DEPARTMENT OF HEALTH

Minnesota Department of Health Viral Hemorrhagic Fever Responses

2014-2023

Updated: November 20, 2024

MDH VHF Responses 2014-2023

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Overview

The last decade has seen multiple outbreaks of viral hemorrhagic fevers (VHF) in multiple countries of origin. The Minnesota Department of Health (MDH) has responded to these outbreaks at various levels over the years, including:

- 2014-2016, Ebola Virus Disease, West Africa-Sierra Leone, Liberia, and Guinea
- 2022, Ebola Virus Disease, East Africa-Uganda
- 2023, Marburg Virus Disease, East Africa-Tanzania

This document outlines the work MDH has done in response to these events and how we've continued to grow throughout the years.

2014-2016 Ebola Virus Disease Outbreak

Background

Beginning March 2014, West Africa experienced the largest outbreak of Ebola virus disease (EVD) in history. The U.S. Centers for Disease Control and Prevention (CDC) and partners worked to contain this epidemic at its source. Sierra Leone, Liberia, and Guinea were hardest hit; there were also cases reported in Senegal, Nigeria, Italy, Spain, Mali, the United Kingdom, and the United States.[1] Thanks to federal funding, Minnesota significantly enhanced our preparedness efforts for EVD and other high consequence infectious diseases (HCIDs). While during the outbreak there were almost a thousand travelers monitored based on risk in Minnesota, no actual case of EVD was confirmed.

Monitoring Program

Beginning in October 2014, MDH worked with CDC and local public health to monitor people at risk for developing EVD. The monitoring focused on travelers from countries classified by the CDC[2] as having widespread EVD transmission (henceforth referred to simply as "travelers") and people with known exposure to a patient with confirmed EVD. MDH also coordinated monitoring with Hennepin County and Ramsey County local public health departments for travelers who were residents of these counties. MDH monitored residents/visitors to all other counties in the state.

Travelers returning from countries with widespread EVD transmission were screened prior to leaving Liberia, Guinea, or Sierra Leone. They then were routed through one of the designated airports in the United States where CDC conducted an additional screening and collected information on the passenger. MDH received the information from the CDC screening and contacted the traveler to conduct an initial interview which determined their risk of exposure to EVD, travel plans, and established a monitoring plan. Monitoring takes place for 21 days past the last possible exposure to EVD and can occur on a voluntary basis or may be required by public health order (depending on the risk status of the traveler). There are two categories of

[1] "2014 Ebola Outbreak in West Africa – Case Counts," Center for Disease Control and Prevention, updated April 13, 2016, accessed April 14, 2016 (http://www.cdc.gov/vhf/ebola/outbreaks/2014-west-africa/case-counts.html))

[2] "2014 Ebola Outbreak in West Africa – Case Counts," Center for Disease Control and Prevention, updated April 13, 2016, accessed April 14, 2016 (http://www.cdc.gov/vhf/ebola/outbreaks/2014-west-africa/case-counts.html)

monitoring, active monitoring, and direct active monitoring. Monitoring was done per CDC Monitoring and Movement Guidelines.[3]

A total of 954 travelers were monitored in Minnesota during this outbreak. Monitoring in Minnesota was discontinued in January 2016.

Community Engagement

Starting in late July 2014, MDH engaged with key leaders in the affected immigrant communities (Liberian, Sierra Leonean, and Guinean, as well as other local West Africans), as well as concerned leaders from the larger communities in which they live. This continued even after the outbreak was stopped, through information sharing and continuing conversations on other issues in travelers' health and infectious disease.

These leaders were pivotal in helping MDH refine messaging, be alerted to issues seen in the community, partnering in events, as well as helping to disseminate information.

Examples of those engaged throughout the process:

- The Minnesota African Task Force Against Ebola (MATFAE)
- The Liberian Ministers Association
- The Liberian Health Initiative
- The Kofa Foundation
- Hennepin County Cultural Services Units
- Local imams
- Many individual community leaders across the metro and in Greater Minnesota
- Brooklyn Center and Brooklyn Park city officials
- Hennepin County Public Health

From August to December 2014 five community information sessions were held with the support of these partners. Some of these meetings drew over 200 members of the public with positive media coverage. Additional partners engaged in these sessions included Allina Health, Dept. of Justice, Dept. of Education, U.S. Attorney's Office, U.S. Equal Employment Opportunity Commission, Minn. Dept. of Human Rights, Minn. Africans Against Ebola Task Force, and Southwest Minnesota State University.

MDH also presented information and factsheets at non-MDH Ebola-related events, or smaller meetings, including prayer services and memorials.

Additional work done by MDH, and community leaders included:

Diverse Media Campaigns

[3] "Notes on the Interim U.S. Guidance for Monitoring and Movement of Persons with Potential Ebola Virus Exposure," CDC, updated July 2017, https://www.cdc.gov/vhf/ebola/exposure/monitoring-and-movement-of-persons-with-exposure.html.

- Print advertising and/or articles published in a variety of media with broad West African subscribers or readership including Mshale, the African News Journal, Sun Post, and PepperSoup in Fall 2014.
    - Ads created to reduce stigma of West African community, informed on basics of Ebola.
- Public Safety Announcements and interviews given by MDH staff aired on a variety of stations including, KFAI – Fresh Air Radio, TMZ Liberian Radio (Brooklyn Park), Minnesota Public Radio (MPR), and KMOJ.

Information Dissemination

- Creation of a FAQ to respond to the questions received from community meetings, info sessions, and calls to our infectious disease line, as well as from CDC's social media efforts.
- Emails to key leaders from the Liberian, Guinean, and Sierra Leonean communities in Minnesota with updates from CDC, MDH, and other entities (at least weekly, most often 3-4 per week). Frequency of emails declined by the end of 2015.
- In the aftermath of the Texas case, MDH responded by creating key messages for Minnesotans – in direct response to requests for guidance from local community leaders.
- Disseminating MDH messaging and materials to a broader group (Professionals working with immigrants/refugees, CBOs, diverse media vendors).
- Language Access: MDH factsheet was made available in English, French, Hmong, Somali, Spanish (other communities requested information in their languages due to fear among limited English proficiency community members). As well as infographics utilized for clarity.

Partnership

- Providing community organization partners with advice and the technical information needs that they request from MDH.
- Numerous meetings with community leaders to respond to emerging issues and ensure that all partners were on the same page in terms of messaging and efforts.
- Community partners were helpful in building understanding and participation in the voluntary monitoring program for recent travelers.
- Presented at the 2015 Community Health Conference on lessons learned. Co-presented with the Chair of MATFAE, Abdullah Kiatamba.
- Participated (August 2016) in debrief meeting for community and organizational partners to reflect on lessons learned, a model for other health issues in the Minnesota West African community. Debrief held by Bloomington Public Health and MATFAE, using funding from MDH.

Connections

- Connecting local Liberian leaders to the outreach being done by CDC with West African communities enabled local leaders to be part of national calls with Liberian leaders in the U.S.

Administrative Preparedness

MDH worked with the Minnesota Department of Administration to activate Minnesota Statute Chapter 16 for Ebola. This allowed MDH emergency authorization to purchase and contract to protect health, life, property, and the function of government, thus increasing the speed in which MDH could obtain services. This required reporting to Minnesota Department of Administration after the response was over.

Hospital Preparedness

The U.S. Department of Health and Human Services (HHS) provided additional grant funding through the Hospital Preparedness Program (HPP) for a five year period to enhance preparedness for Ebola and other special pathogens. The cooperative agreement included benchmarks and performance measures for MDH, hospitals, EMS, and health care coalitions (HCCs).

Minnesota took a risk-based approach to identifying hospitals who could provide higher levels of care of EVD patients with four hospitals (Mayo-St. Marys, Children's, Unity, UMMC-West Bank). Currently, Mayo-St. Marys is a state HCID Treatment Center, and UMMC-West Bank is one of the Regional Emerging Special Pathogen Treatment Centers (RESPTC) for HHS Region V.

MDH worked with and continues to work with frontline hospitals to identify and correct gaps in response to high consequence infectious diseases (HCIDs)—inclusive of EVD in training, resources, and protocols. In the winter of 2015-2016, MDH conducted an assessment to determine the readiness of frontline hospitals in response to a potential Ebola outbreak. MDH worked with local partners and regional health care coalitions to implement processes to close identified gaps including, but not limited to, conducting trainings, and sharing resources within their health care coalition.

To ensure readiness, all of Minnesota's assessment hospitals as well as treatment centers had CDC Rapid Ebola Preparedness team and MDH team visits in 2014-2015, a follow-up MDH visit in the summer of 2015, and made recommended changes following the visits. In addition to the CDC REP and MDH visit, NETEC conducts annual visits to UMMC-West Bank as a RESPTC to assist the facility in the building and maintenance of capabilities to deal with these patients, families, and their care. An initial NETEC visit was conducted in December of 2015.

The four hospitals with special designations during this period met in a collaborative workgroup with MDH staff quarterly throughout this time. The workgroup provided a safe space amongst competitors to discuss successes and challenges in meeting grant deliverables.

Emergency Medical Services (EMS) Preparedness

In the fall of 2015, an EMS preparedness survey was conducted to assess EMS readiness in the transport of Ebola patients. Reports were provided to the regional health care coalitions highlighting areas of opportunity. Health care coalitions were required to spend 15% of their federal funds on EMS training and education.

Recognizing not all ambulance services could maintain the training required to transport these patients, in the summer of 2016 in conjunction with the EMS Regulatory Board (EMSRB), MDH Emergency Preparedness and Response recruited ambulance services who wished to form a

collaborative group to maintain increased preparedness to transport these patients. Criteria for ambulance services were created and sent to every service in the state. The criteria were updated to reflect the transport of all HCID patients, not just Ebola patients in 2017.

Criteria

1. Be willing and prepared to transport either a Suspected or Confirmed Case of Ebola/HCID regardless of circumstance. This includes:
    a. Local Transport within your PSA.
    b. Local & Long-Distance Transport for Mutual Aid partner or other ambulance service outside your PSA including Greater Minnesota that is requesting assistance from your ambulance service to do transport of a suspected or confirmed Ebola patient.
2. Activate "Ebola/HCID Ready" ambulance response team within specified time frame:
    a. Interfacility Transport onsite within 240 minutes (4 hours)[4]
    b. Outpatient Setting onsite within 120 minutes (2 hours)
    c. 911/PSAP Response request within 30 minutes
3. Have in place formal, written protocols for:
    a. Transport of Suspect and Confirmed Case of Ebola and Patient Handoff[5]
    b. Decontamination of Ambulance/Equipment for Ebola[6]
    c. Waste Management Protocol for Category A Waste
        i. Waste contaminated *(or suspected to be contaminated)* is a regulated hazardous material under the U.S. Department of Transportation Hazardous Materials Regulations (49 CFR, Parts 171-180).
        ii. *Ambulances or other authorized vehicles are **not** licensed to transport this material* once a patient arrives at the medical facility, therefore at minimum a gross decontamination must occur at Treatment Centers in compliance with their protocols at all times.
    d. PPE Resupply
    e. Contingencies including crashes, mechanical failures, weather delays etc. that may occur during transport of Ebola/HCID patient.
4. Medical director approved Ebola or Other HCID training is conducted at least *annually (more frequently during an outbreak in Minnesota)* and includes:
    A. Signs & Symptoms of Ebola and other highly infectious or new emerging disease threats
    B. How to avoid & decrease risk of exposure
    C. Ebola Specific PPE with annual donning/doffing and trained observer interactive session

[4] Performance Measure 1. ASPR, July 2015, Hospital Preparedness Program (HPP) Measure Manual: Implementation Guidance for Ebola Preparedness Measures. Version 7.0

[5] "Example: Standard Operating Procedure (SOP) for Patient Handoff between a Health care Facility and a Transporting Ambulance," CDC, updated January 28, 2016, accessed March 24, 2016 (http://www.cdc.gov/vhf/ebola/healthcare-us/emergency-services/patient-handoff.html)

[6] "Example: Standard Operating Procedure (SOP) for Decontamination of an Ambulance that has Transported a Person under Investigation or Patient with Confirmed Ebola," CDC, updated January 28, 2016, accessed March 24, 2016, (http://www.cdc.gov/vhf/ebola/healthcare-us/emergency-services/ambulance-decontamination.html)

a. Active Symptoms (bleeding, vomiting, diarrhea or requires aerosol-generating procedures):[7]
   - Single-use impermeable gown that extends to at least mid-calf or single-use impermeable coverall
   - PAPR with single-use hood or single-use N95 Respirator
   - Two pairs of single-use extended cuff gloves
   - Single-use Boot covers
   - Single-use apron

b. Clinically stable PUI who do not have bleeding, vomiting, or diarrhea (at minimum):[8]
   - Single-use (disposable) fluid-resistant gown that extends to at least mid-calf or single-use (disposable) fluid-resistant coveralls without integrated hood
   - Single-use (disposable) full face shield
   - Single-use (disposable) facemask
   - Single-use (disposable) gloves with extended cuffs. Two pairs of gloves should be worn. At a minimum, outer gloves should have extended cuffs Decontamination of ambulance and equipment.

5. Maintain >90% of all staff trained **or** designate specific Ebola Team Members who are willing to respond at any and all times[9].
6. Maintain all Ebola ready training documentation on file for review.
7. Conduct or participate in patient transport drill/exercise annually.
8. Collaborate with all entities including: MDH, EMSRB, Health Care Coalitions, Local & Tribal Public Health, Hospitals, PSAPs, and first response agencies.
9. Be able to maintain normal operations and coverage within PSA during Ebola/HCID transport.

Implications

It is important all ambulance services and their medical directors understand the potential implications of performing such a high-risk response and transport. All ambulance services considering accepting this role should first understand the following:

1. The ambulance (or authorized vehicle) utilized will be out of service until decontamination is completed (Estimated time: up to 72 hours or more in some cases)
2. Personnel who perform the transport must be willing and able to:
   a. Follow CDC recommended PPE guidance at all times.
   b. Remain with the patient until hospital staff assume care of the patient.

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[7] "Guidance on Personal Protective Equipment (PPE) to Be Used by Healthcare Workers during Management of Patients with Confirmed Ebola or Persons under Investigation (PUIs) for Ebola who are Clinically Unstable or Have Bleeding, Vomiting, or Diarrhea in U.S. Hospitals, Including Procedures for Donning and Doffing PPE," CDC, updated November 17, 2015, accessed March 25, 2016 (http://www.cdc.gov/vhf/ebola/healthcare-us/ppe/guidance.html)

[8] "For U.S. Healthcare Settings: Donning and Doffing Personal Protective Equipment (PPE) for Evaluating Persons Under Investigation (PUIs) for Ebola Who Are Clinically Stable and Do Not Have Bleeding, Vomiting, or Diarrhea," CDC, updated November 17, 2015, Accessed: August 11, 2016 (http://www.cdc.gov/vhf/ebola/healthcareus/ppe/guidance-clinically-stable-puis.html)

[9] No personnel who have not been trained will be dispatched to the field to respond to an Ebola/HCID call.

c. Provide life-saving treatment within scope of practice or under medical director approval including, but not limited to: CPR, airway management, establishing and/or maintaining an IV.[10]
    i. Per CDC guidelines, life-saving treatment should not be withheld because a person is suspected or confirmed with Ebola. However, EMS personnel must work with their medical director, medical control physician or ED physician to assess the risk of exposure prior to a decision to withhold care.
    ii. "Prehospital resuscitation procedures such as endotracheal intubation, open suctioning of airways, and cardiopulmonary resuscitation frequently result in a large amount of body fluids, such as saliva and vomit. Performing these procedures in a less controlled environment (for example, a moving vehicle) increases risk of exposure to infectious pathogens for EMS providers. Perform these procedures under safer circumstances (when the vehicle has stopped, upon arrival at the hospital destination) and wear the PPE recommended by CDC to use during aerosol-generating procedures."[11]
    iii. "Invasive procedures should be limited to those essential for patient management."[12]
d. Follow monitoring, isolation, and potential quarantine protocols of their agency, MDH, and CDC.
e. Understand if there is a PPE failure or exposure to body fluids from the patient, they may be unable to report to work for up to 21 days if placed under isolation or quarantine.

Based on the above criteria, implications, and understanding there was no additional funding for this additional preparedness, seven ambulance services responded and became Minnesota's Ebola/HCID Ready ambulance services. Next, procedures for contacting these seven services were created for hospitals and non-Ebola/HCID Ready ambulance services and posted to the MDH website:

- Hospital Guidance
- EMS Guidance

2022 Ebola Virus Disease Outbreak

Background

On September 20, 2022, the Ugandan Ministry of Health confirmed an outbreak of Ebola virus disease (EVD) (Sudan virus) in Mubende District, in western Uganda. This announcement came

[10] "Interim Guidance for Emergency Medical Services (EMS) Systems and 9-1-1 Public Safety Answering Points (PSAPs) for Management of Patients with Known of Suspected Ebola Virus Disease in the United States," CDC, updated December 29, 2015, accessed March 17, 2016 (http://www.cdc.gov/vhf/ebola/healthcare-us/emergency-services/ems-systems.html)
[11] "Interim Guidance for Emergency Medical Services (EMS) Systems and 9-1-1 Public Safety Answering Points (PSAPs) for Management of Patients with Known of Suspected Ebola Virus Disease in the United States," CDC, updated December 29, 2015, accessed March 17, 2016 (http://www.cdc.gov/vhf/ebola/healthcare-us/emergency-services/ems-systems.html)
[12] "Interim Guidance for Emergency Medical Services (EMS) Systems and 9-1-1 Public Safety Answering Points (PSAPs) for Management of Patients with Known of Suspected Ebola Virus Disease in the United States," CDC, updated December 29, 2015, accessed March 17, 2016 (http://www.cdc.gov/vhf/ebola/healthcare-us/emergency-services/ems-systems.html)

after a patient with a suspected viral hemorrhagic fever (VHF) was identified and isolated at Mubende Regional Referral Hospital. A sample from the patient was sent to the VHF laboratory at the Uganda Virus Research Institute, where EVD (Sudan strain) was confirmed. This marked the sixth EVD outbreak in Uganda. Five of the six have been caused by the species Sudan ebolavirus.

Outbreaks were reported in 5 districts (Mubende, Kyegegwa, Kassanda, Kagadi, Bunyangabu). Rapid Response Teams from CDC were deployed to support outbreak response activities, including investigation of the unexplained deaths and contact tracing. CDC provided support in surveillance, epidemiology, laboratory, communication, and ecological investigations.

Monitoring

Like the 2014-2016 EVD outbreak, CDC implemented plans to route all international flights originating in Uganda to one of six U.S. airports to conduct a temperature check and risk assessment on passengers arriving in the U.S. who had been in Uganda over the previous 21 days. Additional monitoring at the state/local level took place for 21 days past the last possible exposure to Ebola. State and local authorities have primary jurisdiction for isolation and other public health orders within their borders. From October 2022 through January 2023, Minnesota monitored 289 travelers with no confirmed case of EVD. The majority of travelers monitored were deemed low risk, which did not limit their movement.

Community Engagement

Starting in early October 2022, MDH pre-emptively connected with the Ugandan Association of America (UAA). MDH staff met with the President of the UAA and found positive interest for collaboration with MDH regarding the Ugandan Ebola outbreak. The President communicated that UAA was the primary community hub of the Ugandan diaspora in Minnesota and as such, engagement with the Ugandan community occurred solely within this organization. MDH continued engagement with UAA through the end of the Ebola outbreak in January of 2023. MDH continues to stay connected to UAA through traveler's health information dissemination.

From October to January 2022, MDH provided UAA with consistent and frequent email updates of real-time information regarding the Ebola outbreak and prevention protocol. Information shared with UAA was disseminated through a WhatsApp community group, community email listserv, and by religious leaders in the Ugandan community.

In November 2022, MDH engagement staff received information that screened travelers also included those embarking on mission trips to Uganda. MDH staff connected with MN Council of Churches to disseminate travel recommendations to faith-leaders considering leading travel to Uganda.

Additional work done by community leaders and MDH include:

Diverse Media Campaigns

- Ugandan Association of American shared out Ebola outbreak information and real-time traveler safety protocols on their social media platform.

Information Dissemination

- MDH staff met frequently with UAA President to ensure needs were met and questions answered.
- MN Council of Churches shared MDH Ebola travel safety recommendations through their blog, social media and with other member denomination communication channels.
- MDH staff exchanged weekly emails with UAA President with information on Ebola case counts, disease spread, and infection control. Updates included information from CDC and MDH infectious disease experts. Frequency of emails declined after end of Ebola outbreak.
- UAA partnered with MDH SME and engagement staff to hold a community information session and Q&A. UAA recorded the session and shared meeting recording through UAA communication channels.
- Disseminated Ebola safety key messages and factsheet to Ugandan community. UAA shared that most of community speaks English, so information was shared out in English.

Partnership

- UAA noted gratitude for early action by MDH staff and considerate engagement to provide real-time information.
- MN Council of Churches connected us to other potential faith-based organizations to engage with if needed.

Health Care Preparedness

In 2017, the MDH hospital collaborative and the EMS workgroup combined to form the High Consequence Infectious Disease Collaborative and continued to meet quarterly to discuss planning and response efforts surrounding these diseases. This group continued to maintain readiness in the event of a patient transport or admission.

2023 Marburg Virus Disease Outbreak

Background

In March 2023, the Tanzania government declared the country's first outbreak of Marburg virus disease (MVD).

Monitoring

CDC did not implement travel monitoring for this outbreak. The outbreak was confirmed over on May 31, 2023, with one probable and eight confirmed cases, with five deaths. All cases were from the country's Northeast Kagera region. MDH has a REDCap project and processes in place that can be quickly activated to monitor travelers at risk of MVD, if needed.

Health Care Preparedness

The HCID Collaborative continued to maintain readiness.

On-Going Emergency & Infection Control Preparedness

Emergency Preparedness

MDH-Emergency Preparedness and Response Division continues to lead the HCID Collaborative workgroup, meeting semi-annually. While there are no longer benchmarks or performance measures through the HPP cooperative agreement pertaining to this type of preparedness, Minnesota continues this work as it is a priority to health care readiness.

Infection Control and Prevention

MDH has a series of advisory committees that have been working to improve infection control practices in all health care settings. For example, the Minnesota Health Care-Associated Infection Prevention Advisory Group includes representatives from the following organizations:

- Association of Professionals in Infection Control and Epidemiology – Minnesota Chapter,
- Aging Services of Minnesota
- End-Stage Renal Disease Network #11,
- Institute for Clinical Systems Improvement,
- Minnesota Alliance for Patient Safety,
- Minnesota Ambulatory Surgery Center Association,
- Minnesota Directors of Nursing Administration,
- Minnesota Hospital Association,
- Minnesota Interlaboratory Microbiology Association,
- Minnesota Medical Association,
- Minnesota Medical Directors Association,
- North Central Chapter Infectious Diseases Society of America,
- Stratis Health (Minnesota's Quality Improvement Organization),
- Regional Health Care Preparedness Consultants.

Within MDH, the advisory group includes the regional health care coalitions as well as members from the following divisions:

- Health Regulations Division
- Health Policy (Adverse Events Reporting and Health Information Technology)
- Infectious Disease, Epidemiology, Prevention, and Control Division (IDEPC) including our State Epidemiologist/Clinical Team
- Emergency Preparedness and Response

In addition, MDH has been working with Minnesota leaders in human, animal, and environmental health since 2015 through the Minnesota One Health Antibiotic Stewardship Collaborative (MOHASC) to combat antibiotic resistance and promote antibiotic stewardship. MOHASC's One Health-driven engagement promotes collaboration and ensures inclusive communication among Minnesota's public and professionals.

MDH IDEPC staff have a platform which houses a compendium of Minnesota health care settings. MDH compiles contact information for facility infection prevention staff, including phone, address, and email for key staff, as well as the accrediting agency or regulatory

authority. This platform was used extensively for communication during the COVID-19 pandemic.

In addition to our work with EVD Treatment Facilities, MDH partners with Acute Care, Long Term Care, Outpatient, and Dialysis care facilities to administer a modified CDC ICAR Assessment Tool to identify gaps in infection control. MDH will prioritize the identified gaps and determine methods to best mitigate the gaps. MDH will develop a mediation/action plan for facilities after the MDH ICAR Assessment and provide on-going technical assistance. In addition, MDH Health Care-Associated Infection (HAI) staff is working to: Develop a sustainable training program based on CDC guidance and technical assistance to perform training, prioritize on-site train-the-trainer programs in key domains of infection control, including the incorporation of hands-on evaluations and competency assessments of best practices and a system to monitor ongoing compliance and competency.