

RAMSEY COUNTY
Saint Paul - Ramsey County Public Health

Infectious Disease Update

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First US Ebola Case

- Patient isolated at Dallas hospital
- Hospital staff had prepared for an event like this
- Public Health contact investigation underway
 - Household
 - Healthcare
 - Community

Adapted from CDC Media Advisory, 9/30/2014

Ebola

- Largest Ebola outbreak in history and the first in West Africa
- As of September 29, 2014 6,574 cases, 3,091 deaths have been reported
- The virus is spread through direct contact with a sick person's blood or body fluids or objects (such as needles) that have been contaminated with infected body fluids

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

Country	Unconfirmed Cases	Confirmed Cases
Guinea	141	369
Liberia	77	166
Sierra Leone	77	786

• Nigeria: 12 Unconfirmed, 10 Confirmed

Updated: 8.14.14 by @matamajumder

Zoon diseases (Zoonoses) outbreaks diminished with [?]

<http://mainunajumder.wordpress.com/2014/08/14/ebola-new-updated-charts-8/>

Ebolavirus Ecology

Endozotic Cycle
New evidence strongly implicates bats as the reservoir hosts for ebolaviruses, though the means of local endemic maintenance and transmission of the virus within bat populations remain unknown.

Epizootic Cycle
Epizootics caused by ebolaviruses appear sporadically, producing high mortality among non-human primates and dolphins and may precede human outbreaks. Epidemics caused by ebolaviruses produce acute disease among humans, with the exception of Reston virus which does not produce detectable disease in humans. Little is known about how the virus first passes to humans, triggering waves of human-to-human transmission, and an epidemic.

Ebolaviruses:
Ebola virus (formerly Zaire virus)
Sudan virus
Tal Forest virus
Bundibugyo virus
Reston virus (non-human)

Human-to-human transmission is a predominant feature of epidemics.

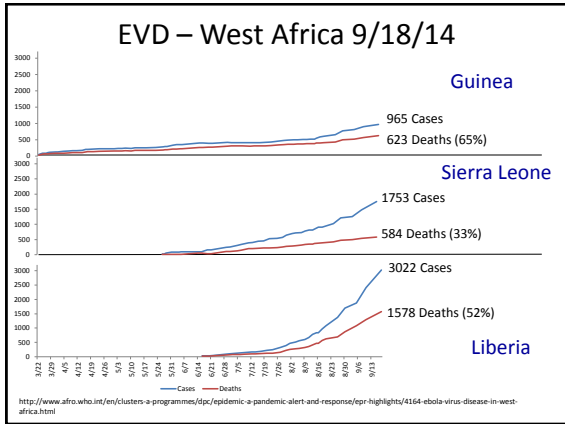
Following initial human infection through contact with an infected bat or other wild animal, human-to-human transmission often occurs.

<http://www.cdc.gov/vhf/ebola/resources/virus-ecology.html>

Ebola Virus Disease Transmission

- No shedding prior to symptom onset
- Very difficult to detect by PCR even up to 3 days of illness
- Transmission
 - Direct contact (through broken skin, mucous membranes) with bodily fluids (i.e. blood, urine, stool, breast milk, saliva, semen) of an infected patient
 - Indirect contact (through broken skin, mucous membranes) with environments contaminated with infected bodily fluids
- No airborne transmission
- Killed by chlorine disinfectants, direct sunlight, heat, soaps/detergents
 - Can survive several days in blood, vomit, stool

<http://www.cdc.gov/vhf/ebola/>



Nigeria and EVD

- July 7 – Person with MN ties has sister who dies from Ebola
- Had direct contact with sister
- Noted to be ill prior to taking a flight on July 20
 - Connected in
 - Arrived in Lagos, Nigeria
- Multiple persons with contact with body fluids
 - No airplane contacts developed illness
 - Multiple unprotected healthcare contacts developed symptoms
 - All 871 contacts have completed 21 day monitoring

Nigeria Ebola EOC, 2014 PHIL CDC

Nigeria
21 Cases
8 Deaths (38%)

<http://www.afro.who.int/en/clusters-a-programmes/dpc/epidemic-a-pandemic-alert-and-response/epi-highlights/4164-ebola-virus-disease-in-west-africa.html>
<http://www.nbcnews.com/storyline/ebola-virus-outbreak/man-who-died-ebola-nigeria-was-american-citizen-wife-t167546>

Estimated number of Ebola cases and daily number of beds in use, with and without correction for underreporting — EbolaResponse modeling tool, Liberia and Sierra Leone combined, 2014–2015

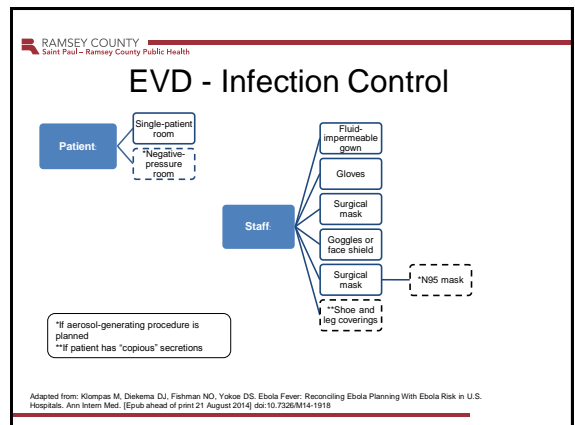
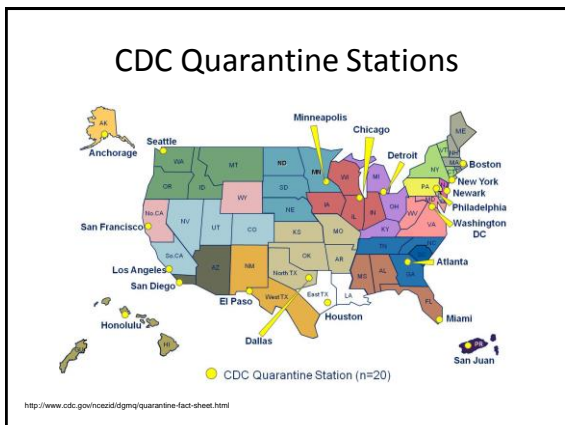
- By September 30, 2014, estimate 8,000-21,000 cases.
- Without additional interventions or changes in community behavior
 - January 20, 2015, estimate 550,000-1.4million cases in Liberia and Sierra Leone.
- Cases in Liberia - doubling every 15-20 days, Sierra Leone and Guinea doubling every 30-40 days.
- Halting the epidemic requires:
 - Approximately 70% of cases cared for in Ebola Treatment Units or, if they are at capacity,
 - Home or community setting with reduced risk of disease transmission, AND
 - Safe burials are provided.

<http://www.cdc.gov/hiv/ebola/outbreaks/2014-west-africa/ga-mmwr-estimating-future-cases.html>
<http://www.cdc.gov/mmwr/preview/mmwrhtml/su63e0923a1.htm>

Ebola-CDC Response


- HHS has contracted with **Mapp Biopharmaceutical Inc.** to develop and manufacture **Zmapp** for early stage clinical safety studies and nonclinical studies.
- NIH will begin initial human testing of an investigational vaccine in September and is working to develop an antiviral drug to treat Ebola.
- U.S. Department of Defense has funded two companies that are developing drug therapies for Ebola and is working with another company to develop an Ebola vaccine.

MDH
Minnesota Department of Health




Ebola-MDH Response

- MDH initiated surveillance for Ebola in persons with recent travel to countries where human cases of Ebola infection have been detected
- MDH has consulted on and ruled out >20 suspect cases; our surveillance system is working



Outreach Strategy

- MDH Health Alerts and targeted guidance to:
 - Infectious disease doctors
 - Infection preventionists
 - Laboratorians
 - Schools and Universities
- MDH staff participated in many television and radio interviews to reach diverse audiences
- Disseminating factsheets at neighborhood and community gatherings through local partners





MDH Community Information Meeting on Ebola
Wednesday, August 6, 2014

Wynfred Russell, local Liberian community leader and public health advocate, speaks to the 150+ attendees while co-presenter Dr. Aaron DeVries, MDH Infectious Disease Medical Director, looks on.

Toolkit

- MDH Ebola Factsheet (English and French)
 - Adapted from CDC's factsheet
- MDH Ebola Frequently Asked Questions (FAQ)
 - Developed using questions and feedback from community leaders, calls we received at MDH, and questions fielded by CDC on Twitter.



- MDH Ebola Media Kit
 - Online/Print Ad
 - Article on Ebola
 - 30-sec PSA script
- Ad placed in a variety of local and diverse media


The risk of getting Ebola is extremely low.

To spread Ebola, a person must:

- Have been in an area where the virus is occurring
- AND**
- Have been in contact with blood or body fluids of a person who is sick with or has died from Ebola
- AND**
- Have developed symptoms

You do not need to avoid someone who recently traveled to a country where Ebola is occurring.

www.health.state.mn.us/divs/idepc/diseases/hnf



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Enterovirus D68

Developing Situation

- Clusters of severe respiratory illness reported to CDC in mid-August
 - Children's Mercy Hospital in Kansas City, MO
 - University of Chicago Medicine Comer Children's Hospital in Chicago, IL
- Children's Mercy Hospital also detected an increase in specimens testing positive for rhinovirus/enterovirus

MMWR 63(36):798-799

Background - Enteroviruses

- Large genus of viruses including serotypes:
 - Coxsackievirus
 - Echovirus
 - Enterovirus
 - Rhinovirus
 - Poliovirus
- Peak transmission in summer and fall
- 10-15 million infections per year
- Associated with a range of symptoms
 - Mild respiratory illness
 - Febrile rash illness
 - Aseptic meningitis and encephalitis

<http://www.cdc.gov/non-polio-enterovirus/about/EV-D68.html>

Enterovirus D68 Detected

- Children's Mercy Hospital
 - 19 of 22 patients positive for EV-D68
 - Age range: 6 weeks to 16 years (median = 4 years)
 - 13 (68%) had a previous history of asthma or wheezing
- University of Chicago Children's Hospital
 - 11 of 14 patients positive for EV-D68
 - Age range: 20 months to 15 years (median = 5 years)
 - 8 (73%) had a previous history of asthma or wheezing

MMWR 63(36):798-799

Background - Enterovirus D68

- Originally detected in California in 1962
- Rarely reported in the United States
- Appears to primarily cause respiratory illness
- Spread via respiratory secretions: saliva, mucus or sputum. Spreads person-to-person when an infected person coughs or sneezes or touches contaminated surfaces
- Infants, children, and teenagers are most likely to be infected

MMWR 63(36):798-799

Health Department Response

Centers for Disease Control

- Initial pathogen detection
- Expanded testing capability
- Infection control guidance

*Minnesota Dept of Health

- Respiratory surveillance
 - IISP
 - SARI
- EV-D68 testing
 - Over 150 specimens tested between mid-August and September 12, 2014
 - Several cases identified
- Hospital capacity analysis

<http://www.health.state.mn.us/divs/depcc/diseases/enterovirus/index.html>

Enterovirus D68 Distribution



As of September 29, 2014

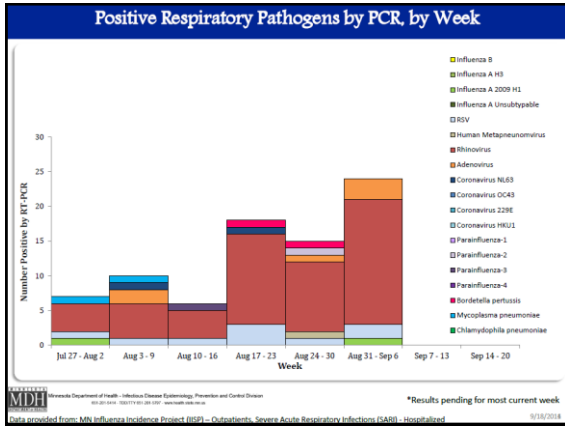
- *443 confirmed cases
- 40 states

Other viruses circulating

- Rhinovirus
- Echovirus
- Coxsackie
- Adenovirus
- RSV

*Lab confirmed by the CDC or a state public health laboratory

<http://www.cdc.gov/non-polio-enterovirus/outbreak/EV-D68-states.html>



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Treatment and Prevention

Treatment
-Supportive

Prevention
-The basics
-No vaccine available

<http://www.cdc.gov/non-polio-enterovirus/about/prevention-treatment.html>

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CDC Centers for Disease Control and Prevention

Emergency Preparedness and Response

Health Alert Network

Acute Neurologic Illness with Focal Limb Weakness of Unknown Etiology in Children

HAN HEALTH ALERT NETWORK

This is an official **CDC HEALTH ADVISORY**

Published on the CDC Health Alert Network
September 26, 2014, 17:00 ET
CDC/4944-00070

Summary

The Centers for Disease Control and Prevention (CDC) is working closely with the Colorado Department of Public Health and Environment (CDPHE) and Children's Hospital Colorado to investigate a cluster of two children hospitalized with acute neurologic illness of unknown etiology. The illness has a similar clinical presentation and distribution of the central and peripheral nervous system (CNS). These illnesses have occurred since August 1, 2014 consistent with an increase in acute illness among children in Colorado. The purpose of this HAN Advisory is to provide awareness of this emerging condition under investigation with the goal of encouraging children with similar clinical presentations through an emerging condition in other geographic areas. Guidance about reporting cases to state and local health departments and CDC is provided. Please disseminate this information to infectious disease specialists, intensive care physicians, pediatric neurologists, neurologists, neurosurgeons, infection preventionists, and primary care providers, as well as to emergency departments and toxicology laboratories.

Background

The CDC, Children's Hospital Colorado, and CDC are monitoring case counts of acute neurologic illness among pediatric patients. The case count...

<http://emergency.cdc.gov/han/han00370.asp>

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Thank You

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