

2018 Ebola Outbreak Democratic Republic of Congo

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EPIC Webinar
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Ebola Virus

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 - Ebola virus (species *Zaire ebolavirus*)
 - Sudan virus (species *Sudan ebolavirus*)
 - Tai Forest virus (species *Tai Forest ebolavirus*)
 - Bundibugyo virus (species *Bundibugyo ebolavirus*)
 - Reston virus (species *Reston ebolavirus*)
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Ebola Virus

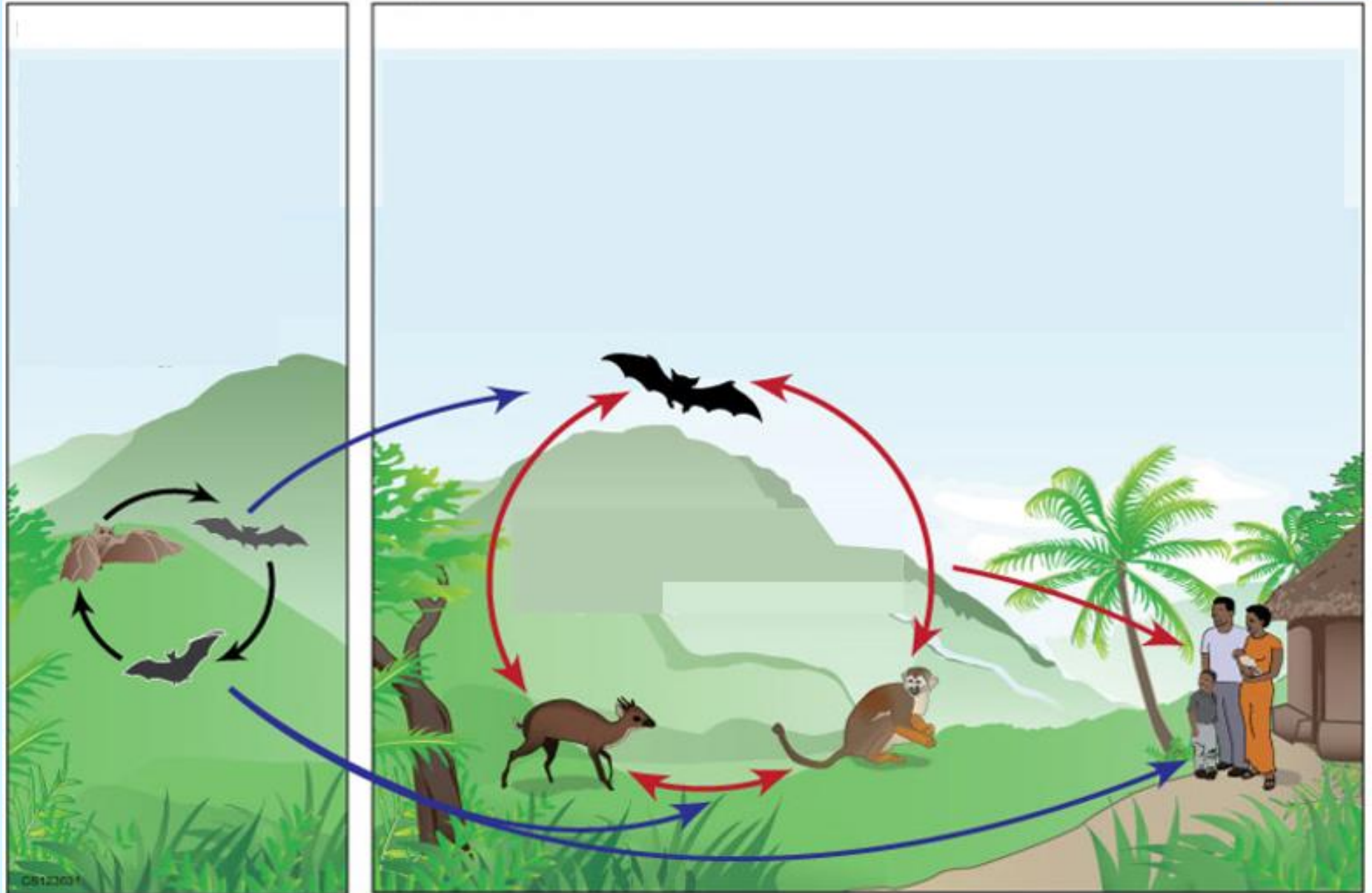
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Ebola Virus

- Since its discovery in 1976, there have been 28 outbreaks of EVD
- Current outbreak is the 10th in the DRC
- Natural reservoir host of Ebola viruses unknown; bats are the most likely reservoir



Ebola Virus Ecology



Human to Human Transmission

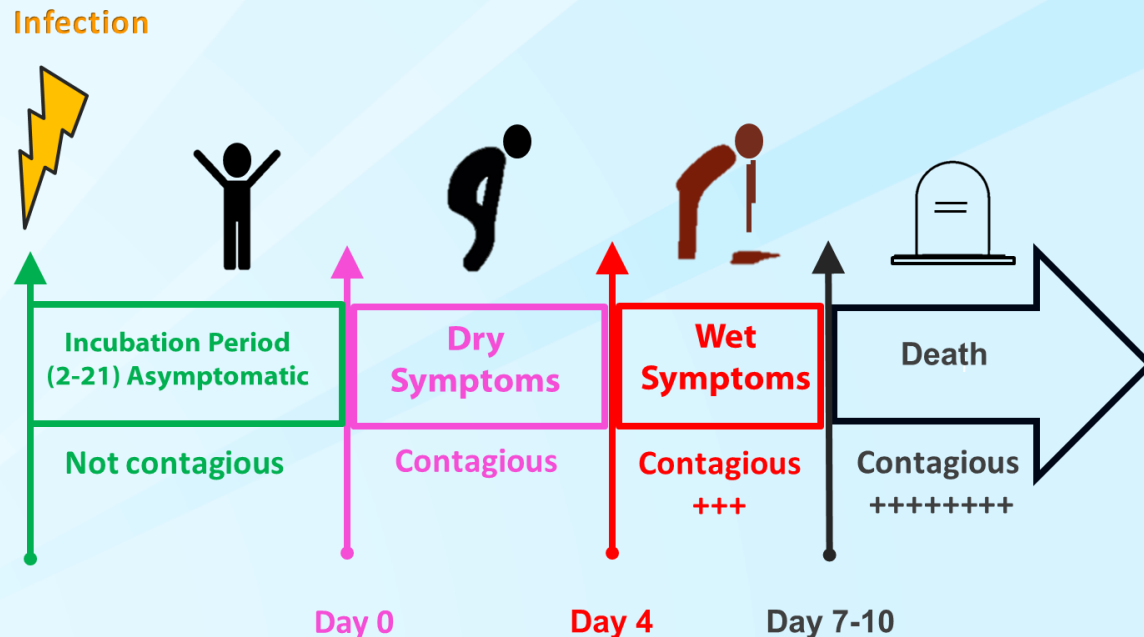
- **Ebola virus can be found in all body fluids:**
 - Blood
 - Feces/Vomit
 - Urine
 - Tears
 - Saliva
 - Breast milk
 - Amniotic fluid
 - Vaginal Secretions
 - Sweat
 - Semen
- **Contact (through a break in skin, mouth, eyes) with the body fluids of a person that is sick or has died of EVD**

Signs and Symptoms

- A person infected with Ebola virus is not contagious until symptoms appear
- Signs and symptoms of EVD include:
 - Fever
 - Headache
 - Fatigue
 - Muscle pain/Joint pain
 - Abdominal pain
 - Rash
 - Diarrhea
 - Vomiting
 - Unexplained bleeding
 - Unexplained bruising

Progression of EVD

- Not contagious until symptoms develop
- Wet symptoms develop ~ day 4 of illness
- Patient becomes more and more contagious as the illness advances
- Without treatment, death occurs 7-10 days after illness onset
- Amount of Ebola virus in the body is highest at the time of death



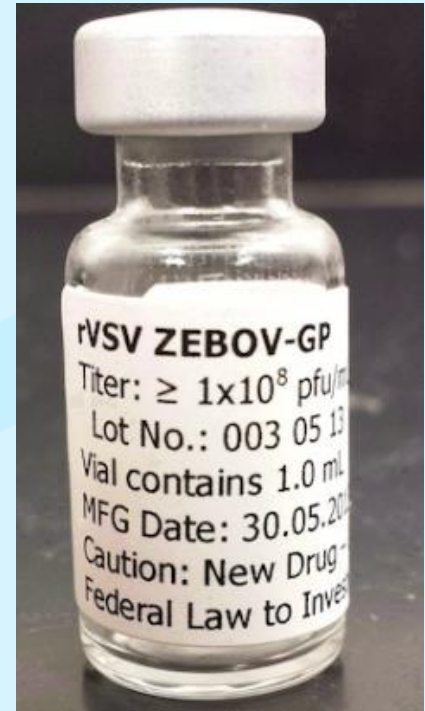
Treatment

- No FDA approved treatments for EVD
- Early supportive care alone can significantly improve chances of survival
- 4 experimental treatments approved for use in DRC through a randomized clinical control trial

Name of Drug	Type of Drug
ZMapp	Triple monoclonal antibody cocktail
Regeneron	Triple monoclonal antibody cocktail
mAb 114	Monoclonal antibody
Remdesivir	Antiviral

Recombinant Vesicular Stomatitis Virus-Based Ebola Virus Vaccine

- Live vaccine containing a piece of Ebola virus
- Experimental
- Given as a single dose
- Protects only against Ebola virus (species *Zaire ebolavirus*)



Ebola Vaccine Use In DRC

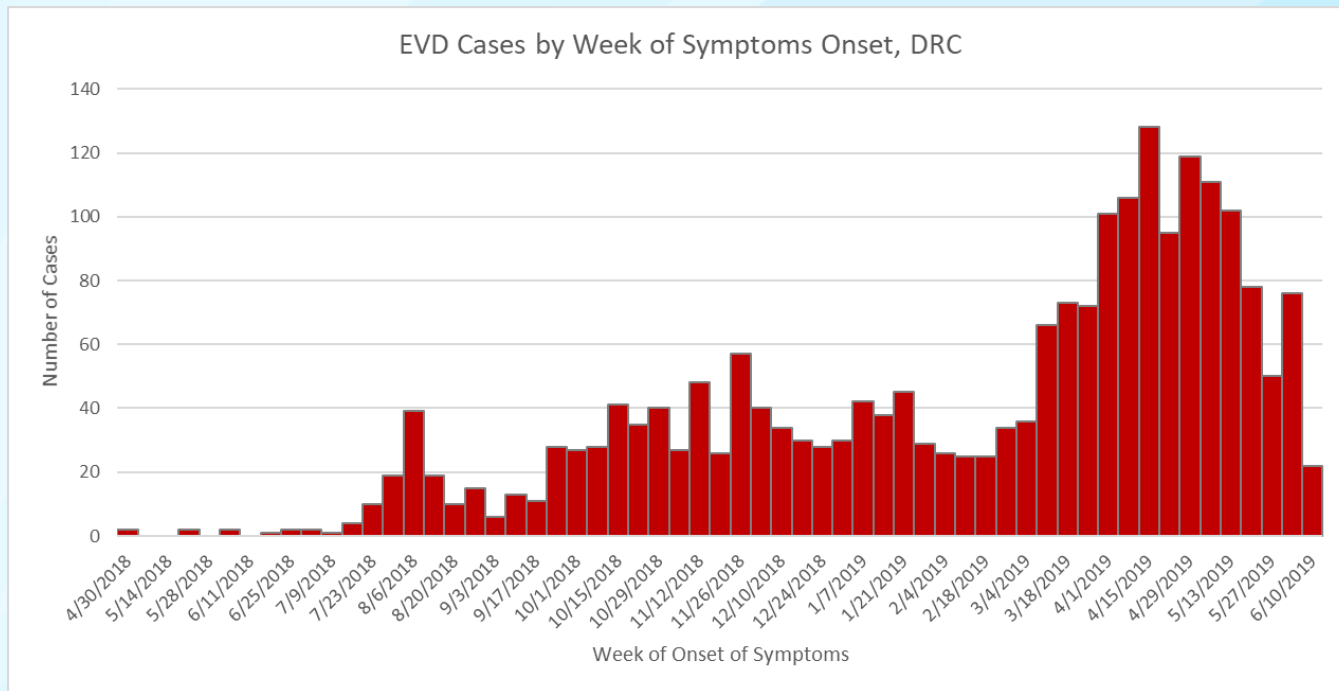
- **Vaccine offered to:**
 - **Contacts and contacts of contacts of EVD cases (deceased or alive) through a ring vaccination strategy**
 - **Frontline healthcare workers**
- **Eligibility criteria:**
 - **Children >6 months of age**
 - **Adults, including pregnant and lactating women**

2018 Ebola Outbreak in North Kivu and Ituri Provinces, DRC

- August 1, 2018, the DRC Ministry of Health confirmed an outbreak of Ebola virus (*species Zaire ebolavirus*) in Eastern DRC
- June 12, 2019, Uganda reported 3 cases of EVD in returning travelers from DRC
- As of June 16, 2019, EVD cases have been reported in 22 health zones in DRC
 - Second largest EVD outbreak in history
 - Largest EVD outbreak ever to have occurred in DRC

Quick Stats

- As of June 16, 2019 there were:
 - 2,168 total cases (2074 confirmed, 94 probable)
 - 1431 total deaths (1337 confirmed, 94 probable)
 - 119 total healthcare worker infections



Response Efforts

- **DRC Ministry of Health leading response efforts, with assistance from local and international partners, including the World Health Organization (WHO)**
- **Response activities divided into pillars to include:**
 - **Surveillance**
 - **Points of Entry**
 - **Vaccination**
 - **Laboratory**
 - **Psychosocial**
 - **Community engagement**
 - **Infection Prevention & Control**
 - **Safe and dignified burials**
 - **Case management**
 - **Logistics**
 - **Security**

Response challenges

- **Complex humanitarian emergency**
 - >1 million internally displaced persons in DRC
 - Continuous movement of refugees to neighboring countries, including Uganda, Rwanda, and South Sudan
- **Incidents of violence against response teams & pockets of community resistance**
- **High number of EVD deaths occurring outside of an Ebola treatment unit**
- **Low number of confirmed cases under surveillance at the time of notification**

CDC's role

- **United States government, including CDC, working with DRC MOH and other partners to provide technical assistance and expertise in several critical areas, including:**
 - Surveillance
 - Data analysis/management
 - Infection prevention and control
 - Vaccination
 - Emergency management
 - Health communications
- **As of June 11, 187 CDC staff have completed 278 deployments to the DRC, Uganda, South Sudan, Geneva**

Emergency Operations Center Activation

- On June 13, CDC activated its Emergency Operations Center at Level 3, lowest level of activation
- Allows the agency to provide increased operational support to meet the outbreak's evolving challenges

Contact Information

- Healthcare workers should first contact local/state health department for assistance on assessing a patient for Ebola
- <https://www.cdc.gov/vhf/abroad/assessing-vhf-returning-traveler.html>

Thank You

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

Visit: www.cdc.gov | Contact CDC at: 1-800-CDC-INFO or www.cdc.gov/info

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.

National Center for Emerging and Zoonotic Infectious Diseases

Division of High-Consequence Pathogens and Pathology





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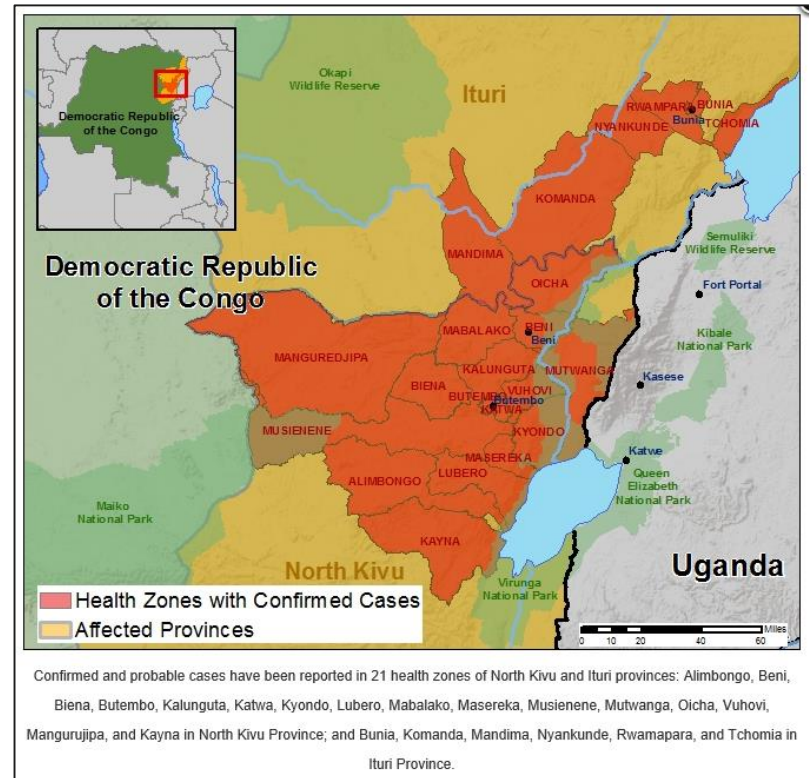
Border and Travel Health Update

Shah Roohi, RN, MPH

Division of Global Migration and Quarantine

Border and Travel Health – DRC Ebola Update

- WHO's assessment of the situation is that the risk of Ebola spreading nationally in DRC and regionally is very high. However, the risk for transcontinental global spread at this time is still low.
- The first line of action is to bolster containment of disease at the source through contact tracing, vaccination, contact monitoring, and by conducting more intensive traveler screenings in affected areas.



Travel Health Notice – DRC

- Alert Level 2: Practice enhanced precautions
- The risk of Ebola infection for most travelers is low
- Travelers to this area could be infected with Ebola if they come into contact with an infected person's blood or other body fluids

Travelers' Health

CDC > Home > Travel Notices

Ebola in Democratic Republic of the Congo

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Warning - Level 3, Avoid Nonessential Travel

Alert - Level 2, Practice Enhanced Precautions

Watch - Level 1, Practice Usual Precautions

Key Points

- There is an outbreak of Ebola in the North Kivu (Kivu Nord) and Ituri provinces in the northeastern part of the Democratic Republic of the Congo (DRC).
- Travelers to this area could be infected with Ebola if they come into contact with an infected person's blood or other body fluids.
- Travelers should seek medical care **immediately** if they develop fever, headache, body aches, sore throat, diarrhea, weakness, vomiting, stomach pain, rash, or red eyes during or after travel.
- CDC has provided [recommendations](#) to ensure workers with potential occupational exposure to Ebola are healthy when they return to the United States.

What is the current situation?

An outbreak of Ebola is occurring in the North Kivu (Kivu Nord) and Ituri provinces of the DRC (see [map of Ebola-affected health zones in the DRC](#)). The DRC Ministry of Health declared this current outbreak on August 1, 2018. For the latest information on this outbreak, including updates on numbers of cases and deaths, see the World Health Organization's (WHO) [Ebola situation reports, Democratic Republic of the Congo](#).

North Kivu and Ituri provinces are among the most populated in DRC. These provinces share borders with other countries (Rwanda, South Sudan, and Uganda) with frequent cross-border movement for personal travel and trade. The provinces have been experiencing a prolonged humanitarian crisis and deteriorating security, which are limiting public health efforts to respond to this outbreak. The US Department of State has identified this part of the country as a

On This Page

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- [Who is at risk?](#)
- [What can travelers do to protect themselves and others from Ebola?](#)
- [What can travelers expect when leaving DRC?](#)
- [Special recommendations for health care and response workers in the outbreak area](#)

What is Ebola?

[Ebola virus disease](#) (also known as Ebola hemorrhagic fever) is a rare and deadly disease

Ebola Recommendations for Organizations

- CDC recommends that organizations sending US-based workers to areas with Ebola outbreaks ensure the health and safety of those workers before, during, and after their deployment.

Travelers' Health

CDC > Home > [Travel Notices](#)

Ebola Recommendations for Organizations

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Recommendations for organizations sending US-based health care or emergency response workers to areas with Ebola outbreaks and predeparture assessment of any workers traveling from Ebola outbreak areas to the United States

Key Points

- CDC recommends that organizations sending US-based workers to areas with Ebola outbreaks ensure the health and safety of those workers before, during, and after their deployment.
- *Pre-deployment* recommendations include educating workers about Ebola, travel vaccines, healthy behaviors, personal protective equipment, and travel health insurance.
- *During-deployment* recommendations include remaining in contact with workers, periodically asking about any symptoms of or exposures to Ebola, and contacting in advance the US state or local health departments that have jurisdiction in the areas where workers will be staying after arrival in the United States.
- *Post-deployment* recommendations include staying in contact with workers for 21 days after they leave the outbreak area while they self-monitor for symptoms of Ebola.
- CDC recommends that all workers with potential occupational exposure to Ebola virus who are traveling to the United States undergo a [health and exposure assessment](#) before their departure from the outbreak area.

Audience

The audiences for this document are:

- Organizations such as nongovernmental, faith-based, academic, or aid organizations that send US-based workers (employees, contractors, or volunteers) to areas where Ebola outbreaks are occurring.
- Organizations whose non-US-based workers, such as locally employed personnel or US expatriates working in the outbreak area, intend to travel to the United States.

For the purpose of these recommendations, workers include those engaged in Ebola response activities (for example, clinical care or laboratory work in an Ebola treatment unit [ETU], burial work, contact tracing); those providing health care or performing clinical laboratory work in non-Ebola settings in the outbreak area; and anyone else whose duties place them at risk of exposure to Ebola.

Ebola Recommendations for Organizations (2)

- **Pre-deployment:** Educating workers about Ebola, travel vaccines, healthy behaviors, personal protective equipment, and travel health insurance.
- **During deployment:** Remaining in contact with workers, periodically asking about any symptoms of or exposures to Ebola, and contacting in advance the US state or local health departments that have jurisdiction in the areas where workers will be staying after arrival in the US.
- **Post-deployment:** Staying in contact with workers for 21 days after they leave the outbreak area while they self-monitor for symptoms of Ebola.

Ebola Recommendations for Organizations (3)

- CDC has developed template tools that organizations can choose to use or modify to help structure the predeparture assessment.
- PDFs are available for download on the CDC website.

Predeparture Exposure and Health Assessment for Workers Traveling from Ebola Outbreak Areas to the United States

Before workers with occupational risk of exposure to Ebola virus (as described above) travel from Ebola outbreak areas to the United States, assess them for signs and symptoms compatible with Ebola and for possible unprotected exposures to Ebola virus.

CDC recommends a predeparture assessment for the following reasons:


- To prevent the potential public health consequences of exporting a case of Ebola
- To prevent workers who are symptomatic or who have had unprotected exposures to Ebola virus from traveling by commercial airline
- To determine the appropriate level of monitoring based on the exposure risk level

For most workers, CDC recommends self-monitoring with oversight by the sponsoring organization. However, for workers with unprotected exposures to Ebola virus, CDC recommends monitoring by health officials while in the United States; other restrictions may also be considered.

At a minimum, the predeparture assessment should include the following elements:

- Careful assessment for potential exposures to Ebola virus
- Review of signs and symptoms compatible with Ebola
- Determination that the worker appears well
- Oral temperature measurement

Conduct the exposure assessment after the last possible occupational exposure and the health assessment within 24-48 hours of departure. For ETU workers, CDC recommends the ETU's safety officer complete the exposure assessment and the organization's medical supervisor complete the health assessment. Workers outside health care settings can complete their own exposure assessments for review by the organization's medical supervisor; the medical supervisor should perform the health assessment.

CDC has developed template tools ([Workers in Ebola Treatment Units \(print only\)](#) ) and [Workers in non-ETU settings \(print only\)](#) ) that organizations can choose to use or modify to help structure the predeparture assessment. Organizations may also opt to develop their own forms.

While CDC does not request copies of predeparture assessment forms, it does recommend that both the sponsoring organization and the returning worker retain the documentation, in case it is requested by the state or local health department where the worker resides or is located.

Resources

- Travel Notice – Democratic Republic of Congo

wwwnc.cdc.gov/travel/notices/alert/ebola-democratic-republic-of-the-congo

- Recommendations for Organizations Sending Health Workers to Areas with Ebola Outbreaks

wwwnc.cdc.gov/travel/page/recs-organizations-sending-workers-ebola

Consultations and Questions

- For urgent consultations regarding symptomatic or potentially exposed workers, please call the CDC Emergency Operations Center (available 24/7) at **770-488-7100**.
- For questions about these recommendations or additional advice regarding predeparture exposure and health assessment, please email **eocdgmqopschief@cdc.gov**

For more information, contact CDC
1-800-CDC-INFO (232-4636)
TTY: 1-888-232-6348 www.cdc.gov

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