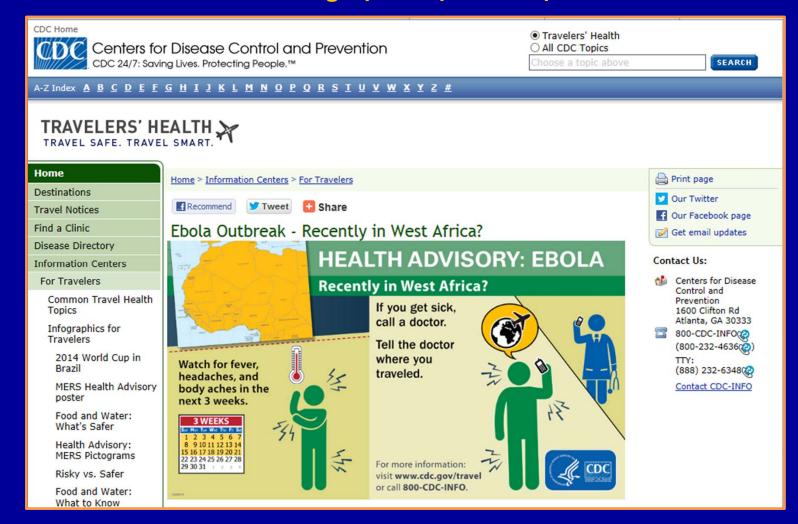
- Practice careful hygiene. Avoid contact with blood and body fluids
- Travelers who have been exposed to Ebola will not be permitted to travel on commercial planes, buses, trains, or ships
  - These travelers may have to extend their stay at least 21 days until authorities ensure it is safe for them to travel
- CDC and WHO do not recommend stopping travel from countries with Ebola outbreaks
  - International humanitarian assistance must continue

# Airport Messaging: Travelers Departing the United States



## **Ebola Information for Travelers**Travel notices, infographics, and more

www.cdc.gov/travel/diseases/ebola

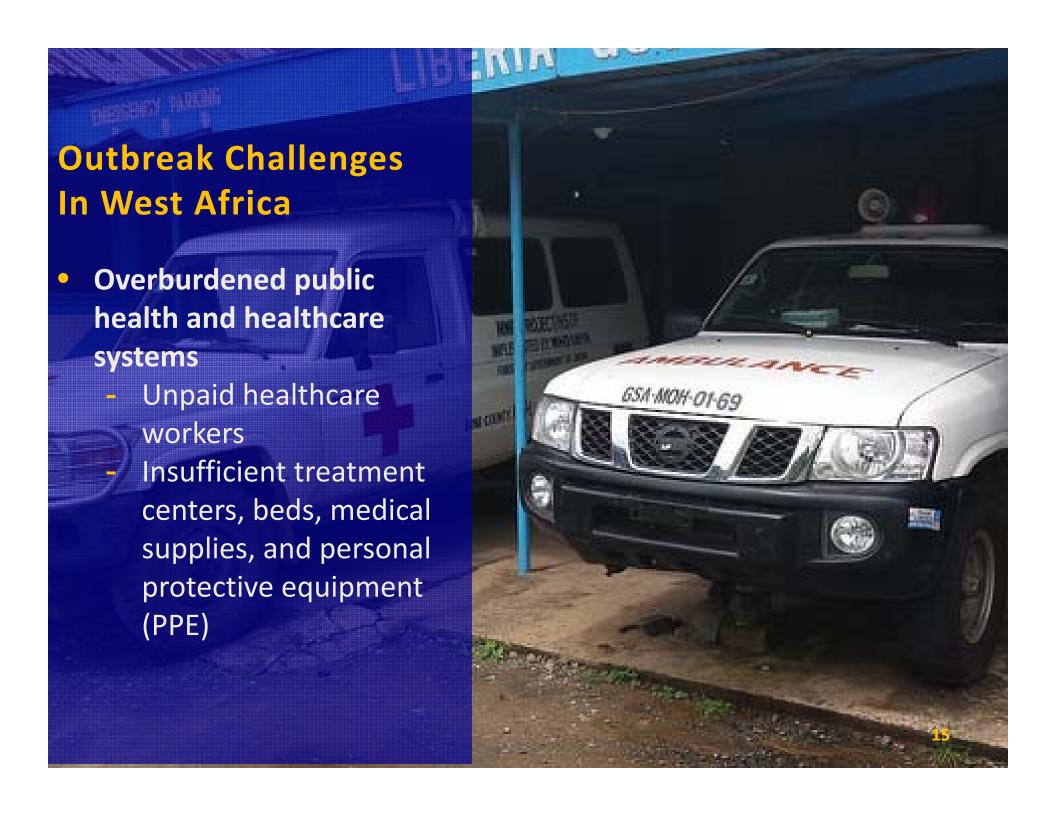


#### Airport Messaging: Travelers Arriving in the United States

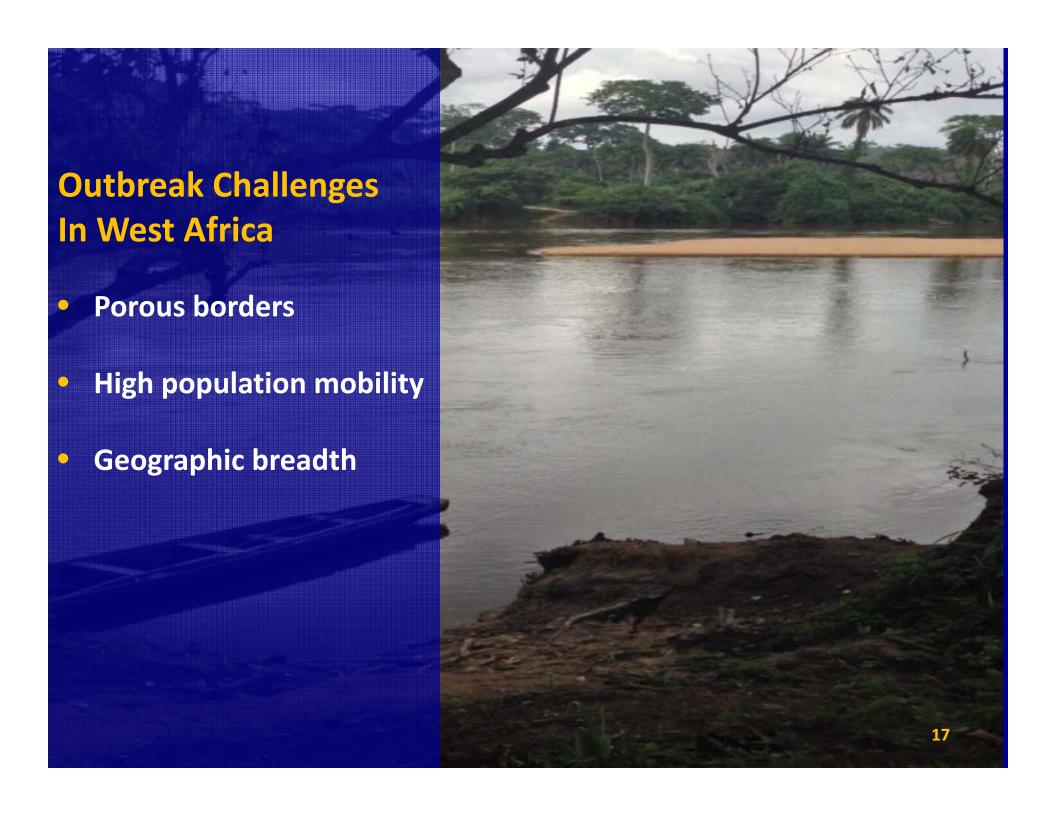


Traveler arriving at Houston
Intercontinental Airport views
Ebola information on an
electronic message board

# EBOLA RESPONSE IN WEST AFRICA







# **Overall Goals** in Outbreak Response

#### Patient Care

- Experienced and/or trained staff
- Strict use of personal protective equipment (PPE)

#### Stop human to human transmission

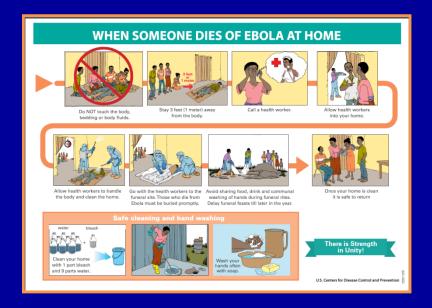
- Case identification
- Contact tracing
- Infection control

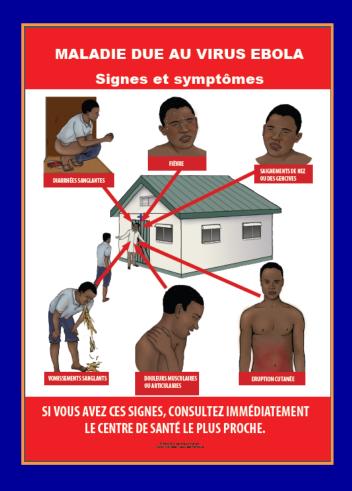


#### **Overall Goals in Outbreak Response**

#### Community education

 Text messages, radio and video messages in local languages, fact sheets, health posters and pamphlets





#### What CDC is Doing in West Africa

- Staff deployed to West Africa assist with surveillance, contact tracing, data management, laboratory testing, health education
- Working to support the Disaster Assistance Response Team (DART),
   which oversees the U.S.'s Ebola response in West Africa
- Works with airlines, airports, ministries of health to provide technical assistance to develop exit screening and travel restrictions in countries with outbreaks. This includes:
  - Assessing capacity of Ebola-affected countries and airports to do exit screening
  - Assisting with development of exit screening protocols
  - Developing tools such as posters, screening forms, and job-aids
  - Training staff on exit screening protocols and appropriate PPE use
  - Training in-country staff to provide future trainings

#### **Working in Countries with Ebola**

Nigeria









Guinea

Liberia



U.S. Department of Health and Human Services Centers for Disease Control and Prevention

### Checklist for Patients Being Evaluated for Ebola Virus Disease (EVD) in the United States

#### Upon arrival to clinical setting/triage

- Assess the patient for a fever (subjective or ≥ 100.4°F / 38.0°C)
- Determine if the patient has symptoms compatible EVD such as headache, weakness, muscle pain, vomiting, diarrhea, abdominal pain or hemorrhage
- Assess if the patient has a potential exposure from traveling to a country with widespread Ebola transmission\* or having contact with an Ebola patient in the 21 days before illness onset

#### Suspect Ebola if fever or compatible Ebola symptoms and an exposure are present

See next steps in this checklist and the Algorithm for Evaluation of the Returned Traveler for Ebola at http://www.cdc.gov/vhf/ebola/pdf/ebola-algorithm.pdf

#### Upon initial assessment

- Isolate patient in single room with a private bathroom and with the door to hallway closed
- ☐ Implement standard, contact, & droplet precautions
- ☐ Notify the hospital Infection Control Program at
- ☐ Report to the health department at \_\_\_\_

#### Conduct a risk assessment for: High-risk exposures

- Percutaneous (e.g., needle stick) or mucous membrane exposure to blood or body fluids from an EVD patient
- Direct skin contact with skin, blood or body fluids from an EVD patient
- Processing blood or body fluids from an EVD patient without appropriate PPE
- ☐ Direct contact with a dead body in an Ebola-affected area without appropriate PPE

#### Low-risk exposures

- Household members of an EVD patient or others who had brief direct contact (e.g., shaking hands) with an EVD patient without appropriate PPE
- Healthcare personnel in facilities with EVD patients who have been in care areas of EVD patients without recommended PPE

#### Use of personal protective equipment (PPE)

 Use a buddy system to ensure that PPE is put on and removed safely

#### Before entering patient room, wear:

- ☐ Gown (fluid resistant or impermeable)
- ☐ Facemask
- Eye protection (goggles or face shield)
- ☐ Gloves

#### If likely to be exposed to blood or body fluids, additional PPE may include but isn't limited to:

- Double gloving
- Disposable shoe covers
- Leg coverings

#### Upon exiting patient room

- PPE should be carefully removed without contaminating one's eyes, mucous membranes, or clothing with potentially infectious materials
- Discard disposable PPE
- Re-useable PPE should be cleaned and disinfected per the manufacturer's reprocessing instructions
- ☐ Hand hygiene should be performed immediately after removal of PPE

#### **During aerosol-generating procedures**

- ☐ Limit number of personnel present
- ☐ Conduct in an airborne infection isolation room
- Don PPE as described above except use a NIOSH certified fit-tested N95 filtering facepiece respirator for respiratory protection or alternative (e.g., PAPR) instead of a facemask

#### Patient placement and care considerations

- ☐ Maintain log of all persons entering patient's room
- Use dedicated disposable medical equipment (if possible)
- ☐ Limit the use of needles and other sharps
- ☐ Limit phlebotomy and laboratory testing to those procedures essential for diagnostics and medical care
- Carefully dispose of all needles and sharps in punctureproof sealed containers
- Avoid aerosol-generating procedures if possible
- Wear PPE (detailed in center box) during environmental cleaning and use an EPA-registered hospital disinfectant with a label claim for non-enveloped viruses\*\*

#### Initial patient management

- Consult with health department about diagnostic EVD RT-PCR testing\*\*\*
- Consider, test for, and treat (when appropriate) other possible infectious causes of symptoms (e.g., malaria, bacterial infections)
- Provide aggressive supportive care including aggressive IV fluid resuscitation if warranted
- ☐ Assess for electrolyte abnormalities and replete
- Evaluate for evidence of bleeding and assess hematologic and coagulation parameters
- Symptomatic management of fever, nausea, vomiting, diarrhea, and abdominal pain
- Consult health department regarding other treatment options

This checklist is not intended to be comprehensive. Additions and modifications to fit local practice are encouraged.

<sup>\*</sup> See 2014 Ebola Outbreak in West Africa—Case Counts or <a href="http://www.cdc.gov/vhf/ebola/outbreaks/2014-west-africa/case-counts.html">http://www.cdc.gov/vhf/ebola/outbreaks/2014-west-africa/case-counts.html</a> to determine if a country has widespread Ebola transmission

<sup>\*\*</sup> See Interim Guidance for Environmental Infection Control in Hospitals for Ebola Virus or http://www.cdc.gov/vhf/ebola/hcp/environmental-infection-control-in-hospitals.html

<sup>\*\*\*</sup> See Interim Guidance for Specimen Collection, Transport, Testing, and Submission for Persons Under Investigation for Ebola Virus Disease in the United States or <a href="http://www.cdc.gov/vhf/ebola/hcp/interim-quidance-specimen-collection-submission-patients-suspected-infection-ebola.html">http://www.cdc.gov/vhf/ebola/hcp/interim-quidance-specimen-collection-submission-patients-suspected-infection-ebola.html</a>

#### Messaging in Countries with Ebola

#### Nigeria





#### Reporting Tools

- Reporting tools for cabin crew and pilots
  - Online
  - Responsive design for mobiles and tablets
- **RING cards**
- Slides on how to use these





#### SOLATE

- · Separate the ill traveler from others to the extent possible.
- . If at gate and having direct contact (within one meter) with the ill traveler, use appropriate personal protective equipment such as face mask, gloves, and face shield or goggles.

  If during flight and having direct contact (within one meter) with the ill traveler, use
- universal precaution kit.

#### NOTIFY

- . If at gate, follow your airline or airport's procedures to request a medical evaluation or assistance. A traveler may be denied boarding.
- . If during flight, pilot reports to Air Traffic Control per ICAO requirement.

#### **GIVE SUPPORT**

· Follow instructions from your airline or public health authority.

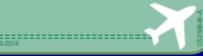
Look for or ask about Ebola symptoms.

Alert supervisor about any traveler who has:

FEVER (including history of feeling feverish)

#### AND

- ✓ ONE or more of the following conditions:
- Vomiting
- Diarrhea
- · Lethargy or fatigue
- Stomach pain
- Headache
- Joint or muscle pain
- Sore throat or difficulty swallowing
- Unexplained bruising or bleeding



# EBOLA RESPONSE IN THE UNITED STATES

#### What CDC is Doing in the U.S.

- CDC has 20 Border Health Field Offices, previously known as Quarantine Stations, located at international airports and land borders
- CDC uses regulatory authority and works with partners at U.S. airports, seaports, or land borders to help prevent the introduction and spread of infectious diseases in the United States
  - Customs and Border Protection (CBP)
  - Airlines
  - Emergency Medical Services (EMS) units
- CDC and the Department of Homeland Security (DHS) are conducting enhanced entry screening to detect possible case of Ebola in travelers at five U.S. airports

#### What CDC is Doing in the U.S.



- CDC is actively working to educate U.S. healthcare workers on how to isolate patients and how to protect themselves from infection
- CDC continues to update its communication products and webpages with new information on the Ebola outbreak

#### What CDC is Doing in the U.S.

- CDC teams deployed to Dallas, Ohio, and New York to assist in finding, assessing, and assisting everyone who came into contact with the Ebola patients
- CDC and DHS are conducting enhanced entry screening at five U.S. airports
- Post-arrival monitoring began in late October
- CDC tightened previous infection control guidance for healthcare workers caring for patients with Ebola to ensure there is no ambiguity

#### **Ebola Cases in the United States**

- Four cases of Ebola have been diagnosed in the U.S.
  - Index patient (first case) -
    - Traveler from Liberia to Dallas, Texas
    - Confirmed on September 30
    - Passed away October 8
  - Healthcare Worker (second case) -
    - Healthcare worker who provided care for index patient in Dallas
    - Confirmed on October 10
    - Recovered and discharged from the NIH Clinical Center October 24
  - Healthcare Worker (third case) -
    - Another healthcare worker who provided care for index patient in Dallas
    - Confirmed on October 15
    - Traveled by air to and from Cleveland, Ohio before reporting symptoms
    - Recovered and discharged from Emory Hospital in Atlanta, Georgia October 28
  - Medical Aid Worker (fourth case) -
    - Medical aid worker who traveled from Guinea to New York
    - Confirmed on October 24
    - Recovered and discharged from a New York City hospital

## Monitoring and Movement of People with Ebola

- CDC created guidance for monitoring people exposed to Ebola and for evaluating their travel, including the application of movement restrictions when indicated
- These recommendations were issued to
  - Reduce the risk of Ebola spreading to other passengers or crew
  - Ensure that people infected with Ebola are able to quickly access appropriate medical care
- The guidance is subject to revision as more is learned about Ebola – check the CDC website for the most up-to-date recommendations

# Monitoring and Movement of People with Ebola



http://www.cdc.gov/vhf/ebola/hcp/monitoring-and-movement-of-persons-with-exposure.html

# **Evaluating Patients and Returned Travelers in the United States**

- CDC has released two job aids for U.S. healthcare workers to help determine if a patient has been exposed to Ebola
  - Algorithm for Evaluating Returned Travelers for Ebola
  - Checklist for Patients Being Evaluated for Ebola Virus Disease (EVD) in the United States

#### Ebola Virus Disease (Ebola)

Algorithm for Evaluation of the Returned Traveler



FEVER (subjective or ≥100.4°F or 38.0°C) or compatible Ebola symptoms in a patient who has resided in or traveled to a country with wide-spread in the patient in the 21 days before illness onset in beadate, weakness mored pain, womling, diarrhe, addominal pain, or hemorthage

NO

Rep ort asymptomatic patients with high- or low-risk exposures (see below) in the past 21 days to the health department

YFS

- 1. Isolate patient in single room with a private bathroom and with the door to hallway closed
- 2. Implement standard, contact, and droplet precautions (gown, facemask, eye protection, and gloves)
- 3. Notify the hospital Infection Control Program and other appropriate staff
- 4. Evaluate for any risk exposures for Ebola
- 5. IMMEDIATELY report to the health department

#### HIGH-RISK EXPOSURE

Percutaneous (e.g., needle stick) or mucous membrane contact with blood or body fluids from an Ebola patient

Direct skin contact with, or exposure to blood or body fluids of, an Ebola patient

Processing blood or body fluids from an Ebola patient without appropriate personal protective equipment (PPE) or biosafety precautions

Direct contact with a dead body (including during funeral rites) in a country with wide-spread Ebola transmission\*\* without appropriate PPE

#### LOW-BISK EXPOSUR

Household members of an Ebola patient and others who had brief direct contact (e.g., shaking hands) with an Ebola patient without appropriate PPE

Healthcare personnel in facilities with confirmed or probable Ebola patients who have been in the care area for a prolonged period of time while not wearing recommended PPE

#### NO KNOWN EXPOSURE

Residence in or travel to a country with wide-spread Ebola transmission\*\* withou HIGH- or LOW-risk exposure

#### Review Case with Health Department Including:

· Severity of illness

Laboratory findings (e.g., platelet counts)
 Alternative diagnoses

Ebola suspected



#### TESTING IS INDICATED

The health department will arrange specimen transport and testing at a Public Health Laboratory and CDC

The health department, in consultation with CDC, will provide guidance to the hospital on all aspects of patient care and management



U.S. Department of Health and Human Services Centers for Disease Control and Prevention

\*\* CDC Website to check current countries with wide-spread transmission: http://www.cdc.gov/vhf/ebola/outbreaks/2014-west-africa/case-counts.html

#### TESTING IS NOT INDICATED

If patient requires in-hospital management

- Decisions regarding infection control precautions should be based on the patient's clinical situation and in consultation with hospital infection control and the health department
- If patient's symptoms progress or change, re-assess need for testing with the health department

If patient does not require in-hospital management

- Alert the health department before discharge to arrange appropriate discharge instructions and to determine if the nations should self-monitor for illness
- Self-monitoring includes taking their temperature twice a day for 21 days after their last exposure to an Ehola patient.

This algorithm is a tool to assist healthcare providers identify and triage patients who may have Ebola. The cirrical criteria used in this algorithm (a single symptom consistent with Ebola) differ from the CIC case definition of a People Pull of the College Pull of

D201004

# CARE Kit Introduction and Health Advisory

#### **EBOLA CARE KIT**

#### INTRODUCTION

#### **Welcome to the United States**

Whether you are returning home or just visiting, we hope you enjoy your time in the United States. We know that you just came from a country with an Ebola outbreak and that this can cause worry and fear. We want to make sure that you know what to do now. We also want to make sure you know what to do to protect your health and the health of those who are close to you.

This is the Check and Report Ebola (or, CARE) Kit. The kit has information about Ebola. It also contains tools to help you do daily health checks for the next 21 days. Your daily health check will include a temperature check and a symptom check.

You will find these 6 items in your CARE Kit:

#### Digital thermometer

A thermometer is in your kit so that you can take your temperature every morning and every night for 21 days.

#### Directions for your digital thermometer

(Title: Take your Temperature Two Times a day, Morning and Night)

Explains how to:

take your temperature using the thermometer in your kit, and

#### record your thermometer reading Ebola CARE Kit Health Advisory

The health advisory is a quick tool to remind you to check your temperature and do health checks 2 times each day for 21 days. This tool also reminds you who to call if you have symptoms.

#### Symptom Card and Symptom Log

The Symptom Card shows the signs and symptoms of Ebola.

The Symptom Log asks you to do a health check each day. Then, write down the date, your temperature, and any symptoms you may have. You should do this health check 2 times a day, for 21 days after your arrival into the United States.

#### A Check and Report Ebola (CARE) Card

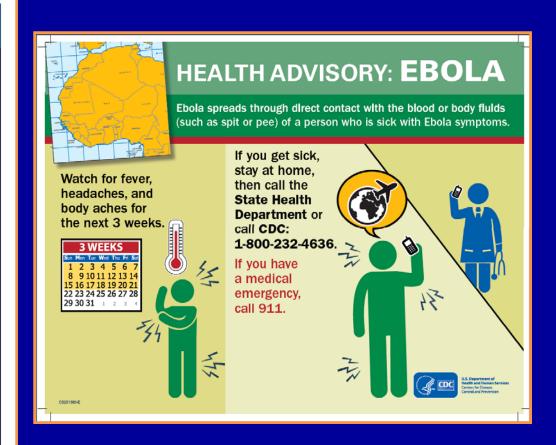
The CARE Card is a simple reminder to do a health check each day and who to call if you have symptoms. If you call the state health department or a doctor, tell them you have a CARE card. Keep this card with you for 21 days after your arrival in the United States

#### List of State Health Department Telephone Numbers

This is a list of telephone numbers for state health departments across the United States. The list is given so you may contact the state health department in the state you are in to report any symptoms.

Once 21 days have passed, if you have no symptoms or fever, you are no longer at risk of Ebola.

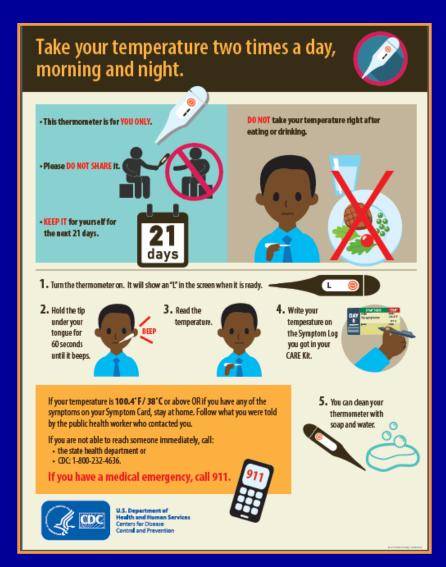
We hope you find this kit useful. Please use it to keep yourself safe and help others around you to stay safe too. Together, we can protect everyone from Ebola.



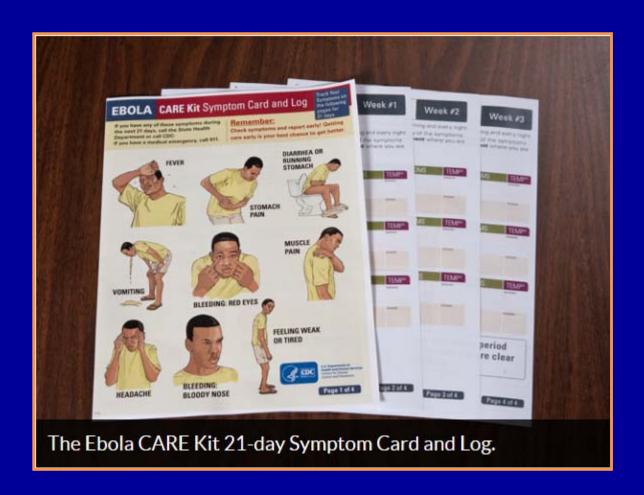
## CARE Kit Thermometer and Instructions for Use



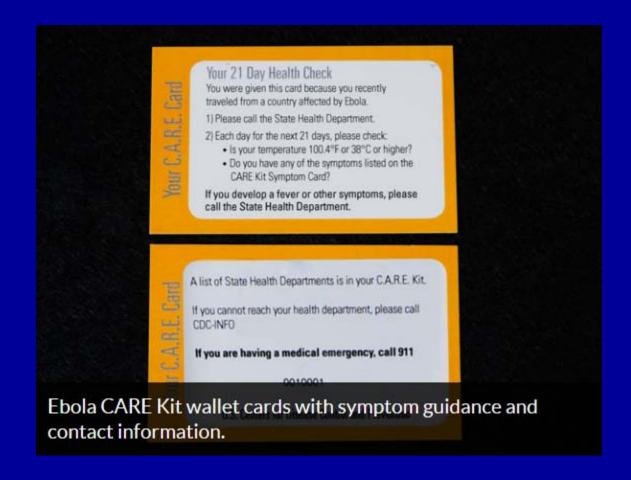
A digital thermometer is included in the Ebola CARE Kit. Travelers who develop a temperature of 100.4 degrees farenheit (38 degrees Ceslius) or higher, should call their state health department.



# CARE Kit Twenty-one Day Symptom Card and Log



## **CARE Kit Wallet Card**



# Objectives of Air Travel-Related Contact Investigations

- Identify contacts of a traveler reported to CDC who was contagious during a flight
- Notify, educate, and evaluate travelers about their potential exposure in a timely manner
- Provide post-exposure prophylaxis, or other treatment, as appropriate
- Evaluate public health response and effectiveness of protocols
- Notify foreign public health authorities of contacts and flights into their country

#### **Airplane Contact Investigations**

#### Flight #1

- 164 passengers in 5 states
- 11 in "contact zone"
- 6 flight crew and 5 cleaning crew

#### Flight #2

- 133 passengers in 4 states
- 9 in "contact zone"
- 6 flight crew and 3 cleaning crew

#### **Airplane Contact Investigations**

 All passengers and crew contacted within 72 hours of initiating contact investigation

#### Operational concerns:

- Contact information limited on domestic flights
- Flight information public before travelers informed of possible exposure
- Varying degrees of conditional movement and monitoring by states
- After 21-day incubation period no transmission found

#### **Key Points**

- We understand the vital need for continued travel to regions with widespread Ebola transmission
- We continue to work closely with WHO, ICAO, IATA, ACI
- CDC is committed to assisting the aviation industry and authorities in countries with Ebola through guidance, tools, and consultation

# Additional Resources on Ebola Travelers' Health Updates

www.cdc.gov/travel



#### For the most current information, visit

http://www.cdc.gov/vhf/ebola/index.html

#### For more information, please contact:

Centers for Disease Control and Prevention 1600 Clifton Road NE, Atlanta, GA 30333

Telephone: 1-800-CDC-INFO (232-4636) / TTY: 1-888-232-6348

Web: www.cdc.gov



# Contact Information Susan Lippold stl5@cdc.gov or airadmin@cdc.gov

#### For more information, please contact:

Centers for Disease Control and Prevention 1600 Clifton Road NE, Atlanta, GA 30333

Telephone: 1-800-CDC-INFO (232-4636) / TTY: 1-888-232-6348

Web: www.cdc.gov

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

