

Viral Hemorrhagic Fever Investigation Guideline

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Viral Hemorrhagic Fevers

Disease Management and Investigative Guidelines

CASE DEFINITION

With the exceptions of Hantavirus, Yellow and Dengue fevers,¹ there are no specific case definitions for viral hemorrhagic fevers (VHF). The final diagnosis will need to be made by an infectious disease specialist based upon the available clinical and laboratory information.

A. Laboratory Tests:

The State Public Health Laboratory does not provide testing and sends all isolates to the CDC. Specimens sent to CDC must have prior authorization from the State Epidemiology Program before they are processed.

- Remarks: For additional information and/or questions concerning isolate collection, sample transport and laboratory kits call (785) 296-1620. An online manual of laboratory tests is available at <http://www.kdhe.state.ks.us/labs/links.html>

B. Bioterrorism Potential:

VHF agents including the filoviruses' (*i.e.*, Ebola, Marburg) and arenaviruses' (*i.e.*, Lassa, Machupo) are considered Category A bioterrorism agents. If you suspect that you are dealing with a bioterrorism situation contact the local Health Officer, the on-call epidemiologist (local) and KDHE (1-877-427-7317) immediately.

C. Outbreak Definition:

With the exception of Dengue fever along the Mexican border region, a single case of VHF is so unusual that it should be reported and investigated immediately with adequate resources applied to the investigation.

INVESTIGATOR RESPONSIBILITIES

A. Investigation Tasks and Activities:

- Conduct an epidemiological investigation to identify the possible source of infection and to locate additional cases and/or contacts in the community.
- Report all confirmed and probable cases to the Bureau of Epidemiology & Disease Prevention, using established methods.
- Active surveillance for all contacts for the appropriate incubation period following their last exposure to a case.
 - If contacts become symptomatic, then consider them as a probable case and initiate proper isolation precautions.

¹ Hantavirus and Yellow Fever specific information are provided in their own specific Disease Management and Investigative Guidelines.

- Initiate control and prevention measures to prevent further spread of disease.
- If necessary, prepare and distribute a press release in conjunction with the senior health department staff and/or Bureau of Epidemiology & Disease Prevention staff.

B. Notifications:

- Report by telephone all suspect and/or confirmed cases to the local Health Officer, the on-call epidemiologist (local) and KDHE (1-877-427-7317) within 4 hours of initial report.
- Mail or deliver notification letter and/or disease fact sheet to case, contacts and other appropriate individuals or groups (if appropriate and/or requested).

EPIDEMIOLOGY

Most of the VHF viruses are specific to parts of the world where their natural reservoirs exist (*i.e.*, wild animals, birds, mosquitoes and ticks). With the exception of Dengue fever in areas along the Mexican border and a newly identified arenavirus in California, there are no identified reservoirs for any VHF in the United States or Canada. Although no human cases of Ebola have occurred in the United States, cases have reported in imported non-human primates.

DISEASE OVERVIEW

A. Agent:

Viral Hemorrhagic Fevers are caused by a variety of RNA viruses from several different viral families, including:

- Filoviruses: Ebola and Marburg.
- Arenaviruses: Lassa, Junin (Argentine VHF), Machupo (Bolivian VHF), Sabia (Brazilian VHF) Guanarito (Venezuelan VHF).
- Bunyaviruses: Crimean-Congo HF, Rift Valley fever, Hantavirus.
- Flaviviruses: Dengue, Yellow Fever, Omsk HF, Kyasanur HF.

B. Clinical Description:

Specific signs and symptoms vary by the type of VHF, but initial signs and symptoms usually include: marked fever, fatigue, dizziness, muscle aches, loss of strength, and exhaustion. As the disease progresses, additional symptoms may include: rash, diarrhea, swelling around the eyes, flushing, redness of the eyes, low blood pressure, sustained fever, and sweats. The case may become prostrate and develop a sore throat, chest and/or abdomen pain and petechiae and/or ecchymosis (*i.e.*, bruising). Bleeding may occur from the mucous membranes and shock, multi-organ dysfunction, encephalopathy, hepatitis, tremors, and a reduced white blood count may also occur. Depending upon the specific agent and strain the case-fatality rate ranges from 10-90%.

- **Differential Diagnosis:** Influenza, hepatitis, staphylococcal or other bacterial sepsis, toxic shock syndrome, rubella, measles, and hemorrhagic smallpox. Non-infectious diseases that present with bleeding also must be excluded (*e.g.*, hemolytic uremic syndrome, leukemia, etc.).

C. Reservoirs:

Not all of the reservoirs have been identified for all of the VHFs. However, rodents are known to be the carriers of Lassa, Junin, Machupo, Guanarito, Crimean Congo hemorrhagic, Hantavirus and Rift Valley fever. Mosquitoes, ticks and animals (*e.g.*, rodents, foxes, hares, and ground-feeding birds) are known to carry bunyaviruses. There are no identified reservoirs for any VHF in the continental U.S. or Canada with the exception of Dengue fever (*i.e.*, mosquitoes) in areas along the Mexican border and a newly identified arenavirus in California (*i.e.*, rodents).

D. Mode(s) of Transmission:

The mode of transmission for the index cases of all VHF's is through direct physical contact with the infectious blood and/or secretions from an infected person, animal, tick or mosquito. Nosocomial aerosol and/or respiratory transmission is strongly suspected with Marburg, Ebola, Lassa, and Crimean-Congo HF. Fomites may also serve as a source of infection and medical equipment that has not been properly cleaned or sterilized has been responsible for the spread of some VHF's.

E. Incubation Period:

Incubation periods are agent specific and are presented below:

- Filoviruses: 2 –21 days.
- Arenaviruses: 6 – 17 days.
- Bunyaviruses: 7 – 42 days.
 - Rift Valley Fever and Crimean-Congo HF: 2 – 10 days.
- Flaviviruses: 3 – 14 days.

F. Period of Communicability:

Cases may be infectious for a variable period of time preceding the onset of symptoms (depending upon the agent) throughout the entire course of their illness. Virus may remain in the blood and secretions for months after recovery. Corpses, contaminated bedding, clothing and medical equipment may remain infectious for several days.

G. Susceptibility and Resistance:

Susceptibility is universal and immunity follows recovery from infection; however, long-term immunity has not been documented in all cases.

H. Treatment:

There are no effective treatments, supportive care may include: intensive hemodynamic, hematologic, and respiratory care. Ribavirin may be useful and

available as an investigational drug for arenavirus and bunyaviruses but has not been shown to be useful against filovirus or flavivirus'. Injections, aspirin, and anticoagulants are contraindicated.

STANDARD CASE INVESTIGATION AND CONTROL METHODS

Standard investigation activities include the following: 1) Confirmation of the diagnoses (*i.e.*, case definition), 2) Collection of relevant demographic and clinical data (*e.g.*, age, sex, disease syndromes and/or symptoms), 3) Determination of the setting (*e.g.*, community, hospital, daycare or other facility), and 4) Investigation of possible epidemiologic links among cases (*e.g.*, cluster, family, co-workers). This can be accomplished by completing the appropriate sections of the VHF investigation form. Most of the information can be obtained from the case person, healthcare provider and/or the medical record. The investigator may want to also review previous reported cases in the region and/or state. Additional investigation activities include:

A. Identify Potential Source of Infection:

To help identify the source of the infection, the investigator should focus their investigation within the incubation period of the specific VHF agent and focus their investigation on the following potential source(s) of infection.

- Travel history, including dates and places for travel during the incubation period.
- Exposure to mosquitoes/ticks, include dates and places during the incubation period.
- Exposure to rodents and rodent excrement, include dates and places during the incubation period.
- Employment type (*e.g.*, laboratory worker, primate handler, etc.). List address and/or location
- Reports of febrile illness or unexplained deaths in the area.

B. Identify Potential Exposed Individuals / Populations (Contacts):

A contact is defined as any person with a parenteral (*i.e.*, needlestick) or mucous membrane exposure to the blood or secretions of a case of any of the VHFs. Individuals with respiratory exposure to a case of Marburg, Ebola, Lassa, and Crimean-Congo HF are also considered contacts.

C. Isolation, Work and Daycare Restrictions:

Hospitalized cases should be placed in isolation with strict adherence to universal precautions including: the use of gowns, gloves, masks and needle precautions. Contaminated surfaces and articles should be cleaned with an approved disinfectant. If Marburg, Ebola, Lassa, or Crimean-Congo HF is suspected, strict respiratory isolation should also be observed including the use of negative pressure rooms with an anteroom for changing protective barriers and the use of N-95 respirators.

D. Follow-up of Cases:

- Because blood and secretions may contain virus for an undetermined amount of time after illness, recovering cases should be monitored for infectiousness (specific monitoring and specimens will be determined by an infectious disease specialist).
- Recovering VHF cases should refrain from sexual activity for 3 months after clinical recovery.
- Patients with Lassa infections are at risk of deafness and hearing acuity and should be monitored during recovery.

E. Protection of Contacts:

- Asymptomatic contacts should monitor their temperatures 2x/day during the surveillance period which is dependent upon the maximum incubation period for the specific agent. The local health department should conduct telephone or home visit monitoring of this temperature surveillance.
 - If a contact develops a body temperature $\geq 101^{\circ}\text{F}$ [38.3°C], place the contact in the hospital with strict isolation precautions.
- Asymptomatic contacts may continue their routine daily activities, but should be advised not to travel outside of the area during the surveillance period.

F. Environmental Measures:

Depending on the VHF agent, rodent control activities may be enhanced during an outbreak.

G. Education:

Households where VHF cases have been identified must receive specific information on personal hygiene, waste disposal, and limiting exposure to possibly infected materials and/or animals. Instructions will be specific to the agent involved. Consult with an infectious disease specialist or the state epidemiologist for specific instructions.

MANAGING SPECIAL SITUATIONS

A. Post-mortem Practices:

In some situations, contact with the body of a case(s) that expired has been identified as a source of transmission. Mortuaries need to be alerted to any suspect or confirmed VHF case and only trained personnel should handle the bodies of the deceased. No embalming should be done and the prompt burial or cremation of the body is recommended. Autopsies should be discouraged; if they are performed, they should only be completed by trained persons wearing proper personal protection equipment (PPE).²

² The proper selection and use of PPE is beyond the scope of this document.

B. Bioterrorism:

With the exception of Dengue fever in the Mexican border region, any case of VHF in the United States is a highly unusual event and must be investigated vigorously. Every effort should be made to promptly determine if the case has recently traveled to a region of the world where the VHF viruses are indigenous or if the individual works with any of the viruses in a laboratory setting. If not, extraordinary etiologies, including bioterrorism, must be considered. If you suspect you are dealing with a bioterrorism event, contact one of the following numbers immediately in order of priority as shown:

- Kansas On-call Epidemiologist 877-427-7317
- CDC Bioterrorism response coordinator 404-639-0385
- An announced threat of dissemination, though most likely a hoax, should be taken seriously and the State Health Department and the local FBI Duty Officer notified. 816-512-8200

A. Safety Considerations for Public Health and Other Health Care Professionals:

Because some VHF's may be transmitted via aerosol and the possibility of person-to-person transmission exists (depending upon the agent) strict adherence to universal precautions including: the use of gowns, gloves, masks and needle precautions is mandatory.

B. Definition of the Population-at-Risk:

Defining the population-at-risk is essential to guide response activities. Public health authorities will play the lead role in this effort, but must consult with law enforcement, emergency response and other professionals in the process. The definition of the population-at-risk may have to be re-evaluated and redefined at various steps in the investigation, assessment and response to a bioterrorist event. Once the mechanism and scope of delivery has been defined, the identification of the symptomatic and asymptomatic exposed individuals can be completed and recommendations for the treatment and/or chemoprophylaxis made.

C. Specific Control Measures Include:

- Decontamination: Contaminated surfaces and articles should be disinfected by use of approved disinfectants, autoclaving, washing in hot cycles or other appropriate means. Infectious corpses should be handled minimally by being sealed in leak-proof material and buried or cremated promptly.
- Post-exposure prophylaxis (PEP): None.
- Isolation: Cases should be placed in isolation with strict adherence to universal precautions including: the use of gowns, gloves, masks and needle precautions. Contaminated surfaces and articles should be cleaned with an approved disinfectant. If Marburg, Ebola, Lassa, or Crimean-Congo HF is suspected, strict respiratory isolation should also be

- observed including the use of negative pressure rooms with an anteroom for changing protective barriers and the use of N-95 respirators.
- Quarantine: Quarantine measures are unlikely. However, in large-scale events, targeted quarantine measures may be necessary to limit the movement of exposed individuals.
 - Line lists: A central responsibility of the investigative staff is to maintain detailed line lists of cases, suspect cases, exposed, and potentially exposed individuals with accurate identifying and locating information as well as appropriate epidemiological information. These lists will be essential for early identification of infection among the exposed.
 - Pharmaceuticals: In the event of an outbreak of VHF, adequate quantities of appropriate pharmaceuticals will be procured from the Strategic National Stockpile. Procurement, storage, and distribution will be coordinated through the Kansas Department of Health and Environment. Local and state public health officials must play a central role in determining which individuals should have priority for receipt of limited pharmaceuticals.

ADDITIONAL INFORMATION / REFERENCES

- American Academy of Pediatrics. 2003 *Red Book: Report of the Committee on Infectious Disease, 26th Edition*. Illinois, Academy of Pediatrics, 2003.
- Heymann. D., ed., *Control of Communicable Diseases Manual, 18th Edition*. Washington, DC, American Public Health Association, 2004.
- Case definitions for Infectious Conditions Under Public Health Surveillance, Division of Public Health Surveillance and Informatics, Nationally Notifiable Infectious Diseases, United States 2005. Available at: <http://www.cdc.gov/epo/dphsi/PHS/infdis2005.htm>
- Kansas Department of Health and Environment, Bureau of Epidemiology. *Disease Protocols*, 2001.
- County of Los Angeles, Department of Health, Public Health Programs and Services, *Communicable Diseases Manual*, June 2003.
- Oklahoma State Department of Health, Communicable Diseases Division. *The Epidemiologic Follow-up of Communicable Diseases in Oklahoma*, 2001.
- Missouri Department of Health and Senior Services, Section of Communicable Disease Control & Veterinary Public Health, *Communicable Disease Investigation Reference Manual*. 2001.
- Oregon Health Services Website. Available at <http://www.ohd.hr.state.or.us>
- Commonwealth of Massachusetts, Department of Public Health Website. Available at <http://www.state.ma.us/dph/>
- CDC Website. Available at <http://www.cdc.gov/health/default.htm>

Viral Hemorrhagic Fever

Filovirus Arenavirus Bunavirus Flavivirus

Case # _____

- Confirmed
 Probable
 Suspect

Report Source

Lab Hospital Physician / HCP Other _____

Reporter Name _____

Primary M.D. / HCP _____

County _____

Report Date / /

Phone () -

Phone () -

Case Identification

Name: _____
Last First Initial

Address: _____
Street City

Zip: - Phone: () -

Alternative Contact: Parent Spouse Other _____

Name: _____
Last First Initial

Phone: () -

Workplace / School / Daycare: _____

Occupation / Grade: _____

Demographics

Gender: Male Female

Birth Date: / /

Or if unknown, Age:

Race: (check all that apply)

White Black Asian

American Indian / Alaska Native

Native Hawaiian / Pacific Islander

Unknown

Hispanic / Latino: Yes No

Clinical Information

Clinical Data Onset date / / Diagnosis date / / Illness duration: days

Signs and Symptoms

Y N UNK N/A

- Headache
 Backache
 Muscle Pain
 Fever Temperature . F / C
 Nausea
 Vomiting
 Lethargy
 Jaundice
 Reduced Urine Volume _____
 Bleeding gums, nose
 Blood in vomit, stool
 Rapid pulse, shock
 Other, Specify _____
 Other, Specify _____

Hospitalization

Y N UNK N/A

Hospitalized for this illness

Hospital name _____

Admit date / /

Discharge date / /

Y N UNK N/A

Died from illness Death date / /

Autopsy

Laboratory Data

Collection date / /

Y N UNK N/A

Specimens collected for lab testing

Type _____ Date / / Result _____

Type _____ Date / / Result _____

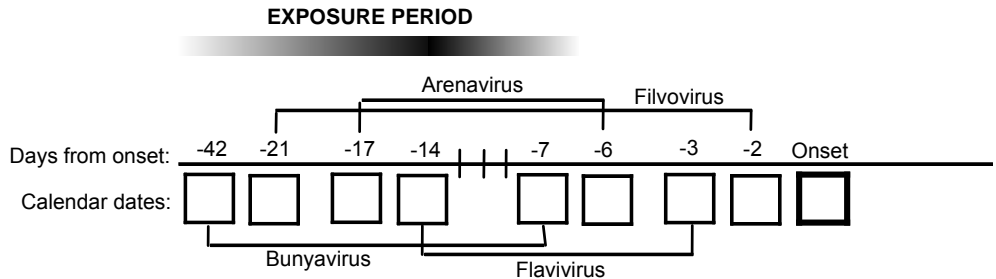
Type _____ Date / / Result _____

Notes: _____

Medication, Treatment, and/or Medical Procedures

Infection Timeline

Enter onset date in heavy box.
 Count forward and backward to
 calculate probable exposure
 and contagious periods.



Exposure

- Y N UNK N/A**
- Has the case traveled outside of the state, out of the country, or outside usual routine?
 Out of: County State Country
 Destinations/Dates: _____
- Foreign arrival (e.g. immigrant, refugee, adoptee, visitor) Specify country: _____
- Contact with recent foreign arrival? Specify country: _____
- Case knows anyone with similar symptoms?

- Y N UNK N/A**
- Congregate living Type
 Barracks Corrections Long term care
 Dormitory Boarding school Camp
 Shelter Other _____
- Outdoor or recreational activities (e.g. lawn mowing, gardening, hunting, hiking, camping, sports, yard work)
- Employed in laboratory?
 Occupational exposure? Specify occupation: _____
- Date of exposure []/[]/[]
- Blood, organ or tissue transplant recipient
 Date of exposure []/[]/[]

Notes: _____

Epi-Linkage

During the exposure period, was the case...

- Y N UNK N/A**
- Associated with a known outbreak?

Has the initial case been reported? Yes No

- Specify nature of contact: Household Sexual
 Daycare Other _____

If yes to any question, specify relevant names days, places, etc:

Notes: _____

- Case could not be interviewed No risk factors or exposures could be identified

Contact Management and Follow-up

Name: _____
Last First Initial

Address: _____
Street City

Zip: [][][][]-[][][][] Phone: ([][][]) [][][]-[][][][]

Date of Birth [][]/[][]/[][][][]

Exhibiting Signs/Symptoms: Yes No

Contact Type: Household Sexual

Daycare Other _____

Call Back Date: [][]/[][]/[][][] N/A

Name: _____
Last First Initial

Address: _____
Street City

Zip: [][][][]-[][][][] Phone: ([][][]) [][][]-[][][][]

Date of Birth [][]/[][]/[][][][]

Exhibiting Signs/Symptoms: Yes No

Contact Type: Household Sexual

Daycare Other _____

Call Back Date: [][]/[][]/[][][]

Name: _____
Last First Initial

Address: _____
Street City

Zip: [][][][]-[][][][] Phone: ([][][]) [][][]-[][][][]

Date of Birth [][]/[][]/[][][][]

Exhibiting Signs/Symptoms: Yes No

Contact Type: Household Sexual

Daycare Other _____

Call Back Date: [][]/[][]/[][][] N/A

Name: _____
Last First Initial

Address: _____
Street City

Zip: [][][][]-[][][][] Phone: ([][][]) [][][]-[][][][]

Date of Birth [][]/[][]/[][][][]

Exhibiting Signs/Symptoms: Yes No

Contact Type: Household Sexual

Daycare Other _____

Call Back Date: [][]/[][]/[][][] N/A

Name: _____
Last First Initial

Address: _____
Street City

Zip: [][][][]-[][][][] Phone: ([][][]) [][][]-[][][][]

Date of Birth [][]/[][]/[][][][]

Exhibiting Signs/Symptoms: Yes No

Contact Type: Household Sexual

Daycare Other _____

Call Back Date: [][]/[][]/[][][] N/A

Notes: _____

Public Health Issues

Y N UNK N/A

Outbreak related

Other, specify: _____

Public Health Actions

Initiate contact investigation

Other, specify: _____

Other, specify: _____

VHF Investigation and Documentation Checklist

TASK	DATE	INITIALS
Report Received:	___/___/___	_____
Assigned to Investigator:	___/___/___	_____
Notified State Epidemiology Program: Time: _____	___/___/___	_____
Reported to State Surveillance System:	___/___/___	_____
Met Case Definition: ¹ <input type="checkbox"/> Yes <input type="checkbox"/> No Physician Name: _____	___/___/___	_____
Case Interviewed: MOGE: <input type="checkbox"/> Yes <input type="checkbox"/> No Reason: _____	___/___/___	_____
Contacts Identified and/or Interviewed: <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> None If Yes, Name(s): _____	___/___/___	_____
<hr/>		
Letter and Information Sheet Sent:	___/___/___	_____
Active Surveillance Neg. among the contacts: ²	___/___/___	_____
Completed Investigation Worksheet:	___/___/___	_____
Case Closed and Filed:	___/___/___	_____
Comments: _____		

Case Name: _____ **Number:** _____

Principal Investigator: _____ **Date:** ___/___/___

Case Reviewed By: _____ **Date:** ___/___/___

¹ Note: Most VHF do not have an "official" public health case definition; use the date of the physicians diagnosis as case definition date and note the physicians name that made the diagnosis.

² All contacts should be checked for S/S consistent with the VHF in question 2X/day for 2 incubation periods. Specifics are outlined in the investigation protocol.

KANSAS NOTIFIABLE DISEASE FORM

Today's Date: ___ / ___ / ___

Patient's Name: _____
Last First Middle

Day Phone: _____ **Evening Phone:** _____

Residential Address: _____

City: _____ **Zip:** _____ **County:** _____

Ethnicity: Hispanic or Latino Not Hispanic or Latino Unknown

Race: American Indian/Alaska Native Asian Black or African American
Native Hawaiian or Other Pacific Islander White Unknown
(Circle all that apply)

Sex: M F **Date of Birth:** ___ / ___ / ___ **Age if DOB unknown:** _____

Disease Name: _____

Symptoms:
Onset: ___ / ___ / ___ **State the 3 most prominent symptoms:**

Symptom 1: _____ Symptom 2: _____ Symptom 3: _____

Outbreak associated? Y N Died? Y N

Institutional Residence? None Nursing Home Correctional Residential Hospital Psych

Physician Name: _____ **Physician Phone:** _____

Laboratory Information:

Specimen Collection Date: ___ / ___ / ___ Date Reported To You: ___ / ___ / ___

Name of Test Performed: _____ Results of Test: _____

Name of Laboratory: _____ Laboratory Results Attached? Y N

Treatment Information:

Date of Treatment: ___ / ___ / ___ Treatment Type and Dosage: _____
Treatment Status: Complete On-going Discontinued

Name of person reporting: _____ **Phone:** _____

Comments: _____

Mail reports to your local health department or to: BEDP – Disease Surveillance, 1000 SW Jackson, Suite 210, Topeka, KS 66612-1274. Reports can also be *faxed toll free* to: 1-877-427-7318. (Rev. 04/2004)

Case and Contact(s) Management Worksheets

Contents:

- **Case Activity and Travel Worksheet – Infectious Period**
To be used to track activities and travel of a case during the infectious period.
- **Case Transportation Worksheet – Infectious Period**
To be used to track detailed travel activities of a case during the infectious period.
- **Primary Contact(s) / Site Worksheet**
To be used to create a line listing of contacts of a case. May also be used to identify sites and/or places that infections may have occurred (e.g., daycare, school, etc.).
- **Contact Tracking / Tracing Form**
To be used for individual tracking of all contacts identified on the Primary Contact(s) / Site Worksheet.
- **Contact Surveillance Form**
To be used to track the signs and symptoms associated with the disease amongst the contacts.

Worksheet Instructions

- **Case Activity and Travel Worksheet — Infectious Period:** This worksheet is to be used to track the case’s daily activities and travel during the infectious period. It is intended to help the investigator capture detailed information in an organized format.
 - The upper portion of the worksheet contains information specific to the case including name and information specific to the disease including incubation period, treatment dates, etc.
 - The upper portion also contains a Case Number. The Case Number is a number assigned by the investigator to each case. It is important to assign this number as it serves as the link between this worksheet and the Case Transportation, Primary Contact, Contact Tracking and Contact Surveillance Worksheets.
 - The lower portion of the worksheet is a “blank” calendar that the investigator may use to record the case’s activities and travel during the infectious period. The “key” to the checkboxes is located on the bottom of the worksheet.
- **Case Transportation Worksheet - Infectious Period:** This worksheet is to be used if there is a need to capture detailed travel information (*i.e.*, airline flight information) about a case and/or contacts. It is anticipated that this worksheet may never be used but is included in the case/contact management worksheets for use should the situation arise.
 - The upper portion of the worksheet contains information specific to the case including name and information specific to the disease including incubation period, treatment dates, etc.
 - The upper portion also contains a Case Number. The Case Number is a number assigned by the investigator to each case. It is important to assign this number as it serves as the link between this Worksheet and the Case Activity, Primary Contact, Contact Tracking and Contact Surveillance Worksheets.
 - The lower portion of the worksheet is structured to allow the investigator to capture detailed travel information.
- **Primary Contact(s) / Site Worksheet:** This worksheet is to be used to create a line listing of the contacts of a case.
 - The upper portion of this worksheet contains information about the case and the lower portion contains the names and key information about the contacts. The Case Number is a number assigned by the investigator to each case. It is important to assign this number as it serves as the link between this worksheet and the Case Activity, Case Transportation, Contact Tracking and Contact Surveillance Worksheets.
 - The Contact Information portion of the worksheet contains the column entitled “Contact Worksheet #“. Each contact is assigned a number by the investigator and detailed information about the contact is captured on the Contact Tracking / Tracing Worksheet. It is important to assign this number as it serves as the link between these two Worksheets.
- **Contact Tracking / Tracing Worksheet:** This worksheet is used to capture detailed information about each contact identified on the Primary Contacts / Site Worksheet.
 - The case information portion of this worksheet contains two data fields. The Case Number is a number assigned by the investigator to each case and links this worksheet to the Case Activity, Case Transportation and Contact Surveillance Worksheets. The Contact Worksheet # links this Worksheet to an individual line listing on the Primary Contacts / Site Worksheet.
 - The remaining sections of the Worksheet are intended to provide specific contact identification, exposure data, follow-up and disposition information about each contact.
- **Contact Surveillance Worksheet:** This worksheet is used to track the signs and symptoms associated with the disease amongst the contacts. It is intended to be “self reported” and used by the contact(s) during quarantine.
 - The case information portion of this worksheet contains two data fields. The Case Number is a number assigned by the investigator to each case and links this worksheet to the Case Activity, Case Transportation and Contact Surveillance Worksheets. The Contact Worksheet # links this Worksheet to an individual line listing on the Primary Contacts / Site Worksheet.

Case Activity and Travel Worksheet – Infectious Period (Please Print)

CASE INFORMATION

Name of Primary Case: _____
Last First Middle Nickname / Alias: _____

Case Number: _____ Interview Date: ____/____/____ Interviewer Name: _____

Infectious Period Start Date:¹ ____/____/____ Symptom Onset Date: ____/____/____ Treatment Start Date: ____/____/____

Clinical Improvement Date: ____/____/____ Disease or Condition Under Surveillance: _____

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Date: <input type="checkbox"/> F <input type="checkbox"/> R <input type="checkbox"/> C <input type="checkbox"/> O	Date: <input type="checkbox"/> F <input type="checkbox"/> R <input type="checkbox"/> C <input type="checkbox"/> O	Date: <input type="checkbox"/> F <input type="checkbox"/> R <input type="checkbox"/> C <input type="checkbox"/> O	Date: <input type="checkbox"/> F <input type="checkbox"/> R <input type="checkbox"/> C <input type="checkbox"/> O	Date: <input type="checkbox"/> F <input type="checkbox"/> R <input type="checkbox"/> C <input type="checkbox"/> O	Date: <input type="checkbox"/> F <input type="checkbox"/> R <input type="checkbox"/> C <input type="checkbox"/> O	Date: <input type="checkbox"/> F <input type="checkbox"/> R <input type="checkbox"/> C <input type="checkbox"/> O
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Key: F = Fever, R = Rash, C = Cough, O = Other

¹The period of infectiousness may begin before the case is symptomatic and last after symptoms have abated. Refer to the disease specific protocols for detailed information.

Case Transportation Worksheet – Infectious Period (Please Print)

CASE INFORMATION

Name of Primary Case: _____ Nickname / Alias: _____
Last First Middle

Case Number: _____ Interview Date: ____/____/____ Interviewer Name: _____

Infectious Period Start Date:² ____/____/____ Symptom Onset Date: ____/____/____ Treatment Start Date: ____/____/____

Clinical Improvement Date: ____/____/____ Disease or Condition Under Surveillance: _____

TRAVEL INFORMATION Complete as much information as possible for each type of public transportation used by case during infectious period.

Date of Travel	Time of Travel (AM/PM Circle)	Transport Type (e.g., bus, plane, etc)	Carrier / Company Name	Route / Flight #	Origin City	Origin State	Origin Country	Destination City	Destination State	Destination Country
____/____/____	____:____ AM PM									
____/____/____	____:____ AM PM									
____/____/____	____:____ AM PM									
____/____/____	____:____ AM PM									
____/____/____	____:____ AM PM									
____/____/____	____:____ AM PM									

Page _____ of _____

²The period of infectiousness may begin before the case is symptomatic and last after symptoms have abated. Refer to the disease specific protocols for detailed information.

Primary Contact(s) / Site Worksheet (Please Print)

CASE INFORMATION

Name of Primary Case: _____
Last First Middle Nickname / Alias: _____

Case Number: _____ Interview Date: ____/____/____ Interviewer Name: _____

Site Name or Place: _____ Disease or Condition Under Surveillance: _____

CONTACT INFORMATION

Name of Person (Last, First) and/or Name of Site	Location	Phone Number	Date of First Exposure	Date of Last Exposure	Contact Form #	Call Back Date
		()	___/___/___	___/___/___		___/___/___ <input type="checkbox"/> N/A
		()	___/___/___	___/___/___		___/___/___ <input type="checkbox"/> N/A
		()	___/___/___	___/___/___		___/___/___ <input type="checkbox"/> N/A
		()	___/___/___	___/___/___		___/___/___ <input type="checkbox"/> N/A
		()	___/___/___	___/___/___		___/___/___ <input type="checkbox"/> N/A
		()	___/___/___	___/___/___		___/___/___ <input type="checkbox"/> N/A
		()	___/___/___	___/___/___		___/___/___ <input type="checkbox"/> N/A
		()	___/___/___	___/___/___		___/___/___ <input type="checkbox"/> N/A
		()	___/___/___	___/___/___		___/___/___ <input type="checkbox"/> N/A
		()	___/___/___	___/___/___		___/___/___ <input type="checkbox"/> N/A

Contact Tracking / Tracing Form (Please Print)

CASE INFORMATION

Name of Primary Case: _____ Case Number: _____
Last First Middle

Contact Form Number: _____
This number ties this form to the Primary Contact(s) / Site Worksheet

CONTACT INFORMATION

Contact Name: _____ Nickname/Alias: _____
Last First Middle

Address: _____ Phone Number: () _____
Street City State Zip

Alternative Contact: _____ Parent Spouse Friend Other
Last First Middle

Address: _____ Phone Number: () _____
Street City State Zip

School/Employer Name: _____ Address: _____
Street City State Zip

DEMOGRAPHICS

Date of Birth: ___/___/___ Age: ___ Gender: Male Female
 Height: _____ Weight: _____ Hair Color: _____ Complexion: _____

Race: White Black Asian
 Am. Indian / AK Native Native HI. / Pacific Islander

Hispanic / Latino
 Yes No

EXPOSURE INFORMATION

Date of 1st Exposure: ___/___/___
 Date of Final Exposure: ___/___/___
 Case/Contact Type: _____
 1 = Household contact, family member, others spending ≥ 3hrs in household with an infectiousness case.
 2 = Non-household contact with contact < 6 feet with an infectious case ≥ 3 hrs.
 3 = Non-household contact with contact < 6 feet with an infectious case ≤ 3 hrs.
 4 = Non-household contact with contact ≥ 6 feet with an infectious case ≥ 3 hrs.
 5 = Non-household contact with contact ≥ 6 feet with an infectious case ≤ 3 hrs.
 6 = Other, specify: _____

CONTACT / FOLLOW UP DATES

Date Contact Form Initiated: ___/___/___
 Date of Contact Notification: ___/___/___
 Follow up Date: ___/___/___
 N/A
 Disposition Date: ___/___/___
 Notes: _____

DISPOSITION

Located:
 Referred for Treatment
 Referred for Assessment
 Already Hospitalized
 Isolated
Other: _____

Not Located:
 Unable to Locate
 Moved to Another Jurisdiction
 Location: _____
Deceased:
 Disease Suspected
 Unrelated to Disease

Contact Surveillance Form (Please Print)

CASE INFORMATION (Filled out by interviewer)

Case Number: _____

HOUSEHOLD / CONTACT INFORMATION (Filled out by interviewer)

Contact Name: _____ Nickname/Alias: _____
Last First Middle

Address: _____ Phone Number: () _____
Street City State Zip

Sex: Male Female Age: _____ Date of Household Visit: ___/___/___ Contact Form Number: _____
This number ties this form to the Primary Contact(s) / Site Worksheet

MISC. INFORMATION (Filled out by interviewer)

Date of Last Exposure to Case: ___/___/___ Date Vaccinated or Prophylaxis: ___/___/___ Call Back Date: ___/___/___

HOUSEHOLD OR CONTACT CLINICAL SIGNS TRACKING (Filled out by contact or household member)

Instructions: Record Your Temperature Each Day In The Boxes Below. If Fever Is Greater Than 101°F Call The Following Telephone Number Immediately: () _____

Daily Temp	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8	Day 9	Day 10	Day 11	Day 12	Day 13	Day 14	Day 15	Day 16	Day 17	Day 18	Day 19	Day 20	Day 21	Day 22	Day 23	Day 24	Day 25	Day 26	Day 27	Day 28

Instructions: If Symptoms Develop, Mark The Symptoms Started And Call The Telephone Number Listed Above Immediately

Symptoms	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8	Day 9	Day 10	Day 11	Day 12	Day 13	Day 14	Day 15	Day 16	Day 17	Day 18	Day 19	Day 20	Day 21	Day 22	Day 23	Day 24	Day 25	Day 26	Day 27	Day 28

NOTES (Record any additional symptoms, observations or questions for the investigator)

Date: _____

Dear: _____,

I am writing in regards to some recent laboratory test results that you should have received. I work with the Local Health Department and as part of my job I provide information and answer questions about certain diseases that are reported to us.* I would like to speak to you about your laboratory tests and provide information to you as well as to obtain some additional information about your results. Everything we receive from you or your healthcare provider is STRICTLY CONFIDENTIAL. The purpose for collecting this information is to educate patients and to collect information for public health planning and support our disease prevention activities.

Please contact me at your earliest convenience so that we may discuss this matter further. If your healthcare provider has not yet discussed this with you, I would encourage you to make an appointment or call them as soon as possible.

I look forward to discussing this matter with you and will be happy to answer any questions that you may have regarding this investigation at that time. My telephone number is _____. Thank you in advance for your assistance.

Sincerely,

Investigator Name, Title

Phone #

Address Line 1

Address Line 2

City, State Zip Code

*The Kansas Department of Health and Environment (KDHE) has the authority to define what diseases are of public health importance and to require the reporting of such diseases. Under this authority KDHE has established regulations making certain diseases reportable (K.S.A. 65-118 and K.S.A. 65-128, and amendments thereto). These regulations outline reporting requirements and control measures that apply to both confirmed cases of such diseases and contacts of confirmed cases. Local health departments are required to collect information for the KDHE and implement control measures.

Date: _____

Dr: _____,

I am writing to you in regards to your patient, _____. The Health Department recently received notice that this patient may have been diagnosed with _____, which is a reportable disease under State rules and regulations. The Health Department routinely contacts patients with reportable diseases to gain more information, provide education, and make necessary referrals and support. In order to do this, I would like to speak to you regarding the laboratory results and risk history of this patient.

Please contact me at your earliest convenience so that we may obtain the information required for this report. If it is more convenient for you to fill out the report form on your own and mail or fax it to me, please feel free to do so. I have enclosed a copy of it with this letter. I would also like to remind you that during our investigation we may be contacting your patient directly, it is strongly recommended that you contact your patient to discuss this diagnosis and inform them of our investigation. All of the information that we obtain from either you or your patient is STRICTLY CONFIDENTIAL.

I look forward to discussing this matter with you and will be happy to answer any questions that you may have regarding this investigation at that time. My telephone number is _____. Thank you in advance for your assistance.

Sincerely,

Investigator Name, Title
Phone #
Fax #
Address Line 1
Address Line 2
City, State Zip Code

*The Kansas Department of Health and Environment (KDHE) has the authority to define what diseases are of public health importance and to require the reporting of such diseases. Under this authority KDHE has established regulations making certain diseases reportable (K.S.A. 65-118 and K.S.A. 65-128, and amendments thereto). These regulations outline reporting requirements and control measures that apply to both confirmed cases of such diseases and contacts of confirmed cases. Local health departments are required to collect information for the KDHE and implement control measures.

	Public Health Fact Sheet Viral Hemorrhagic Fever
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What are viral hemorrhagic fevers?

Viral hemorrhagic fevers (VHF) are a group of illnesses caused by four distinct types of viruses, including: arenaviruses, filoviruses, bunyaviruses, and flaviviruses. While some may cause mild illnesses others can cause severe life threatening disease. VHF includes Ebola, Marburg, Lassa fever, Dengue fever and others. VHF are rarely seen the United States.

What are the symptoms?

Symptoms vary by the type of VHF, but initial symptoms often include: fever, fatigue, dizziness, muscle aches, loss of strength, and exhaustion. Patients with severe illness often bleed under the skin, in internal organs or from body openings. Patients may also experience shock, problems with the nervous system, coma, and seizures. Mortality ranges from 10-90% and is dependent upon the specific viral type agent and strain.

How are viral hemorrhagic fevers spread?

The spread of VHF varies by the type of virus responsible for the disease. Most cases of VHF are acquired by an exposure to an infected rodent or arthropods. Viruses associated with arthropods are spread when a mosquito or tick bites a human whereas viruses associated with rodents are spread through direct contact with rodent urine or feces (e.g., from sweeping dirt containing dried urine or feces). Some VHF may be spread from person-to-person by direct contact with an infected person or their body fluids.

Who gets viral hemorrhagic fevers?

Anyone can get VHF; however, it generally occurs to people that live or visit an area with infected rodents or arthropods. They are more common in Africa but may occur in other parts of the world, including: North and South America, Europe and Asia.

How is it diagnosed?

VHF is diagnosed through special laboratory tests that are done at only a few specific laboratories. Samples may be taken from the blood, spinal fluid and various body tissues. These are not routine tests and special arrangements must be made prior to testing.

How are viral hemorrhagic fevers treated?

There is no effective treatment or cure and treatments is supportive in nature. Certain antiviral medications have been effective in treating some patients with certain types of VHF but their overall effectiveness is not known.

How can you prevent viral hemorrhagic fevers?

Except for yellow fever, there are no vaccines for VHF. The best way to prevent VHF is to avoid contact with infected rodents and arthropods. If this fails and a case of VHF does occur, efforts should focus on preventing person-to-person transmission. This can be accomplished by following proper infection control methods, including hand washing and the correct use of masks, gowns, and gloves.

Where can I get more information?

- Your Local Health Department
- Kansas Department of Health and Environment, Epidemiologic Services Section (877) 427-7317
- <http://www.cdc.gov/health/default.htm>
- Your doctor, nurse, or local health center

This fact sheet is for information only and is not intended for self-diagnosis or as a substitute for consultation with a healthcare provider. If you have any questions about the disease described above or think that you may have an infection, consult with your healthcare provider. The information in this fact sheet is based on the Centers for Disease Control and Prevention's Health and Safety topic fact sheets.