

Health System Preparedness for High Consequence Infectious Diseases

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Identify, Isolate,
Inform, & Initiate Care





Identify, Isolate, Inform & Initiate Care Framework

Standard process to rapidly identify patients who may have risk factors indicating the presence of a high consequence infectious disease.

Key - Screening all patients at the point of entry narrows in on those with epidemiological risk factors consistent with a special pathogen (such as Ebola, MERS-CoV, Marburg, Lassa Fever).



Identify, Isolate, and Inform Principles

Symptom & Travel
Screening
Suspect
case identification

Appropriate isolation
room and PPE
accessibility

Notify medical team(s)
and public health
authority

Initiate stabilizing
care as indicated



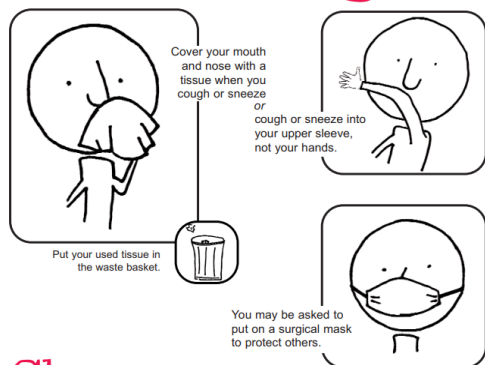
Identify

- ✓ Screen patients at all points of entry
- ✓ Ask questions to identify symptoms: fever, cough, rash, nausea, diarrhea, malaise.
- ✓ Next, assess for epidemiological risk factors:
 - o Recent travel to regions with known outbreaks
 - o Accessing healthcare systems in regions with endemic disease
 - o Contact with ill persons

Build in reliability:

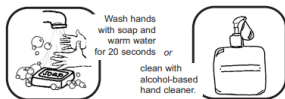
Stop the spread of germs that make you and others sick!

Cover your Cough



Clean your Hands

after coughing or sneezing.



Missouri Department of Health
1111 North Lincoln, Kansas City, MO 64108
816.261.5200 ext. 1111 or 1-877-686-6244
www.health.state.mo.us



APIC
Association for Professionals in Infection Control and Epidemiology, Inc.

- Create a standardized screening process with a plan for staff training.
 - Define who will perform this task
- Who is your first point of contact?
 - What is the back-up plan?
- Post signage to encourage self-reporting of symptoms and masking
- Identify goals for screening to



Identify

Elements of a well-designed screening tool:

- Symptoms first and then travel/epidemiological risk factors
- Defined general symptom list
- Process to identify and update countries of concern

*Consider implementing an electronic process or embedding into the EMR.

- Clinics
- Medical Record (EMR)
- Surgery Centers
- Emergency Departments
- Urgent Care
- Direct Admissions
- EMS arrivals





Identify: Travel and Symptom Screening

Our approach: Electronic Medical Record

We assess 'fever, cough, or rash' as well as history of travel at intake on all patients

Further guidance is provided based on symptoms and country visited

Travel Screening

Communicable Disease Screening

Do you have a new or worsening cough, fever, or rash in the last 7 days?

☐ Cough ☐ Fever ☐ Rash ☐ Unable to assess ☐ None

In Person

- If Yes, please provide a mask to the patient
- Follow other department specific policies for rooming and isolation

Telephone/Triage

- If Yes, ask patient to please wear a mask once they arrive
- Follow department specific procedures if upcoming appointments need to be rescheduled

Travel History

Have you traveled internationally in the last month?

Yes

No

Unable to assess

Enter a location

+ Add Travel

No Documented Travel

You can use the box to the upper left to add a trip to the list

No more travel to load

Accept

Cancel

C14-0

Five Zzztestthree

Female 24 y.o., 10/1/2000

MRN: 04508514

Total Time: 00:08

Code: Need Order (no ACP docs)

COVID-19: Unknown

Isolation: None

Lassa Fever Risk

No assigned Attending

Allergies: Not on File

CHIEF COMPLAINT

No chief complaint on file

Blood Pressure Temp

Heart Rate Respiratory Rate

SpO2 Wt MAP BMI

Guardian: None

PCP w/ Phone: None

Admin Tools

Expand All

Favorites

Alerts (0)

MAR (0)

Acknowledge Orders (0)

Specimens/Tasks (0)

Consults

Essential Flowsheets (0)

Previously Filed

OurPractice Advisory - Zzztestthree, Five

Patient Safety (1)

Lassa Fever Risk: This patient meets travel and symptom criteria for Lassa fever, a viral hemorrhagic fever endemic to West Africa. Give the patient a mask and initiate appropriate isolation precautions (including eye protection for staff).

!! Required Precautions !!

Mask patient

Notify your department lead and follow departmental procedures

Wear appropriate protection (N95 or available mask, eye protection, gloves, gown)

Immediately move to designated private room and initiate appropriate isolation

No phlebotomy or other labs until cleared by provider

Notify

Patient In Person

Notify Infection Control: 402-888-4646

Patient on the Phone

Notify Medical Call Center: 402-559-9908

Review NM Infectious Disease-Specific Protocols

Last Screening Results from Registration

Travel Screening

QuestionResponse

Do you have a new or worsening cough, fever, or rash in the last 7 days?Fever

Have you traveled internationally in the last month?Yes

Do you have any of the following new or worsening symptoms?Fever;Weakness;Vomiting

Travel History

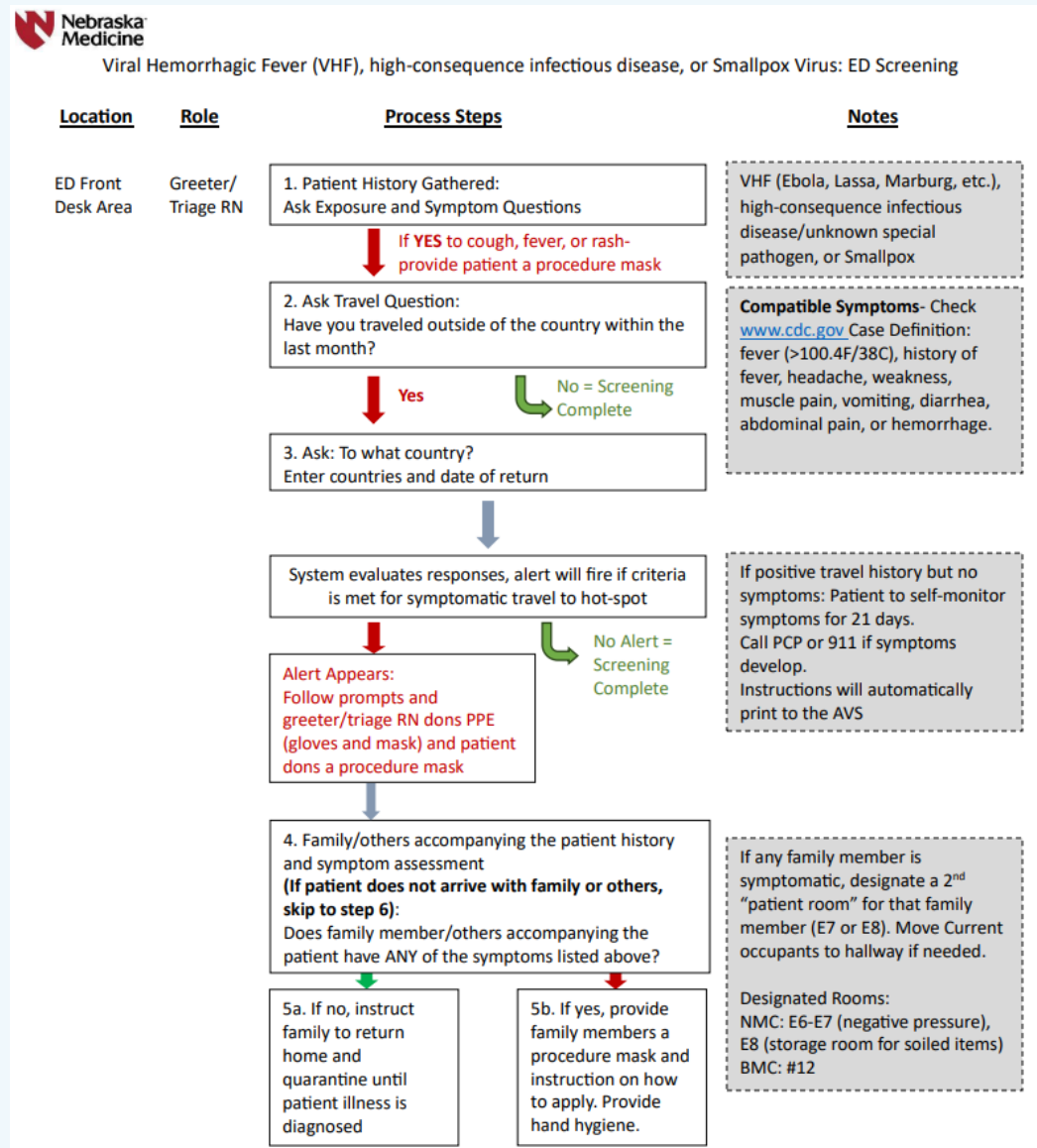
LocationStart DateEnd Date

Benin10/11/24 (defaulted)11/11/24 (defaulted)



Benefits of an Electronic Pathway

- ✓ Allows for system-level awareness
- ✓ Allows for flexibility in editing for best practice
- ✓ Allows for process standardization
- ✓ Step-by-step guide
- ✓ Key contacts
- ✓ Key interventions
- ✓ Reproducible
- ✓ Centrally located
- ✓ Ability to audit compliance



*Excerpt from Nebraska Medicine VHF evaluation process



Case Study #1: The Febrile Returning Traveler

Patient Presentation

- A 42-year-old patient presents to the emergency department with:
 - Fever of 102.1°F / 38.9°C
 - Shortness of breath and cough
 - Muscle pain and malaise
 - Symptoms began 2 days ago

Travel and Exposure History

During screening, the patient reports returning **4 days ago from a country with recent cases of Middle East Respiratory Syndrome (MERS-CoV)**. While visiting family, the patient helped care for an ill relative and visited this relative in the hospital. The patient is unsure of the relative's diagnosis, but knows that they are now critically ill in the ICU.

Discussion Prompt

What findings increase concern for a potential HCID, and what should the emergency department team do next?



Case Study #2: Direct Admission to the ICU

Transfer Request

An outside hospital requests direct ICU admission for a 36-year-old patient with:

- Fever of 103.0°F / 39.4°C
- Hypotension and tachycardia
- Severe fatigue, abdominal pain, vomiting, and diarrhea
- Worsening symptoms despite initial supportive care
- No bleeding or rash reported

Critical Information Identified

During the nurse-to-nurse handoff, the receiving ICU nurse learns that the patient returned **10 days ago from an area experiencing an active viral hemorrhagic fever outbreak**. The patient participated in funeral preparations for a family member who died after an unexplained febrile illness and reports direct contact with bodily fluids. Transport personnel are preparing to leave, and the assigned ICU room has not yet been evaluated for special pathogen precautions.

Discussion Prompt

What findings increase concern for a potential VHF, and what actions should occur before transport and ICU arrival?

Isolate





Isolate

Quick identification creates the ability for prompt isolation. The goal is to prevent transmission to others (patients, staff, and visitors) by prompt isolation and source control

Don't delay – provide the patient a mask and promptly place the patient in a room, ideally negative pressure, but at a minimum:

- Single occupancy
- Door that closes
- Access to bathroom
- Not in a high traffic area

Implement transmission precaution-based PPE
based on the pathogen of concern

Control access – limiting/monitoring staff





Isolate

Consider creating a pathway for staff to refer to:





Isolate: PPE Considerations for Staff, Patient, and Visitors

- **Communicate expectations with patients and family members**
 - Are family/visitors allowed?
 - In person or virtually
 - Is there space to accommodate more than one person in the room?
 - Utilization of PPE – when and how
- **PPE guidance for staff:**
 - Just-in-time training available
 - Accessible PPE
 - Multiple sizes
 - Staff Comfort Level
 - Donning / Doffing checklists





Isolate

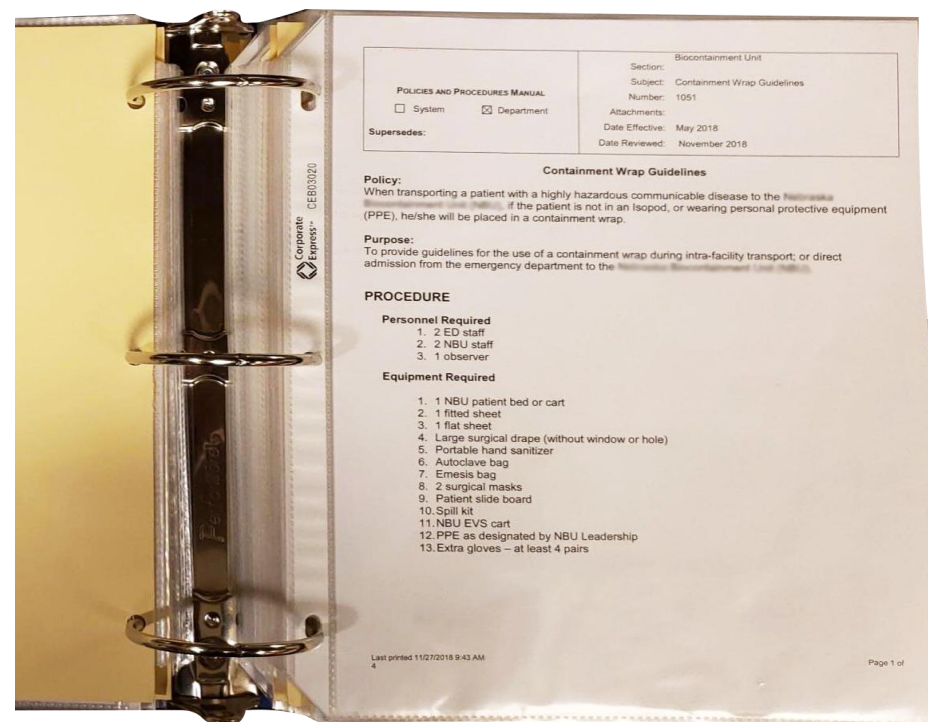
Have resources available to your team at the point of care

Where to find:

- Current SOPs
- Current PPE Checklists
- Current contact lists

Include:

- Staff log sheet
- Supply lists (with location)
- Donning/Doffing





Isolate

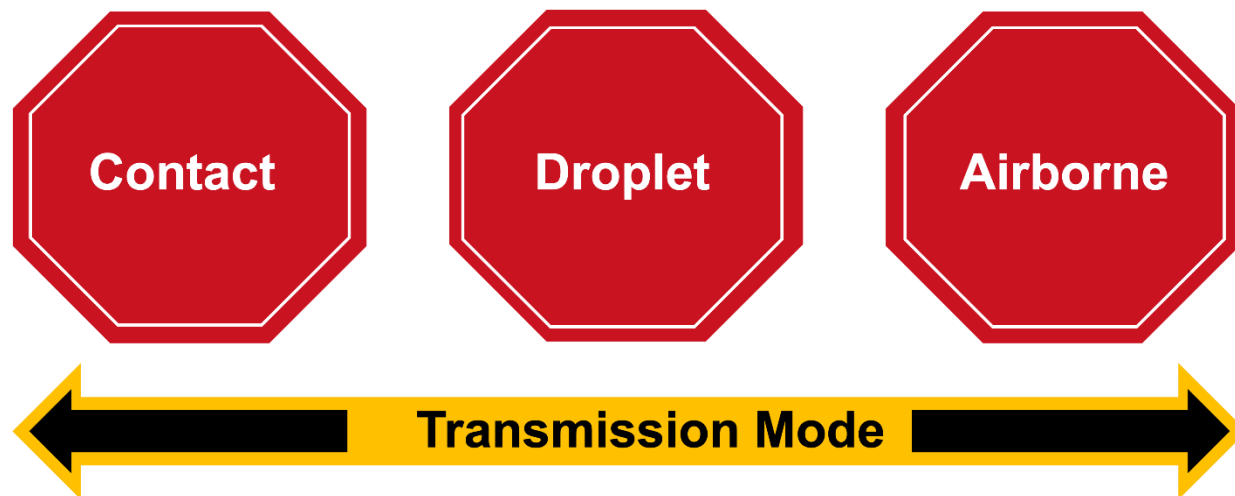
Establish roles:

Direct Care:

- Primary RN
- Donning/Doffing partner
- Provider
- Tasker
- Respiratory Therapist

Indirect Care:

- Dietary
- Pharmacy
- Environmental Services (EVS)
- Laboratory staff



A pathogen can have more than one mode of transmission

- ✓ Utilize room log
- ✓ Utilize Signage
- ✓ Identify donning/doffing zones



Isolate

Staff support and safety considerations

PPE Breach – always use the buddy system with a trained observer when VHF is suspected to reduce risk of breach or cross contamination

PPE fatigue – have a plan for rotating providers in the room

Develop a communication plan – for the patient, for the provider in the room, and staff outside the room

Psychological support – coordinate regular check-ins and remember this can be a distressing event for the

Initiate Care





Initiate Care

Considerations for specimens

Laboratory Support:

- Presumptive & confirmatory diagnosis requires laboratory testing
- Clinical laboratory tests may be needed before diagnostics (e.g. CBC, CMET)
- Complete a laboratory risk assessment prior to a patient presenting

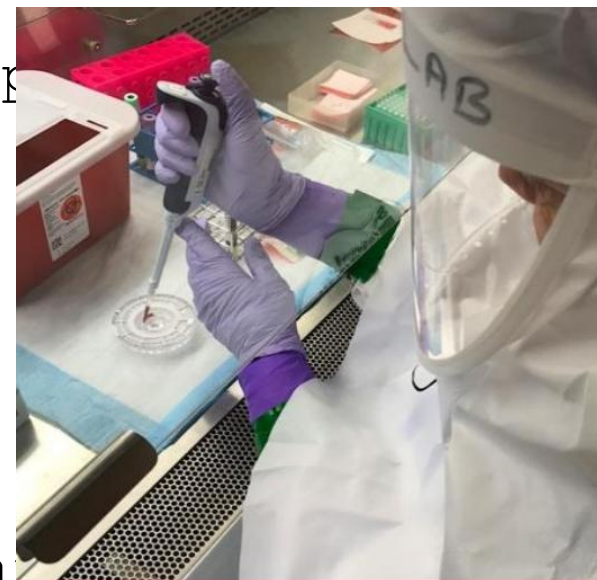
Lab considerations:

- **What specimens need to be collected?**

- Clinical test menu
- Diagnostic testing process
 - Where will the tests be performed-in house or
 - Dedicated equipment to prevent cross-contamination

- **How will the labs be collected?**

- Handling precautions - packaging to include multiple secure bags
- Transport





Initiate Care

Providing stabilizing care:

- Patients that appear to meet criteria may not have a HCID
- Patients that meet case definition may have concurrent infections that require immediate attention
- Patients may present with advanced symptoms/severely ill requiring prompt intervention



Waste generated from a HCID drill

Waste considerations:

- Process to handle or safely sequester waste until diagnosis is obtained or a plan for handling is

Inform





- **Pre-identify internal and external partners**
- **Gather essential information, including:**
 - Initial onset of symptoms
 - Current symptoms with associated onset dates
 - Travel dates and specific locations
 - Known exposures
- **Establish communication with public health partners**
- **Where is Emergency Management in this?**
 - Incident Command or not
 - Emergency Management planning/response tools
 - [NETEC Incident Planning Guide](#)
 - [NETEC Incident Response Guide](#)



Defining clear inform processes is key to notify key stakeholders so the response can escalate appropriately and provide additional resources.

Rapid communication can be predetermined to ensure that testing, isolation & containment precautions, treatment decisions, and transport to a higher level of care can be coordinated safely.



Internal communication (may include) :

- Infectious Disease
- Infection Prevention
- Emergency Department Leadership
(If patient is arriving or ambulatory environment)
- Emergency Management
- Administrators
- Public Relations
- Environmental Services
- Public Safety
- Laboratory



External communication

- Public Health Lab
- EMS/Transport
- Region Specific Resources

Details Matter:

Public Health will want to know:

- Extensive History
- Specific Travel Location
- Dates
- Contacts

Public Health will provide guidance:

- Testing
- Transfer information



HHS Region 7 NSPS

NE

Level 1- Nebraska Medical Center

Level 2- Children's Nebraska

Level 3- CUMC Bergan Mercy

EMS- Omaha Fire Department

KS

Level 3: The University of Kansas Medical Center

EMS- Sedgwick County EMS



IA

Level 2- University of Iowa Health Care

Level 3- Mercy One

Level 3- Unity Point

EMS

Johnson County EMS

West Des Moines EMS

Mercy One EMS

MO

Level 2- Children's Mercy

Level 3- Barnes Jewish Hospital

EMS

Mutual Aid Agreements in State



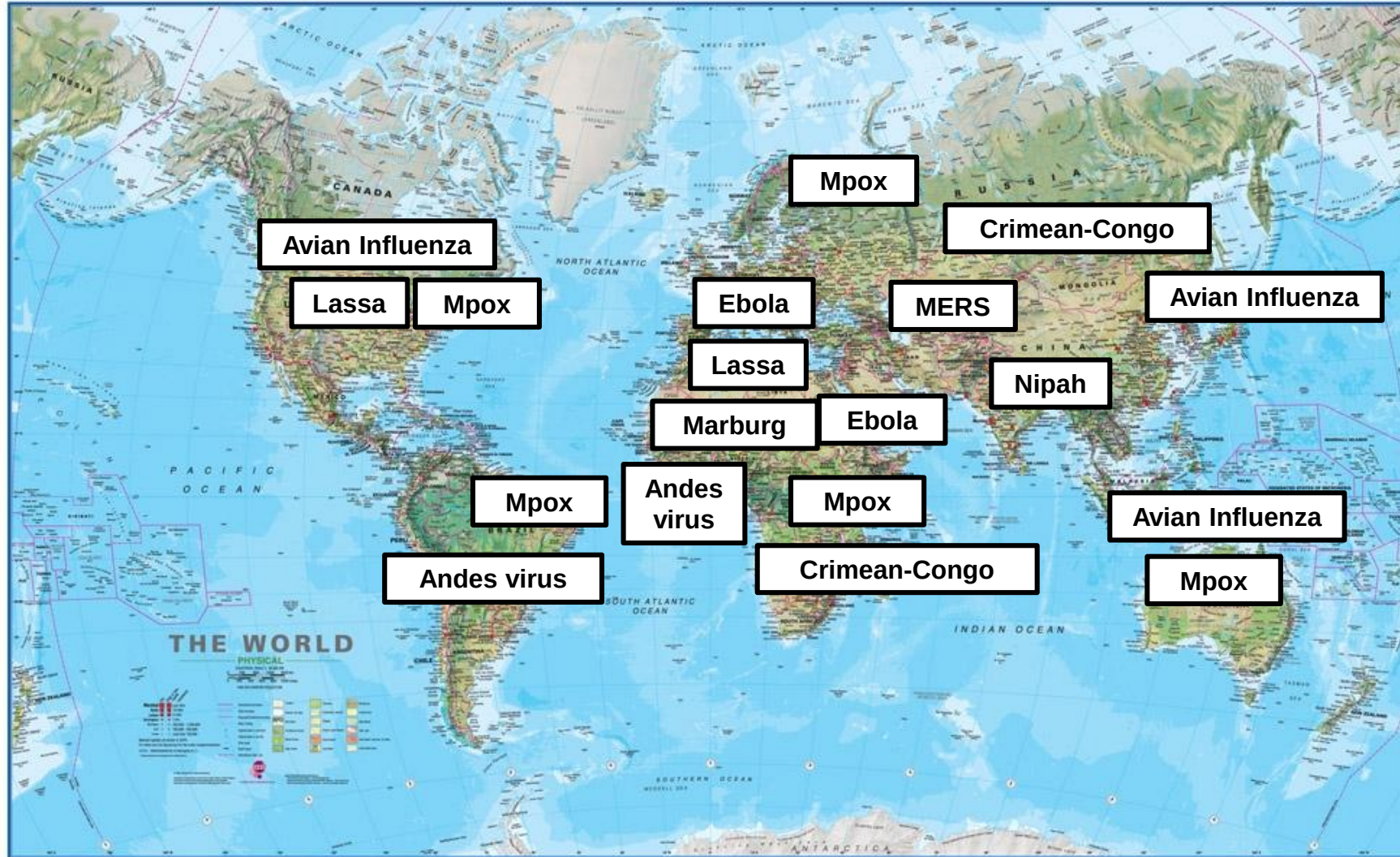
Putting I/I/I into Action: Mystery Patient Drills

- Test Front Line Readiness – starting at point of entry to test I/I capabilities
- Uncover blind spots or identify gaps
- Table-top Exercises – allows the team to talk through scenarios to review policies, roles and decision making
- Full Scale Exercises – can involve EMS, lab or other partners and test plans
- After Action Reports – turn mistakes and opportunities into improvements
- Create a Culture of Safety – empowering staff to engage in the process, call out opportunities, and ensures that leadership is open to learning and improving

Situation Update: High Consequence Infectious Diseases

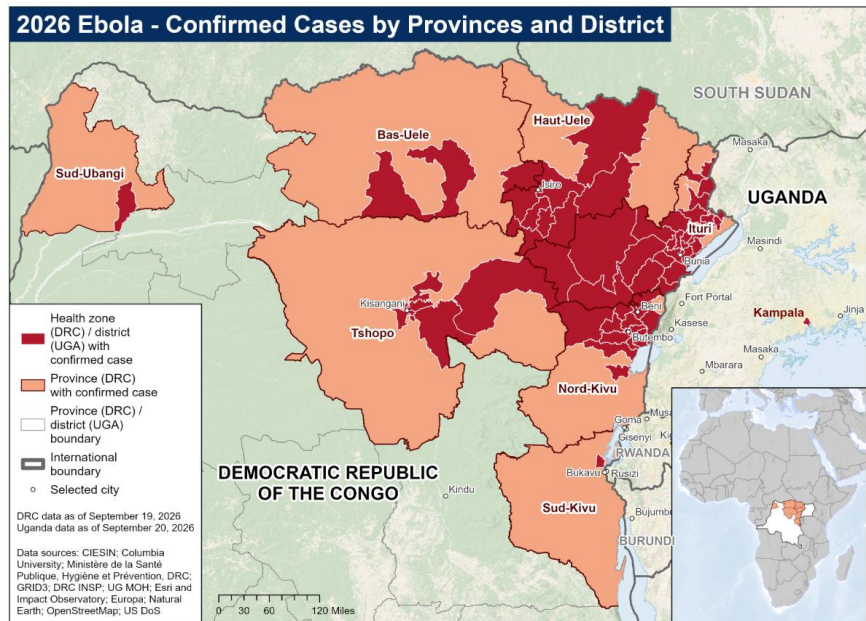


Sampling of (non-COVID) High-Consequence Infectious Disease Outbreaks: 2022-2026

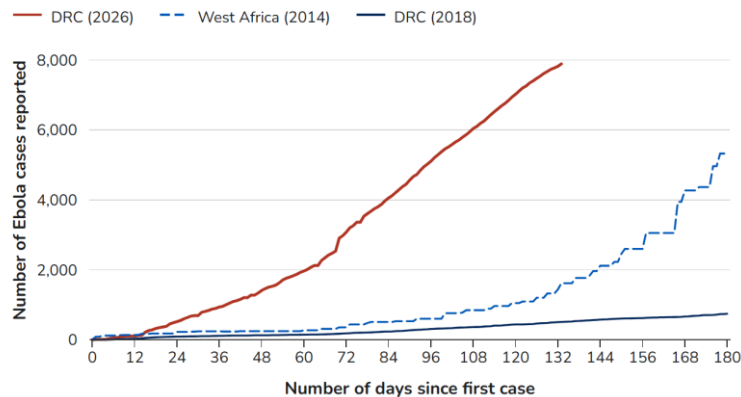


Ebola: Bundibugyo Virus

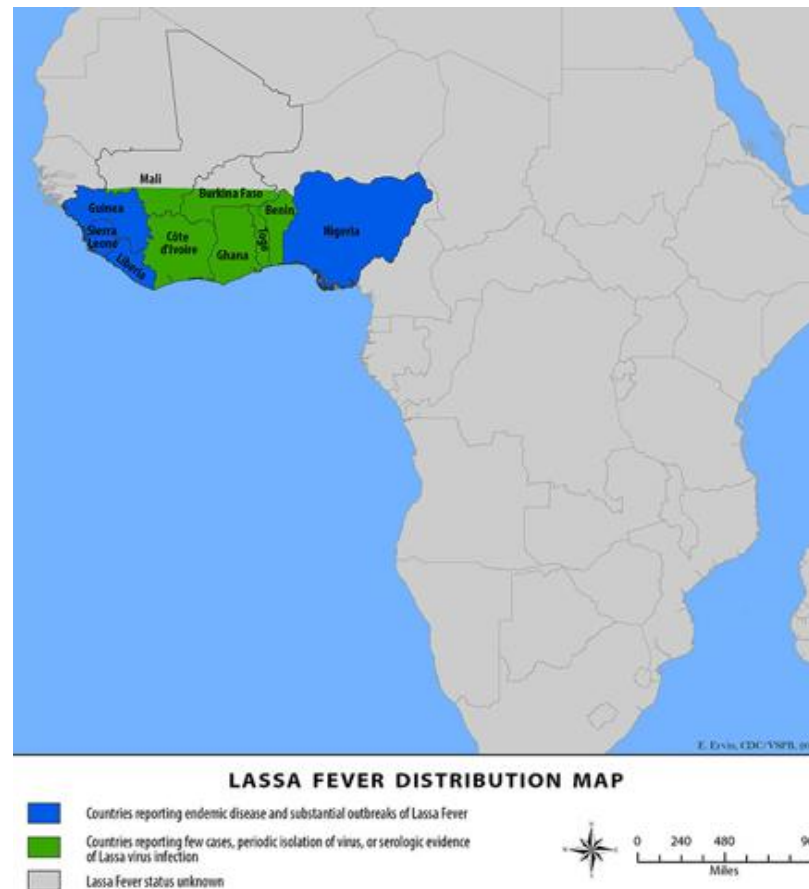
- Outbreak is in the Northeast portion of the Democratic Republic of the Congo (DRC) with initial imported cases to Uganda
 - Bundibugyo strain
- Over 7890 confirmed cases, 3799 deaths
 - Outbreak continues to expand
 - Case fatality around 48%
 - Many contacts of cases, with limited ability to perform contact tracing
- Many challenges in this 'operationally complex' outbreak
 - Delay in recognition, challenges with patient care and infection control, security incidents
 - No approved medications or vaccines for this specific strain



Cases in the first six months of Ebola outbreaks, 2014-2026



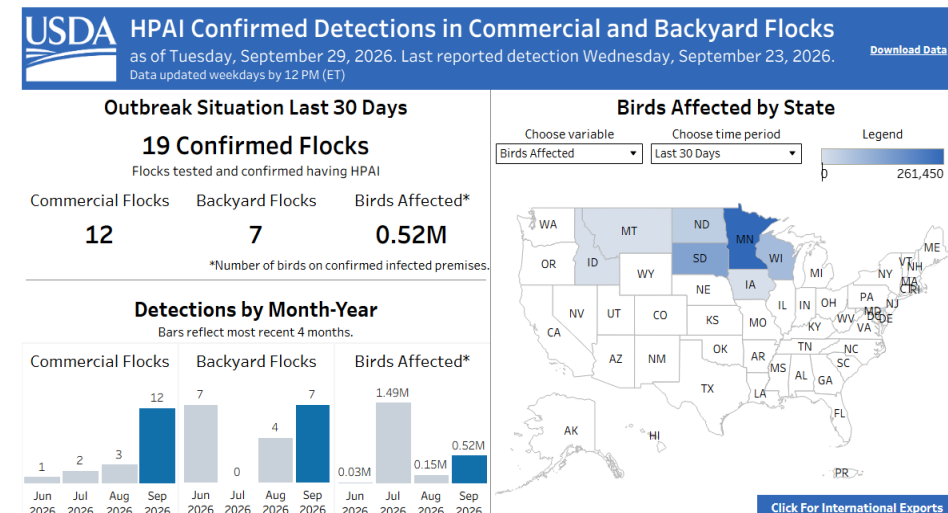
- Viral hemorrhagic fever
- Endemic in West Africa
 - Many cases in Nigeria (over 1000 cases and 259 deaths in 2026 alone)
- Sporadic imported cases, including a fatal case in Iowa in 2024
 - 180 case contacts (96% were HCWs)





Highly Pathogenic Avian Influenza A (HPAI)

- Human infections with HPAI A virus have been reported in 23 countries since 1997
 - About 900 total cases
 - Severe pneumonia and death in about 50% of cases
 - 71 cases in the US, with 2 deaths
- Spillover to humans has been associated with close contact with infected animals, particularly poultry
 - Birds shed the virus in saliva, mucous and feces
 - Humans are exposed through the respiratory tract or mucous membranes
 - Infection in poultry is wide-spread
- What is the risk?
 - Sporadic infections, but no sustained human-to-human transmission noted for HPAI yet
 - If this occurs, there is pandemic potential



Conjunctivitis with subconjunctival hemorrhage (Uyeki et al. NEJM 2024)

Middle East Respiratory Syndrome (MERS-CoV)

- First identified in Saudi Arabia in 2012
 - >2600 confirmed cases, 959 deaths (as of May, 2026)
 - 27 countries, but mostly in Arabian Peninsula
- **Case fatality roughly 37%**
- Transmitted through contact with dromedary camels or infected persons
 - Human-to-human transmission is often healthcare-associated
- Small number of recent cases in 2026



MERS-CoV outbreak following a single patient exposure in an emergency room in South Korea: an epidemiological outbreak study

Sun Young Cho*, Ji-Man Kang*, Young Eun Ha, Ga Eun Park, Ji Yeon Lee, Jae-Hoon Ko, Ji Yong Lee, Jong Min Kim, Cheol-In Kang, Ik Joon Jo, Jae Geum Ryu, Jong Rim Choi, Seonwoo Kim, Hee Jae Huh, Chang-Seok Ki, Eun-Suk Kang, Kyong Ran Peck, Hun-Jong Dhong, Jae-Hoon Song, Doo Ryeon Chung, Yae-Jean Kim



Samsung Hospital, Seoul, S. Korea

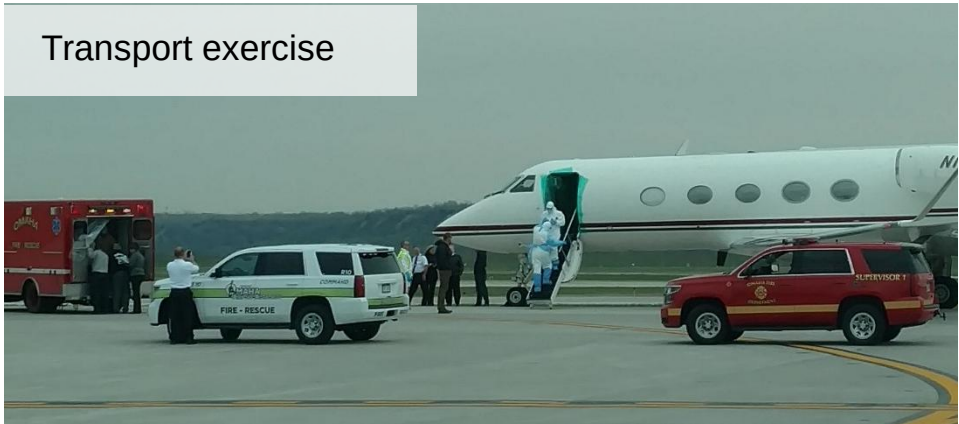


Resources

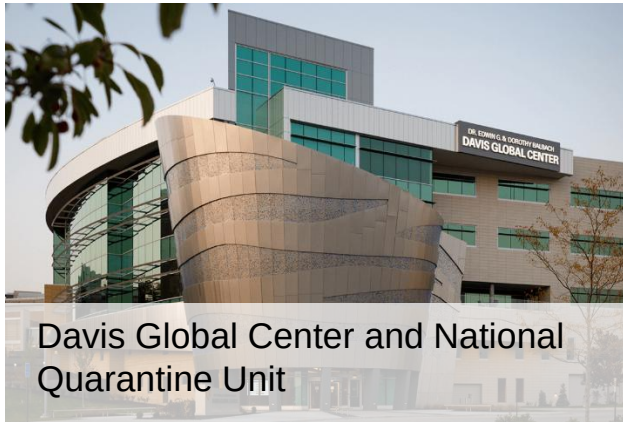
- Websites
 - National Emerging Special Pathogens Training and Education Center (NETEC)
www.NETEC.org
 - Center for Infectious Disease Research and Policy (CIDRAP)
www.cidrap.umn.edu
 - Program for Monitoring Emerging Diseases (ProMED)
<https://www.promedmail.org/>
 - Beacon (Boston Center on Emerging Infectious Diseases)
<https://beaconbio.org/en>
 - World Health Organization www.who.int/en
 - CDC www.cdc.gov
- E-mail subscription services
 - UNMC Global Center for Health Security “The Transmission”
<https://www.unmc.edu/healthsecurity/transmission/>
 - Johns Hopkins Center for Health Security
www.Centerforhealthsecurity.org/resources/index.html



Region VII RESPTC Training Course



Transport exercise



Davis Global Center and National Quarantine Unit



National Disaster Medical Systems (NDMS) Training



HCID Transport



Nebraska Biocontainment Unit Training Session



Omaha Fire Dept HCID training session