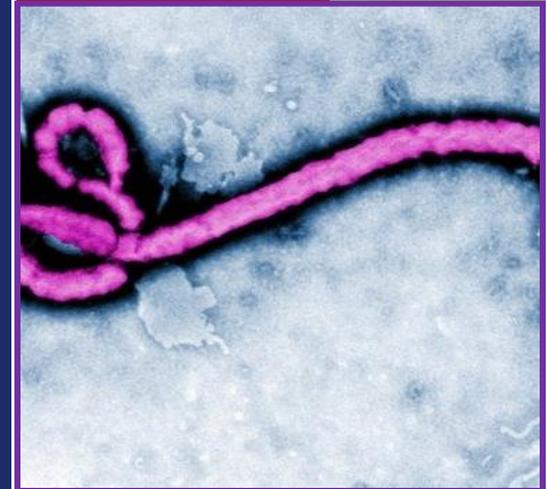


# Ebola Case and Contact Investigation in West Virginia

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Division of Infectious Disease Epidemiology  
Charleston, WV

June 25, 2015



# Objectives

- 1. Know the surveillance, prevention and disease control objectives for Ebola case investigation**
- 2. Know how to appropriately recognize an Ebola PUI**
- 3. Know disease control methods for Ebola PUIs**
- 4. Know the definition of an Ebola contact**
- 5. Know the process of contact tracing and contact surveillance**
- 6. Know how to report an Ebola PUI**

# Question

**How could an Ebola Virus Disease (EVD) case occur in the United States?**

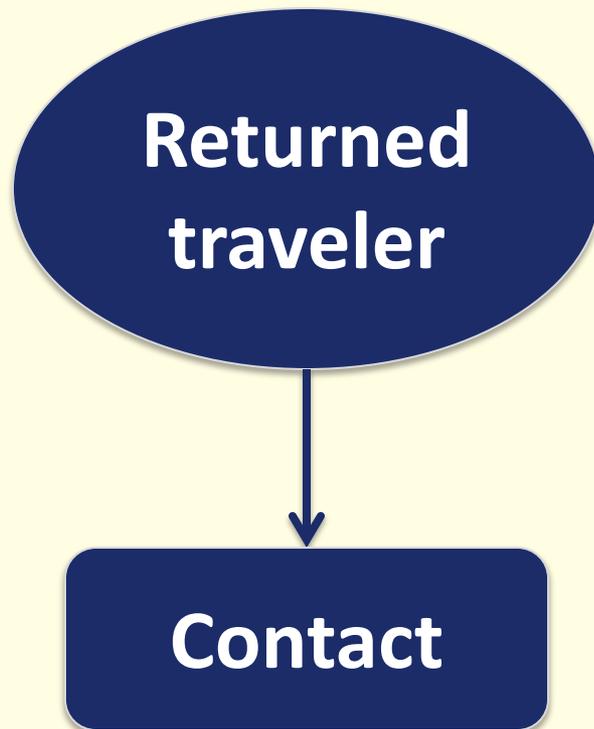
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**How could an Ebola Virus Disease (EVD) case occur in the United States?**

**Returned  
traveler**

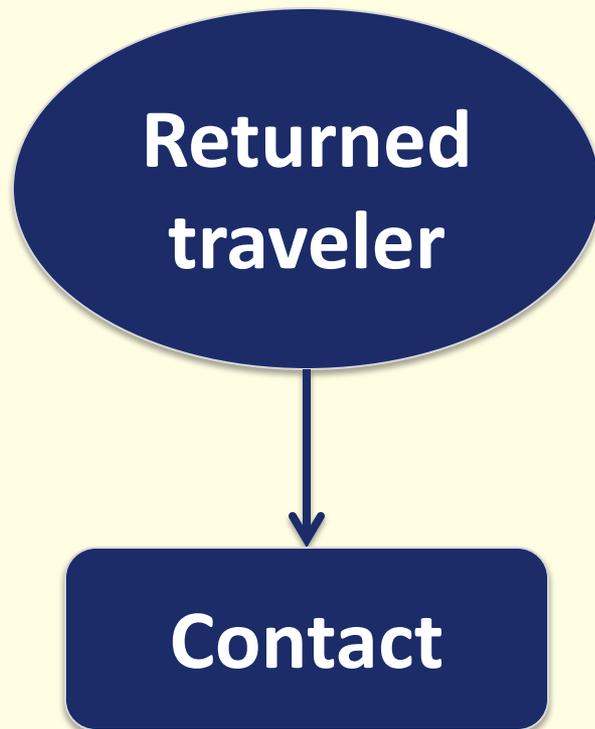
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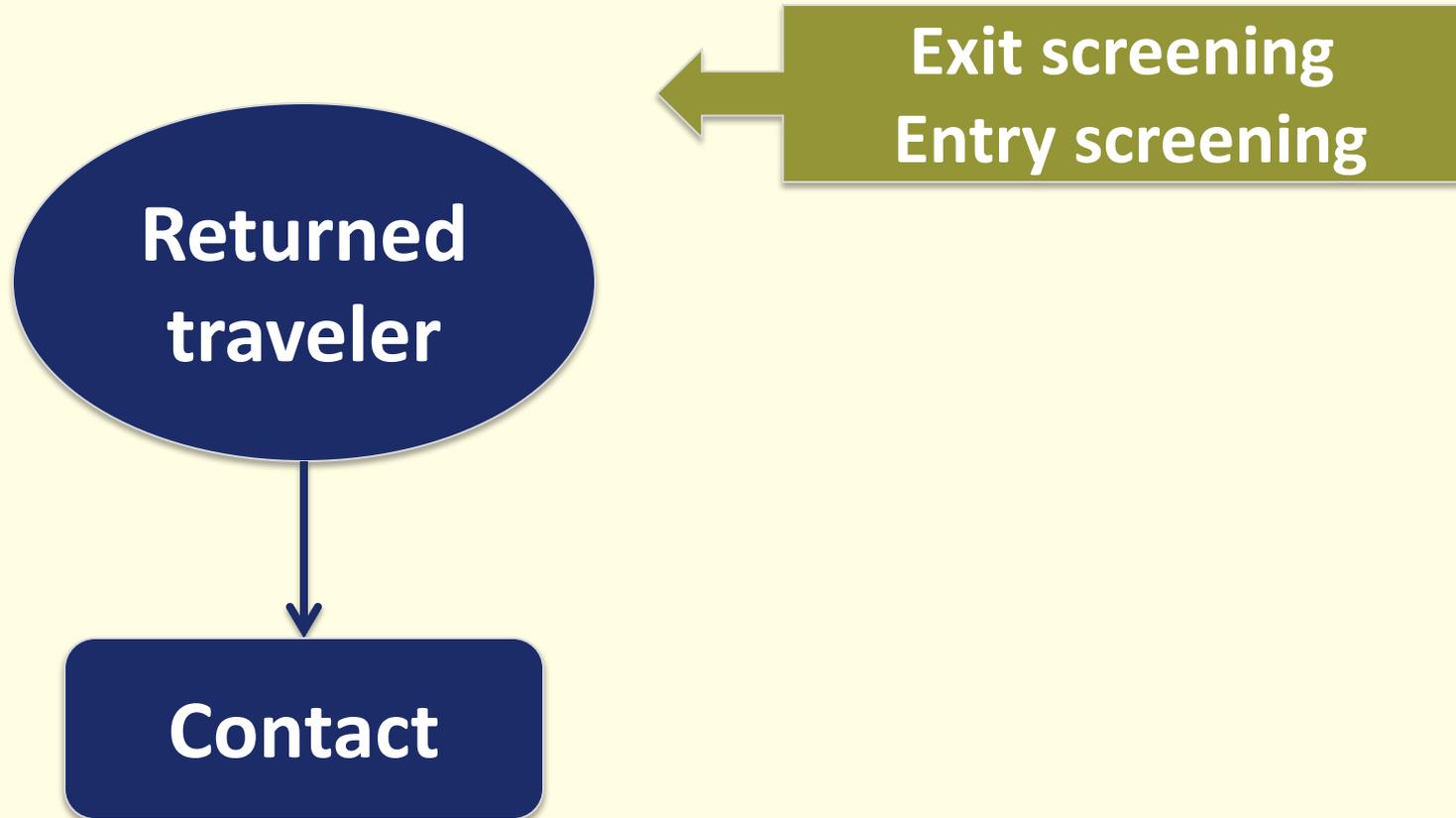
# Question

**How do we PREVENT Ebola transmission in the U.S.?**



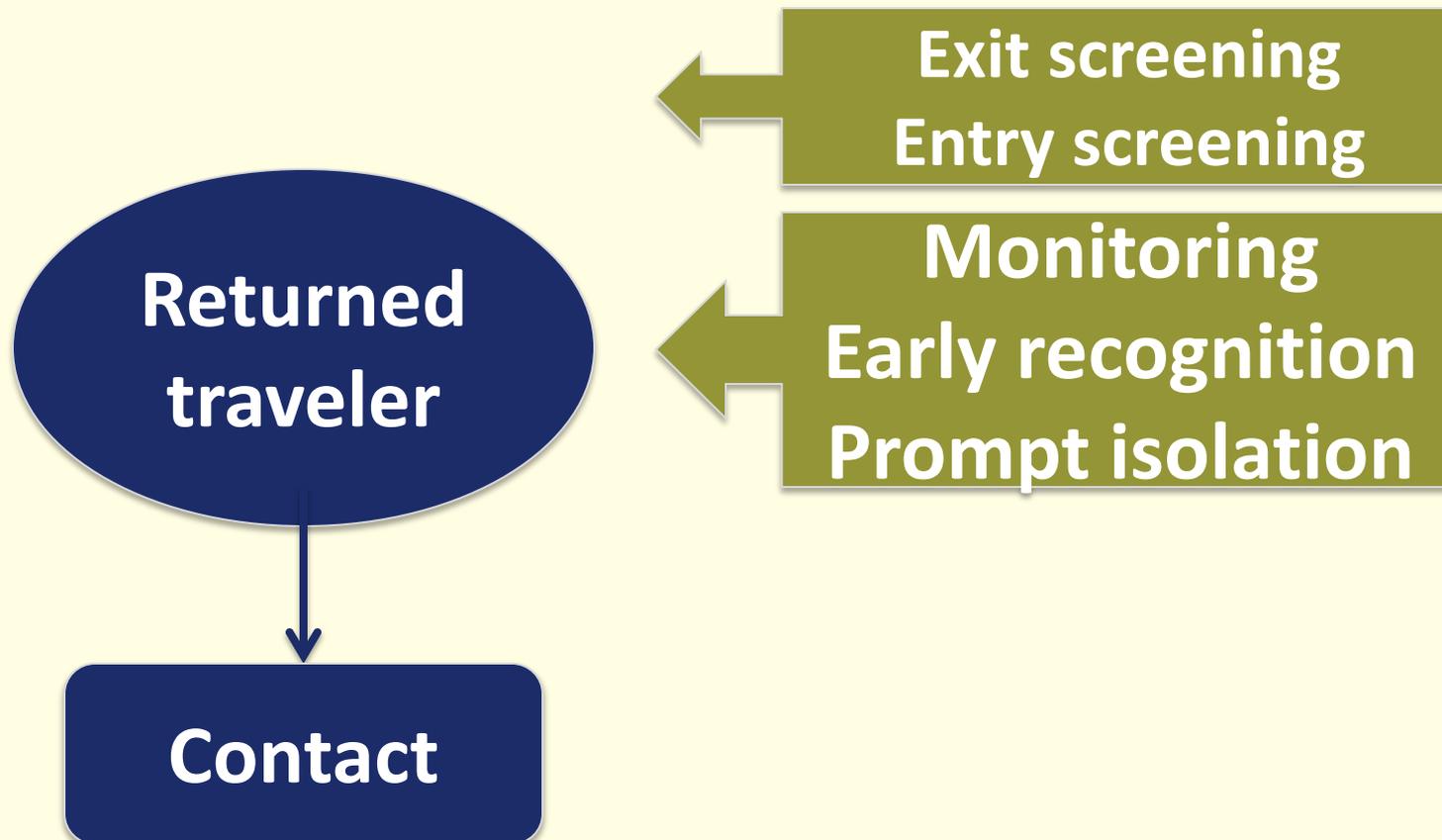
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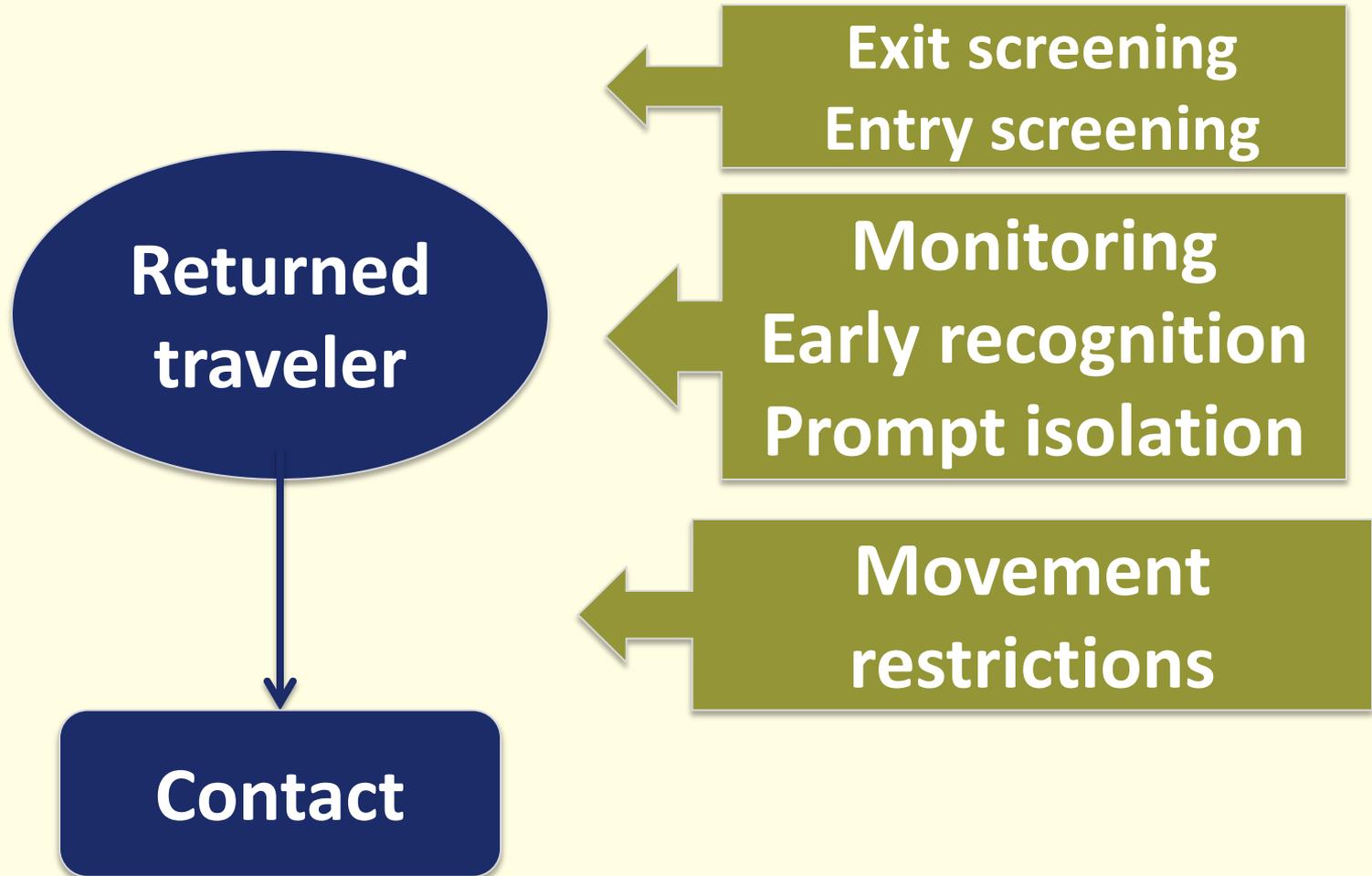
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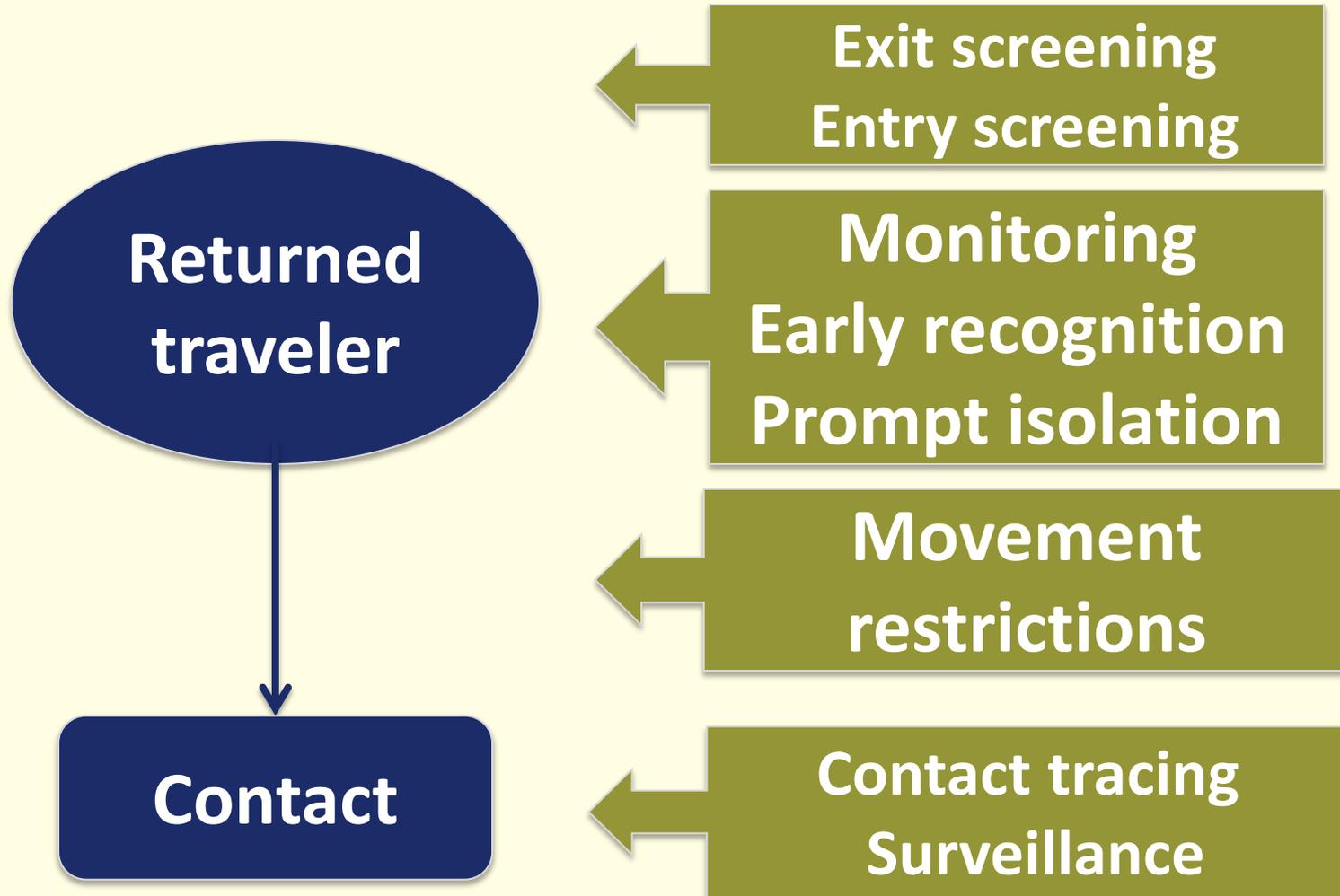
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**How do we prevent Ebola transmission in the U.S.?**



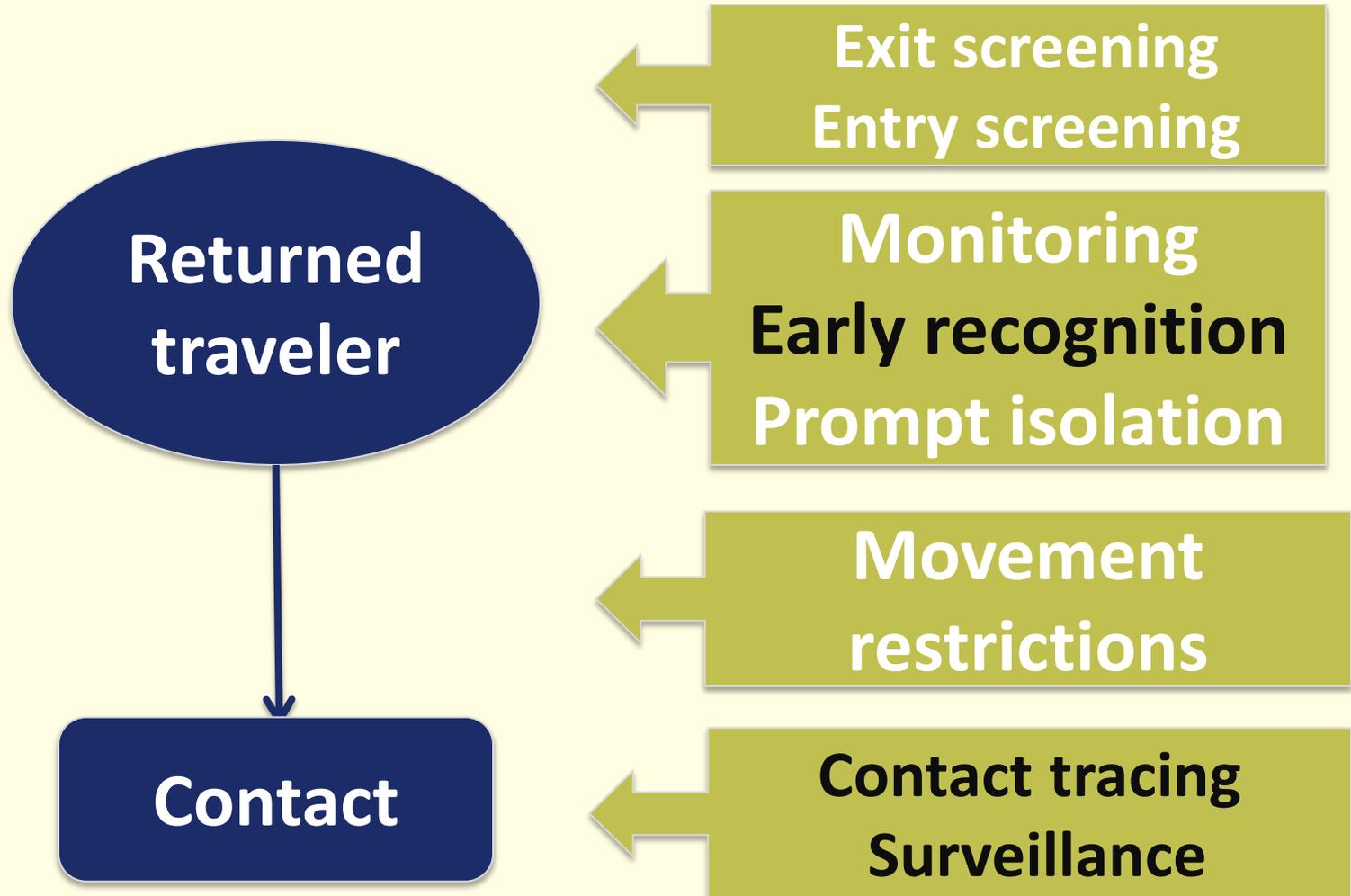
# Question

**How do we prevent Ebola transmission in the U.S.?**



# Question

## How do we prevent Ebola transmission in the U.S.?



# Early Recognition

# Ebola Case Definitions

## Person Under Investigation (PUI)

- Elevated body temperature or subjective fever or symptoms, including severe headache, fatigue, muscle pain, vomiting, diarrhea, abdominal pain, or unexplained hemorrhage;

**AND**

- An ***epidemiologic risk factor*** within the 21 days before the onset of symptoms.

## Confirmed Case

- Laboratory-confirmed diagnostic evidence of Ebola virus infection.

Source: <http://www.cdc.gov/vhf/ebola/healthcare-us/evaluating-patients/case-definition.html>

## What are examples of Ebola risk factors?

- Low but not zero risk
- Some risk
- High Risk

## What are examples of Ebola risk factors?

- Low but not zero risk
- **Travel to Liberia, Sierra Leone, Guinea within 21 days**
- **Healthcare worker in the US using PPE for care of Ebola patients**
  - Some risk
  - High Risk

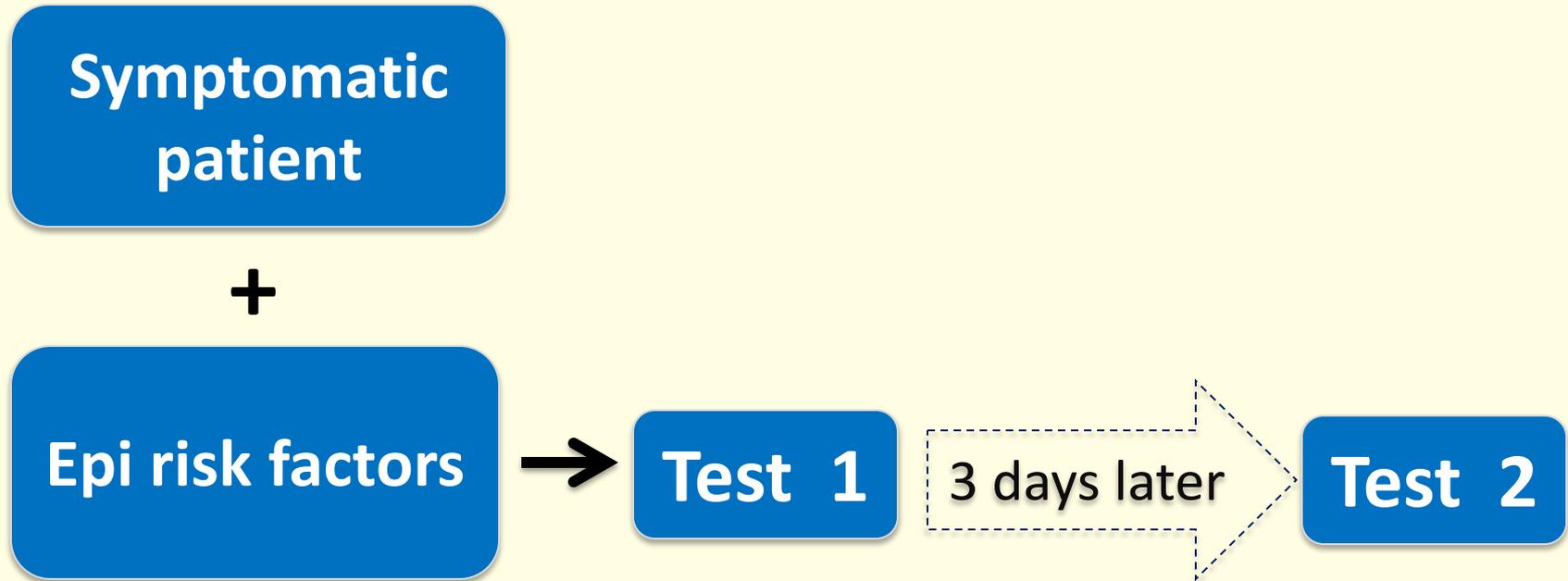
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  - Travel to Liberia, Sierra Leone, Guinea within 21 days
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- Some risk
- **Healthcare worker who worked with Ebola patients in West Africa using full PPE**
- High Risk

## What are examples of Ebola risk factors?

- Low but not zero risk
  - Travel to Liberia, Sierra Leone, Guinea within 21 days
  - Healthcare worker in the US using PPE for care of Ebola patients
- Some risk
  - Healthcare worker who worked with Ebola patients in West Africa using full PPE
- High Risk
- **Recognized exposure to blood or body fluids without proper PPE**

# Evaluating an Ebola PUI



## **PUI in a health facility:**

- Isolate the patient and close the door
- Wear appropriate personal protective equipment (PPE)
- Limit the healthcare personnel who enter the room
- Keep a log of everyone who enters and leaves the patient's room
- Consider alternative diagnoses and evaluate appropriately
- Only perform necessary tests and procedures
- Avoid aerosol-generating procedures
- Follow CDC guidelines for cleaning, disinfecting, and managing waste

Source: <http://www.cdc.gov/vhf/ebola/pdf/could-it-be-ebola.pdf>

# Notify Health Authorities

## INFORM

- Notify your facility's infection control professional and other appropriate staff.
- Contact local / state public health authorities.

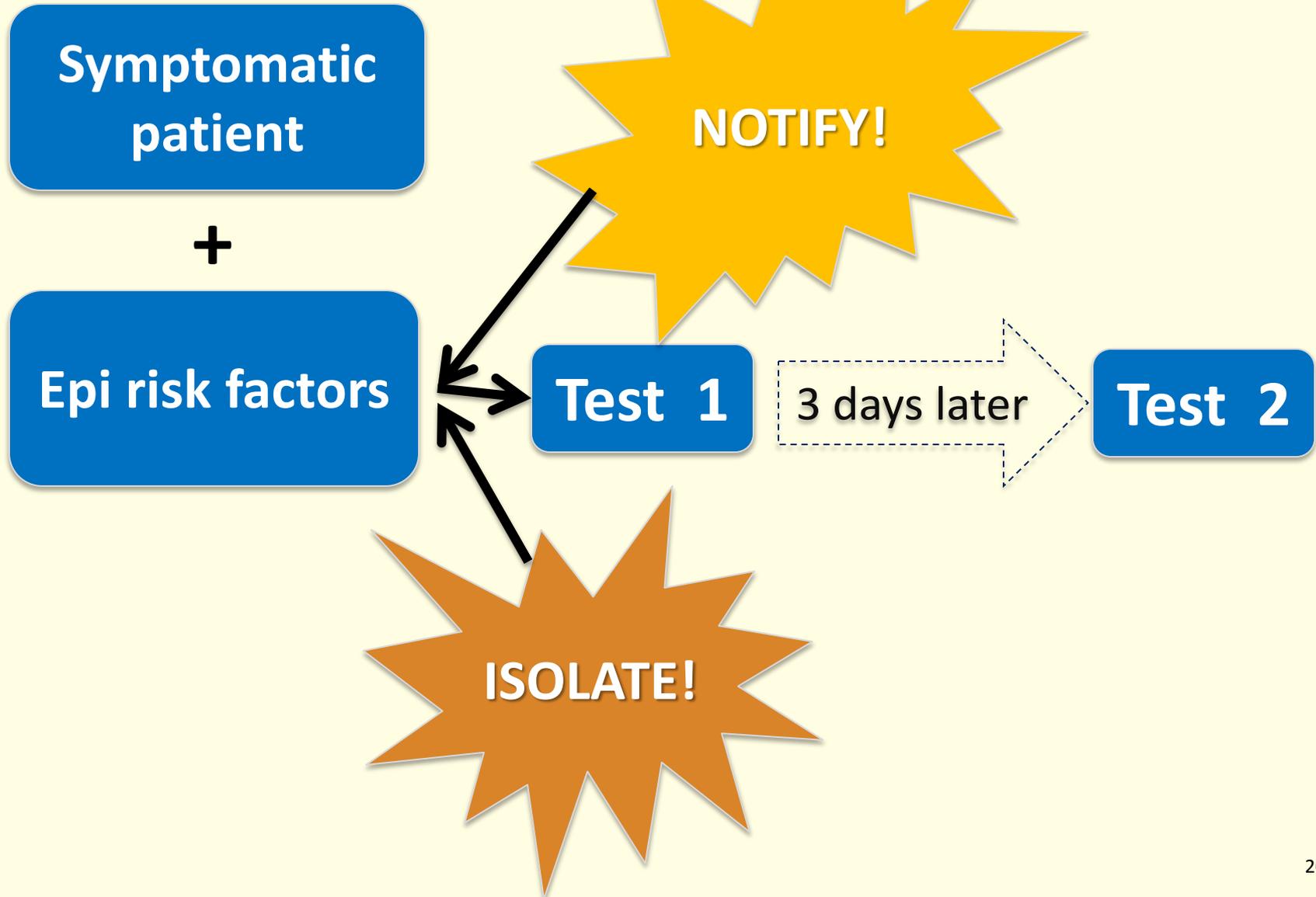
DIDE @ (800) 423-1271 ext. 1 (toll free)

(304) 558-5358 ext. 1

- Consult with local / state public health authorities about testing for Ebola.

Source: <http://www.cdc.gov/vhf/ebola/pdf/could-it-be-ebola.pdf>

# Evaluating an Ebola PUI



# How Common are These Symptoms?

**Commercial Airline Travel, October 10 and October 13, 2015;  
N=268 passengers, flight and cleaning crew  
32 (12%) had symptom(s) during 21 days after flight**

**TABLE 2. Symptoms reported by contacts (n = 32) from two flights within 21 days of exposure to a health care worker later diagnosed with Ebola — United States, 2014**

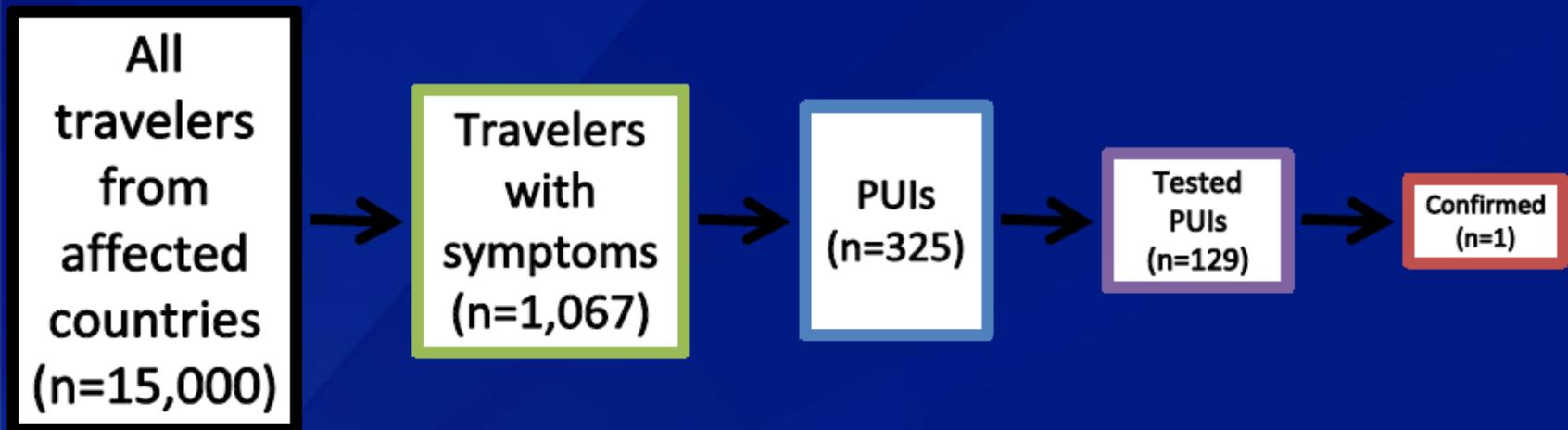
Symptom*	Symptoms reported by 32 contacts	Symptoms reported by 21 contacts in 3-foot zone
Fever ( $\geq 100.4^{\circ}\text{F}$ [ $\geq 38^{\circ}\text{C}$ ])	1	0
Abdominal pain	3	0
Unusual bleeding	0	0
Body aches	6	2
Diarrhea	2	0
Headache	24	3
Hiccups	0	0
Rash	1	0
Sore throat	14	2
Vomiting	0	0
Weakness	2	0

\* Contacts could report more than one type of symptom.

# Summary Data (CDC), May 5, 2015

## Number of Persons Traveling/Monitored, and Reported to CDC/DCI

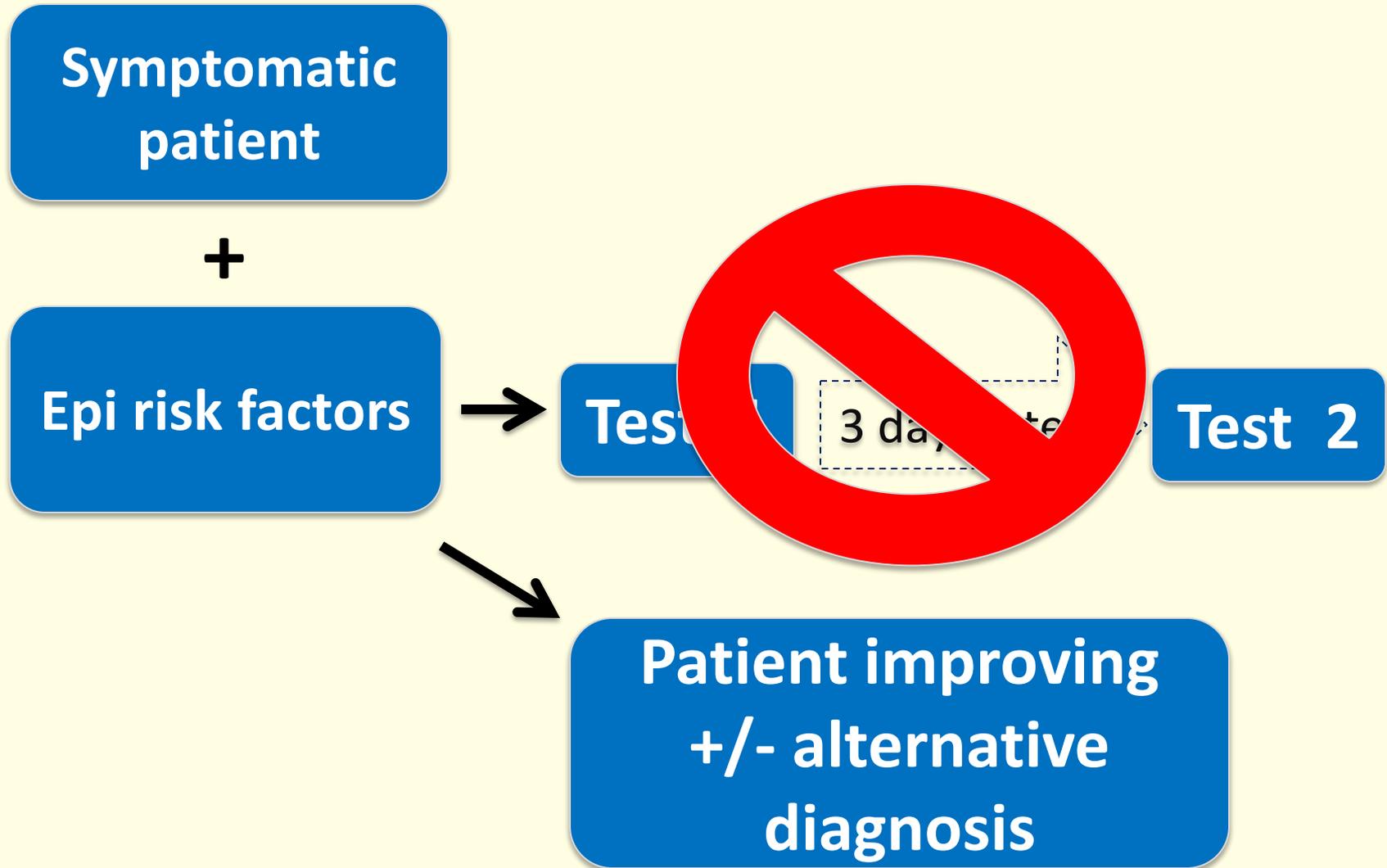
Since Airport Screening Initiated, United States, 2014-15



## Top Five Diagnoses Among PUIs Reported to CDC/DCI July 7, 2014 – May 5, 2015

Diagnosis	N=325	%
1 URI	38	16
2 Malaria	23	10
3 Gastroenteritis	23	10
4 Influenza	14	6
5 Unknown/other	143	59

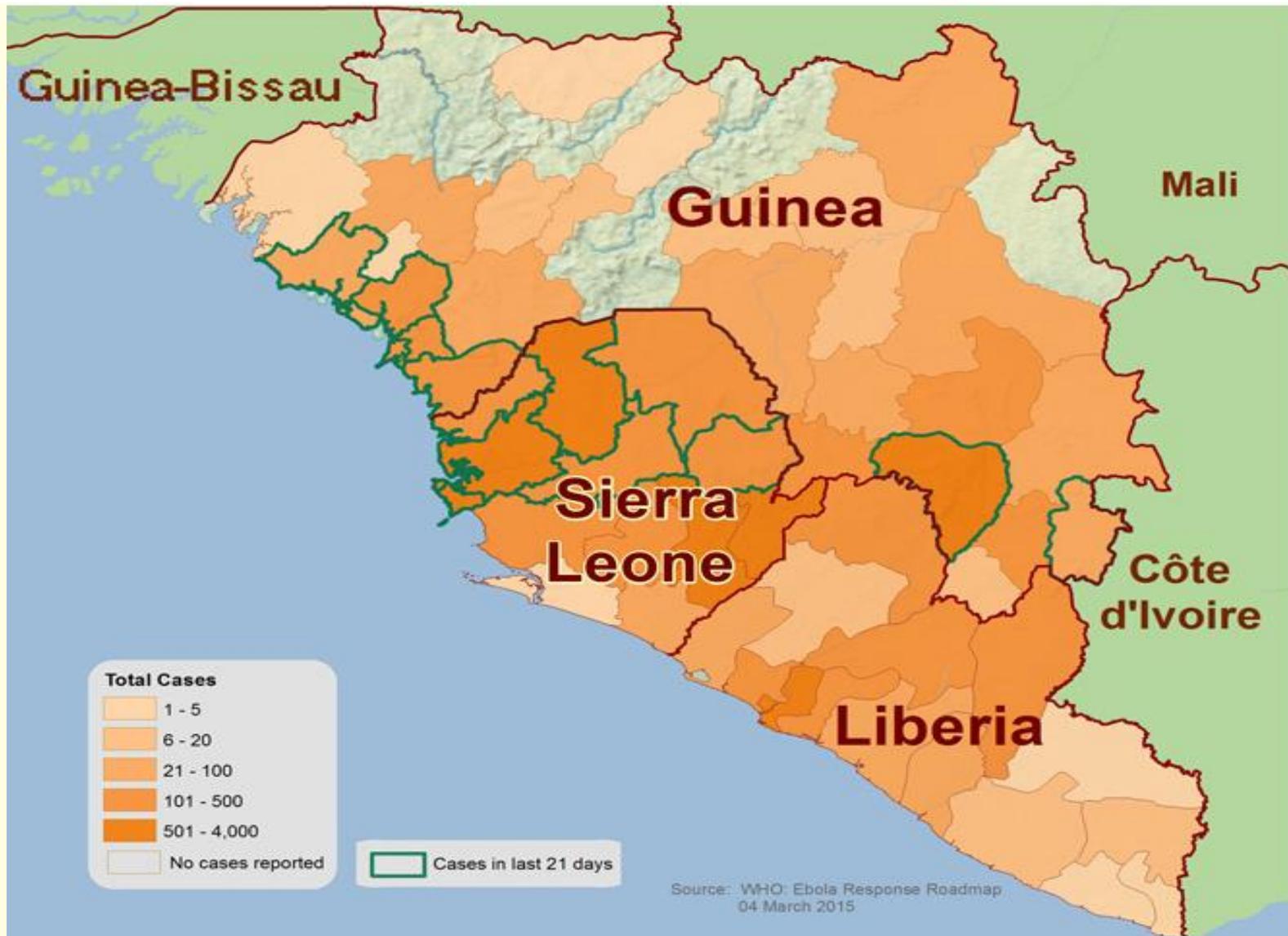
# Evaluating the Ebola PUI



## Diagnosis and management of mild illness

- **Complete history of illness**
- **Prior or intercurrent illness in household contacts?**
- **Diagnostic workup e.g., respiratory virus testing, stool testing, etc.**
  - Family members
  - Returned traveler (using full PPE)
- **Careful home monitoring**
  - ‘clinical rule-out’
  - <http://www.cdc.gov/vhf/ebola/exposure/implementing-home-monitoring-for-people-being-evaluated.html>

# 2014 Ebola Outbreak in West Africa



# Case Study (CDC)

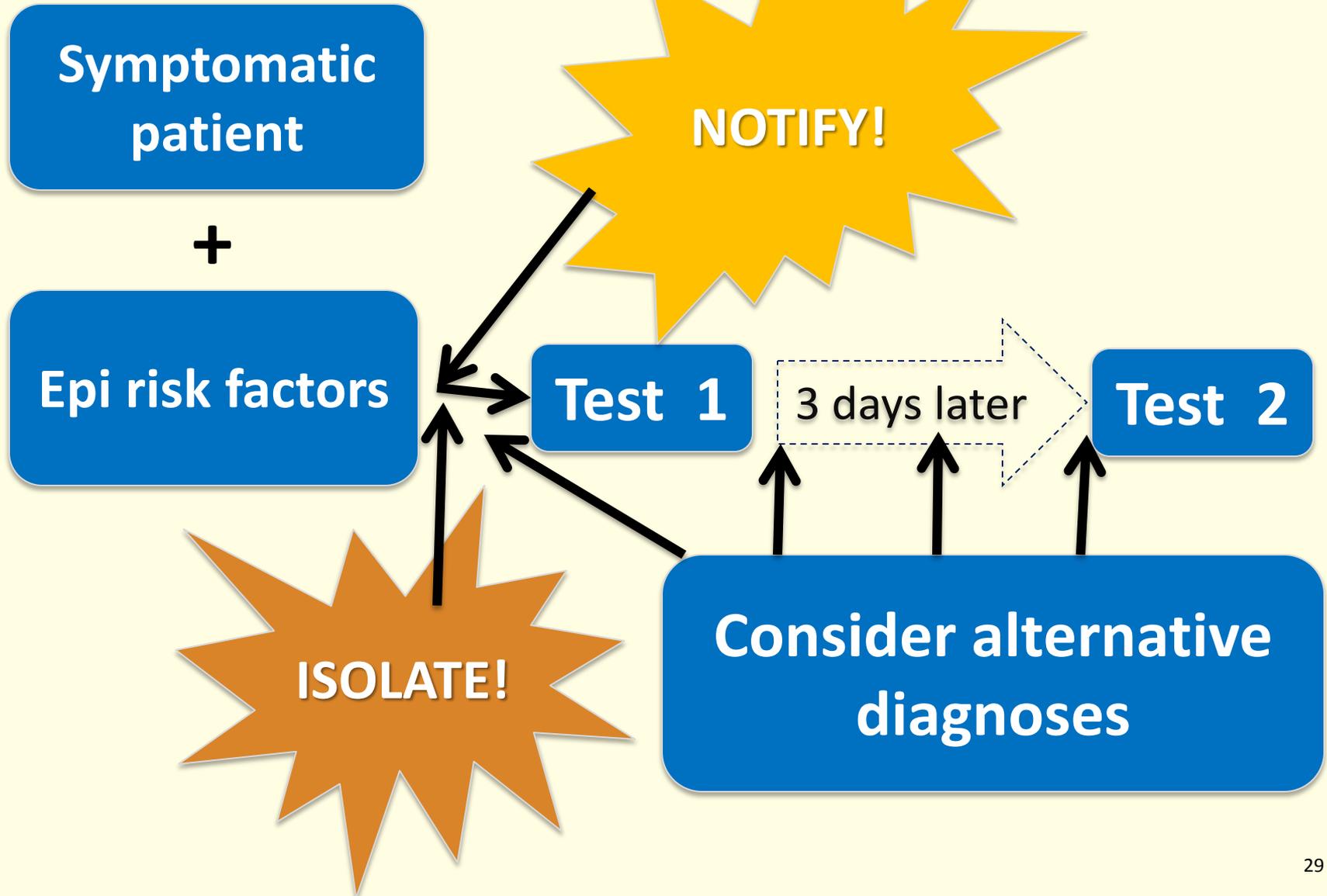
- ❑ **A 44 y/o female who had visited Liberia presented at an emergency department complaining of anorexia and fever. On examination she was tachycardic and had a temperature of 101°F. She was admitted into an isolation room**
- ❑ **Lab required Ebola rule out**
- ❑ **A CBC was not done for 24 hours. The traveler's hemoglobin was 5, requiring transfusion; and she was moved to the ICU**
- ❑ **Malaria treatment was delayed for more than 36 hours.**
- ❑ **State Lab did malaria smear; positive for P falciparum.**
- ❑ **4 day delay in obtaining a proper diagnosis; associated with need for blood transfusions and ICU stay**

# Causes of Fever in Returned Travelers

**Sierra Leone, Liberia, Guinea, Sept 2009 – August 2014; N=770**

Diagnosis	Patients, n (%)
Malaria	310 (40.3)
Acute diarrhea	95 (12.3)
URTI / ILI	32 (4.2)
Viral syndrome	29 (3.8)
Unspecified febrile illness < 3 wks	24 (3.1)

# Evaluating an Ebola PUI



# Contact Tracing and Surveillance

# Facts about Ebola Transmission

## Ebola is spread through direct contact with blood and body fluids

- Ebola is spread only from 1 person to another once symptoms begin

**Exposure**

2-21 days (average= 8-10 days)



**Ebola signs or symptoms**

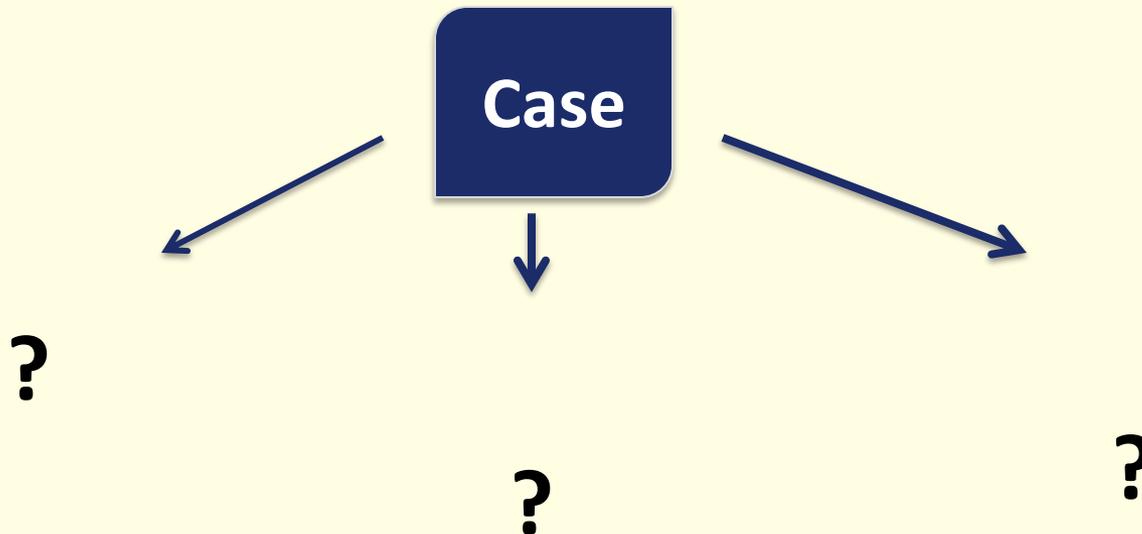
- Blood and body fluids of a person who is sick with Ebola
- Objects contaminated with the blood or body fluids of a person sick with Ebola
- Infected fruit bats or primates (apes and monkeys)

## Ebola is NOT spread through/by:

- Air, water, or food
- Mosquitoes or other insects
- Dogs and cats

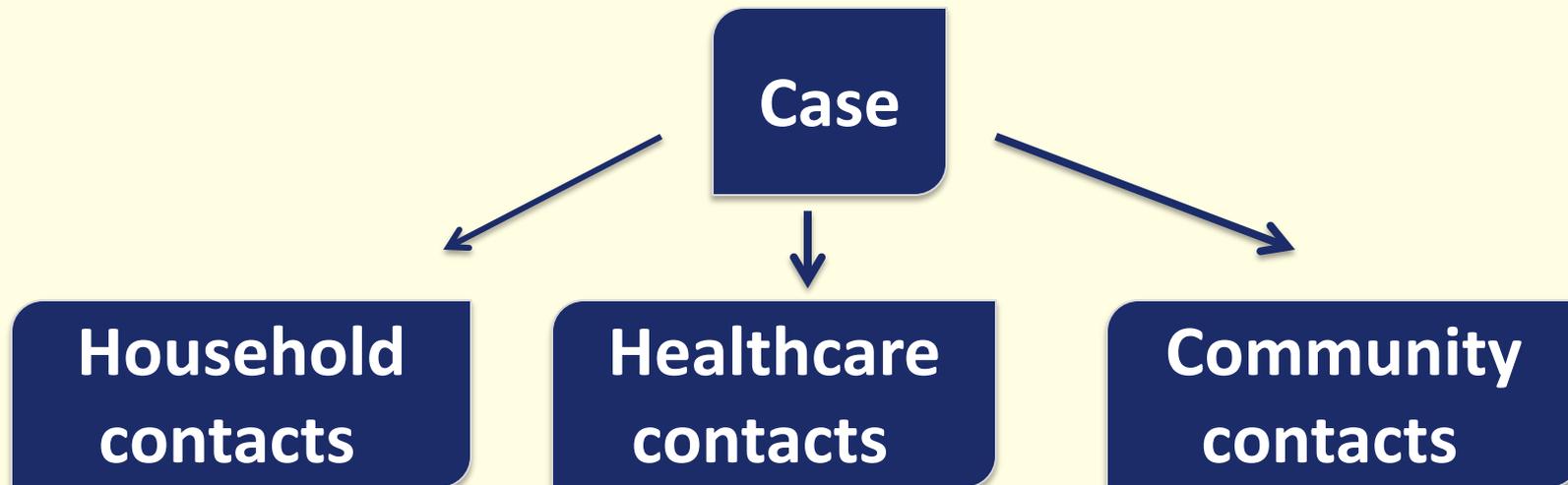
# Question

## Who might be a contact of an Ebola case?



# Question

## Who might be a contact of an Ebola case?



# What is contact tracing?

## Contact tracing can stop the Ebola outbreak in its tracks



U.S. Department of Health and Human Services  
Centers for Disease Control and Prevention



**Contact tracing** is finding everyone who comes in direct contact with a sick Ebola patient. Contacts are watched for signs of illness for 21 days from the last day they came in contact with the Ebola patient. If the contact develops a fever or other Ebola symptoms, they are immediately isolated, tested, provided care, and the cycle starts again—all of the new patient's contacts are found and watched for 21 days. **Even one missed contact can keep the outbreak going.**



<http://www.cdc.gov/vhf/ebola/pdf/contact-tracing.pdf>

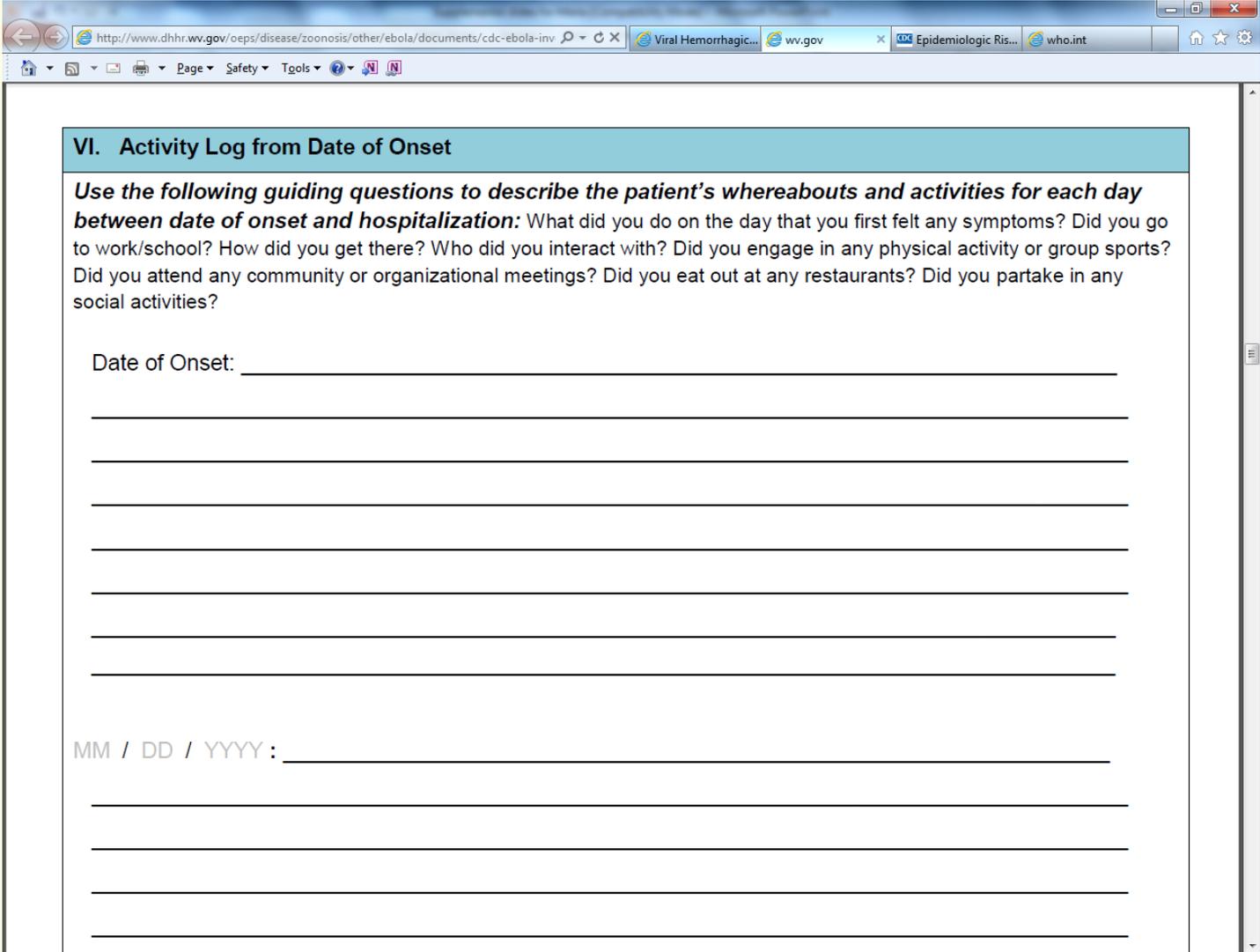
# Contact Investigation

- Person/s living with the case (alive/dead) in the same households since illness onset
- Person/s who visited patient (alive/dead) at home or in the health facility since illness onset
- Where patient went and who did they visit since onset
- Health facilities the patient visited since illness onset
- Health workers who attended to the patient (alive/dead) since illness onset
- Contact with the dead body

**Visit the home, health facilities, any place the patient went while symptomatic and ask about other contacts.**

Adapted from: WHO Contact Tracing Guidelines

# CDC Case Investigation Form



The screenshot shows a web browser window with the following elements:

- Address bar: <http://www.dhhr.wv.gov/oeps/disease/zoonosis/other/ebola/documents/cdc-ebola-inv>
- Browser tabs: "Viral Hemorrhagic...", "wv.gov", "Epidemiologic Ris...", "who.int"
- Form title: **VI. Activity Log from Date of Onset**
- Text: *Use the following guiding questions to describe the patient's whereabouts and activities for each day between date of onset and hospitalization:* What did you do on the day that you first felt any symptoms? Did you go to work/school? How did you get there? Who did you interact with? Did you engage in any physical activity or group sports? Did you attend any community or organizational meetings? Did you eat out at any restaurants? Did you partake in any social activities?
- Text: Date of Onset: \_\_\_\_\_
- Text: MM / DD / YYYY : \_\_\_\_\_

# Ebola Contact Definition

**Close Contact** – a person **exposed** to a **symptomatic Ebola patient** for a **prolonged period** of time **within 3 feet (1 meter)** while **not** wearing appropriate PPE

**Direct Contact** – a person having **physical contact** with a symptomatic Ebola patient:

- Slept in the same household as a case
- Direct physical contact with case during the illness
- Direct physical contact with case at funeral
- Touched the blood or body fluids of a case during their illness
- Touched the clothes or linens of a case
- Baby breastfed by infected mother

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

# Contact Line List

http://www.dhhr.wv.gov/oeps/disease/zoonosis/other/ebola/documents/cdc-ebola-inv

Viral Hemorrhagic... | ww.gov | Epidemiologic Ris... | who.int

Page | Safety | Tools

**Ebola Viral Disease Case Investigation Form – United States** State/Local ID:  CDC ID:

**List of Community Contacts\* Since Date of Onset**

*Use the following as probing questions to supplement the initial list of contacts generated:* Is there anyone else you may have interacted with at [Restaurant X]? Did you meet with any business partners/colleagues that you do not normally interact with? Did you interact with anyone at your child's school (teacher, classmates, other parents, etc.)?

No	First name	Last name	Sex	Relation to case	Last contact date	Street address	City	State	Phone	Description of interaction
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										

\* See page 8 for Guidance for Interviewer on Defining Contacts.

FORM 1- Ebola Case Investigation Form – 11/13/2014

10

## Ebola Virus Disease Contact Tracing Form

State/Local ID:

CDC ID:

### VI. Activities During Period Of Exposure

Did you participate in any of the following activities with the patient while he/she was ill?

#### Caregiving

Did you take care of the patient when he/she was sick (e.g. bathe, feed, help to bathroom)? Yes No Unsure

Did you do house cleaning or provide indirect care for the patient (e.g. wash clothes or bedding, wash dishes)? Yes No Unsure

#### Sharing Meals

Did you eat meals with the patient? Yes No Unsure

Did you share utensils or a cup with the patient? Yes No Unsure

#### Other close contact

Did you use the same bathroom as the patient? Yes No Unsure

Did you sleep in the same room as the patient? Yes No Unsure

Did you sleep in the same bed as the patient? Yes No Unsure

Did you hug the patient? Yes No Unsure

Did you kiss the patient? Yes No Unsure

#### Transportation

Did you share any transport with the patient (car, bus, plane, taxi, etc.)? Yes No Unsure

If yes, give for *all* shared transport: Conveyance \_\_\_\_\_ Dates of travel: \_\_\_\_\_

Name of airline and flight number: \_\_\_\_\_

Origin: \_\_\_\_\_ Destination: \_\_\_\_\_

Any transit points: \_\_\_\_\_

## Ebola Virus Disease Contact Tracing Form

State/Local ID:

CDC ID:

### Follow-up Actions:

No further follow-up required. Does not meet criteria for high or low exposure or exposure was >21 days.

Observed Fever Monitoring Recommended

High risk exposure       Low risk exposure

Last exposure date: MM / DD / YYYY      Last day of monitoring: MM / DD / YYYY

Who will conduct the follow-up for fever monitoring?

Name/Affiliation: \_\_\_\_\_

Phone Number and Contact Information: \_\_\_\_\_

Self-Monitoring Recommended (for No Known Exposure only)

Last exposure date: MM / DD / YYYY      Last day of monitoring: MM / DD / YYYY

Who will conduct the follow-up for fever monitoring?

Name/Affiliation: \_\_\_\_\_

Phone Number and Contact Information: \_\_\_\_\_

Respondent has had a fever or severe headache, muscle pain, diarrhea, vomiting, abdominal pain, unexplained hemorrhage (bleeding or bruising) since having contact with the patient

Temperature: \_\_\_\_\_ °F

Fever onset date: MM / DD / YYYY

Symptoms: \_\_\_\_\_

Where will the patient be evaluated for fever? \_\_\_\_\_

# Guidance for Monitoring and Movement (CDC)

Exposure Category	Clinical Criteria	Public Health Actions
<p><b>High risk</b> includes any of the following:</p> <ul style="list-style-type: none"> <li>• Percutaneous (e.g., needle stick) or mucous membrane exposure to blood or body fluids of a person with Ebola while the person was symptomatic</li> <li>• Exposure to the blood or body fluids (including but not limited to feces, saliva, sweat, urine, vomit, and semen) of a person with Ebola while the person was symptomatic without <a href="#">appropriate personal protective equipment (PPE)</a></li> <li>• Processing blood or body fluids of a person with Ebola while the person was symptomatic without <a href="#">appropriate PPE</a> or standard biosafety precautions</li> <li>• Direct contact with a dead body without <a href="#">appropriate PPE</a> in a <a href="#">country with widespread transmission or cases in urban settings with uncertain control measures</a></li> <li>• Having lived in the immediate household and provided direct care to a person with Ebola while the person was symptomatic</li> </ul> <p><a href="http://www.cdc.gov/vhf/ebola/exposure/monitoring-and-movement-of-persons-with-exposure.html">http://www.cdc.gov/vhf/ebola/exposure/monitoring-and-movement-of-persons-with-exposure.html</a></p>	<p>Fever (subjective fever or measured temperature <math>\geq 100.4^{\circ}\text{F}/38^{\circ}\text{C}</math>) OR any of the following:<sup>2</sup></p> <ul style="list-style-type: none"> <li>• severe headache</li> <li>• muscle pain</li> <li>• vomiting</li> <li>• diarrhea</li> <li>• stomach pain</li> <li>• unexplained bruising or bleeding</li> </ul> <p>Asymptomatic (no fever or other symptoms consistent with Ebola)</p>	<ul style="list-style-type: none"> <li>• Implement rapid isolation with immediate contact of public health authorities to arrange for safe transport to an appropriate healthcare facility for Ebola evaluation</li> <li>• Medical evaluation is required.             <ul style="list-style-type: none"> <li>◦ Isolation orders may be used to ensure compliance</li> <li>◦ Air travel is permitted only by air medical transport</li> </ul> </li> <li>• If medically evaluated and discharged with a diagnosis other than Ebola, conditions as outlined for asymptomatic individuals in this exposure category will apply</li> </ul> <ul style="list-style-type: none"> <li>• Direct active monitoring</li> <li>• Public health authority will ensure, through orders as necessary, the following minimum restrictions:             <ul style="list-style-type: none"> <li>◦ Controlled movement: exclusion from all long-distance and local public conveyances (aircraft, ship, train, bus and subway)</li> <li>◦ Exclusion from public places (e.g., shopping centers, movie theaters), and congregate gatherings</li> <li>◦ Exclusion from workplaces for the duration of the public health order, unless approved by the state or local health department (telework is</li> </ul> </li> </ul>

# Example 1

## **Contact 1:**

**Healthcare worker who held emesis basin for the patient while he was vomiting without face mask or eye protection. The next day, the patient tested positive for Ebola.**

- **Exposure:**
- **Risk category:**
- **Action:**

# Example 1

## Contact 1:

Healthcare worker who held emesis basin for the patient while he was vomiting without face mask or eye protection. The next day, the patient tested positive for Ebola.

- **Exposure:**

**Exposure to the blood or body fluids of a person with Ebola while the person was symptomatic without appropriate PPE**

- **Risk category:**

- **Action:**

# Example 1

## Contact 1:

Healthcare worker who held emesis basin for the patient while he was vomiting without face mask or eye protection. The next day, the patient tested positive for Ebola.

- **Exposure:**

**Exposure to the blood or body fluids of a person with Ebola while the person was symptomatic without appropriate PPE**

- **Risk category:**

**High Risk**

- **Action:**

# Example 1

## Contact 1:

Healthcare worker who held emesis basin for the patient while he was vomiting without face mask or eye protection. The next day, the patient tested positive for Ebola.

- **Exposure:**  
**Exposure to the blood or body fluids of a person with Ebola while the person was symptomatic without appropriate PPE**
- **Risk category:**  
**High Risk**
- **Action:**
  - 1. Direct Active Monitoring**
  - 2. Controlled Movement (home isolation, no work or school, no mass transportation ...)**

# Example 2

## **Contact 2:**

**Hospital nurse (in U.S) taking care of an Ebola patient while wearing appropriate PPE. No infection control breach.**

- **Exposure:**
- **Risk category:**
- **Action:**

# Example 2

## Contact 2:

Hospital nurse (in U.S) taking care of an Ebola patient while wearing appropriate PPE. No infection control breach.

- Exposure:  
**No recognized infection control breach**
- Risk category:
- Action:

# Example 2

## Contact 2:

Hospital nurse (in U.S) taking care of an Ebola patient while wearing appropriate PPE. No infection control breach.

- **Exposure:**  
**No recognized infection control breach**
- **Risk category:**  
**Low Risk**
- **Action:**

# Example 2

## Contact 2:

Hospital nurse (in U.S) taking care of an Ebola patient while wearing appropriate PPE. No infection control breach.

- **Exposure:**  
**No recognized infection control breach**
- **Risk category:**  
**Low Risk**
- **Action:**
  - 1. Direct Active Monitoring**
  - 2. No restrictions on travel, work, public conveyances, or congregate gatherings**

# Example 3

## **Contact 3:**

**Next door neighbor who collected newspapers from the patient's box and put them on the doorstep for 3 days before learning that the patient was in the hospital with Ebola.**

- **Exposure:**
- **Risk category:**
- **Action:**

# Example 3

## Contact 3:

Next door neighbor who collected newspapers from the patient's box and put them on the doorstep for 3 days before learning that the patient was in the hospital with Ebola.

- **Exposure:**

**No exposure to the patient (or body fluids, linens, etc.)  
diagnosed with Ebola**

- **Risk category:**

- **Action:**

# Example 3

## Contact 3:

**Next door neighbor who collected newspapers from the patient's box and put them on the doorstep for 3 days before learning that the patient was in the hospital with Ebola.**

- **Exposure:**  
**No exposure to the patient (or body fluids, linens, etc.)  
diagnosed with Ebola**
- **Risk category:**  
**No identifiable risk**
- **Action:**

# Example 3

## Contact 3:

Next door neighbor who collected newspapers from the patient's box and put them on the doorstep for 3 days before learning that the patient was in the hospital with Ebola.

- **Exposure:**  
**No exposure to the patient (or body fluids, linens, etc.)  
diagnosed with Ebola**
- **Risk category:**  
**No identifiable risk**
- **Action:**  
**Reassure that there is no risk**

# Example 4

## **Contact 4:**

**Patient's girlfriend who has slept on the couch ever since he got back from Sierra Leone and gave him a hug every night, with patient not feeling well.**

- **Exposure:**
- **Risk category:**
- **Action:**

# Example 4

## Contact 4:

**Patient's girlfriend who has slept on the couch ever since he got back from Sierra Leone and gave him a hug every night, with patient not feeling well.**

- **Exposure:**  
**Close contact in households, healthcare facilities, or community settings with a person with Ebola while the person was symptomatic**
- **Risk category:**
- **Action:**

# Example 4

## Contact 4:

Patient's girlfriend who has slept on the couch ever since he got back from Sierra Leone and gave him a hug every night, with patient not feeling well.

- **Exposure:**  
**Close contact in households, healthcare facilities, or community settings with a person with Ebola while the person was symptomatic**
- **Risk category:**  
**Some risk**
- **Action:**

# Example 4

## Contact 4:

Patient's girlfriend who has slept on the couch ever since he got back from Sierra Leone and gave him a hug every night, with patient not feeling well.

- **Exposure:**

**Close contact in households, healthcare facilities, or community settings with a person with Ebola while the person was symptomatic**

- **Risk category:**

**Some risk**

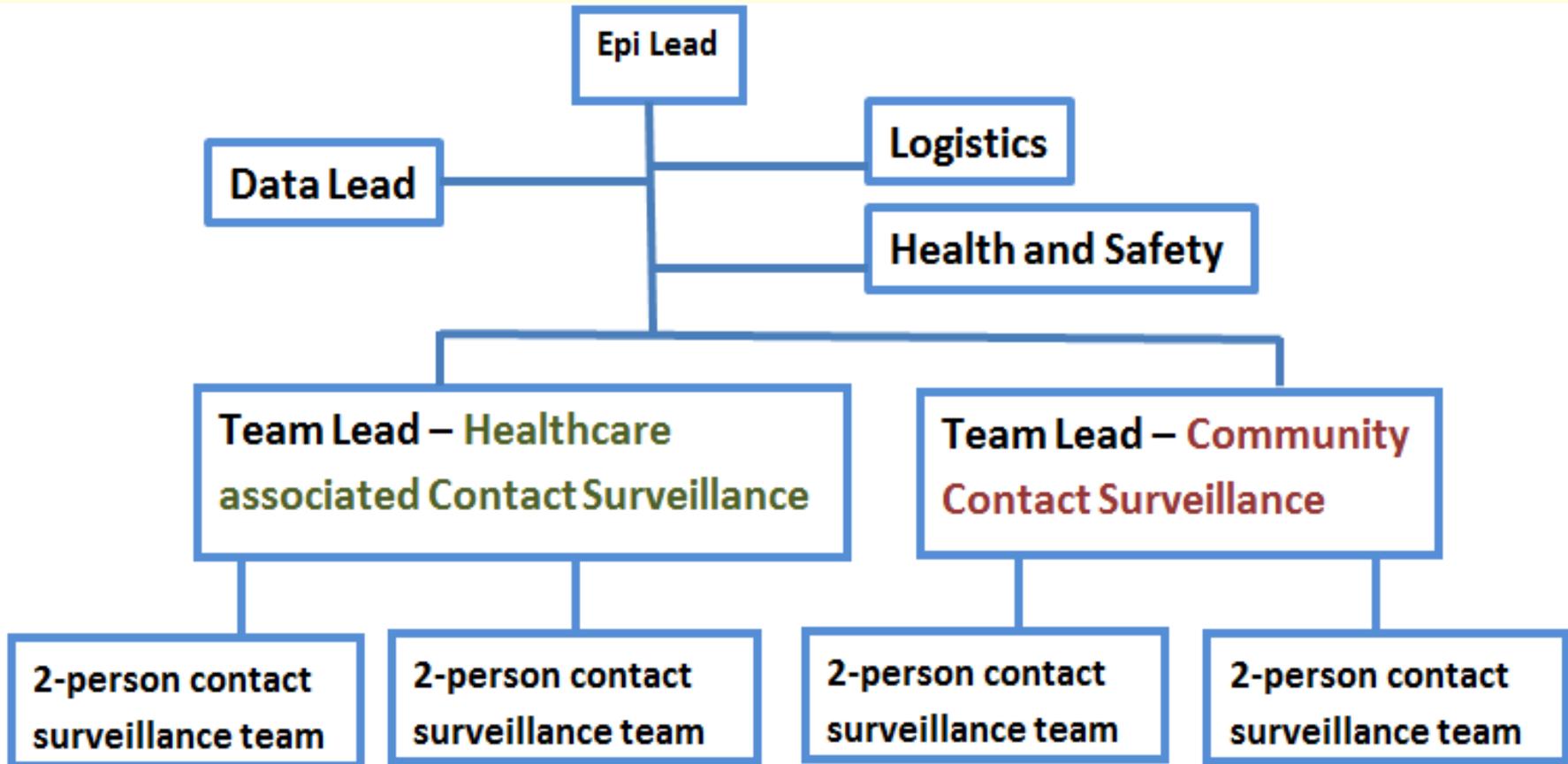
- **Action:**

- 1. Direct Active Monitoring**
- 2. Controlled Movement**
- 3. Coordinate travel with public health**

# Best Practices for Contact Tracers

- **Qualities of contact tracer: caring and competent**
- **Follow safety precautions** (same as returned travelers)
- **Educate contact about the monitoring process**
- **Discuss restrictions**
- **Recognize the needs of contacts**
- **Unable to locate contact – notify supervisor**

# Contact Investigation Staffing (proposed)



## Ebola Virus Disease Contact Tracing Form

State/Local ID:

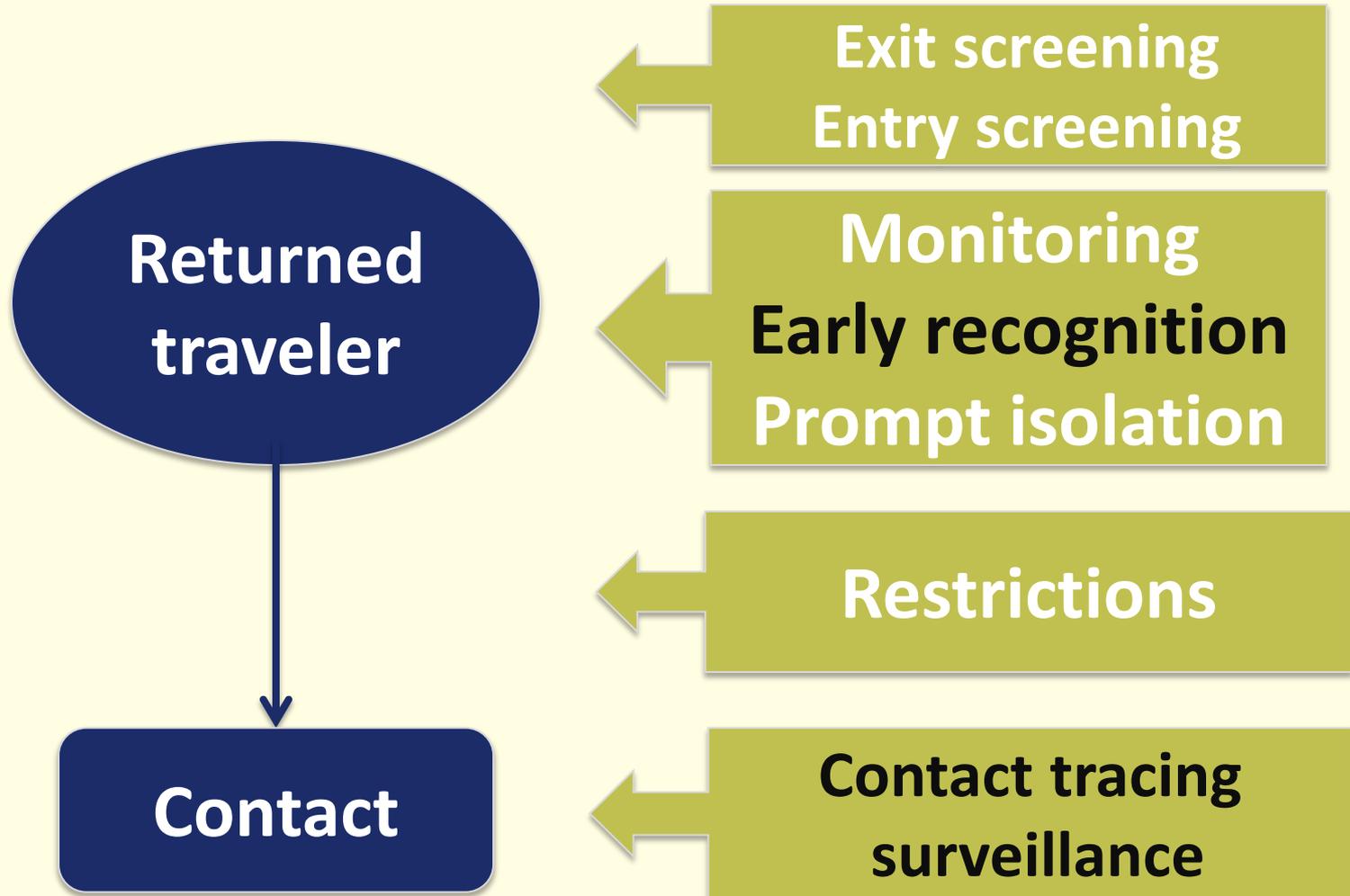
CDC ID:



<b>XII. Contact Symptom Follow-Up Diary</b>				
<b>1 day after last exposure</b> <small>MM / DD / YYYY</small>	<b>2 days after last exposure</b> <small>MM / DD / YYYY</small>	<b>3 days after last exposure</b> <small>MM / DD / YYYY</small>	<b>4 days after last exposure</b> <small>MM / DD / YYYY</small>	<b>5 days after last exposure</b> <small>MM / DD / YYYY</small>
<input type="checkbox"/> No symptoms <input type="checkbox"/> Fever _____°F <input type="checkbox"/> Chills <input type="checkbox"/> Weakness <input type="checkbox"/> Headache <input type="checkbox"/> Muscle Aches <input type="checkbox"/> Abdominal Pain <input type="checkbox"/> Diarrhea _____times/day <input type="checkbox"/> Vomiting <input type="checkbox"/> Unexplained hemorrhage <input type="checkbox"/> Other _____	<input type="checkbox"/> No symptoms <input type="checkbox"/> Fever _____°F <input type="checkbox"/> Chills <input type="checkbox"/> Weakness <input type="checkbox"/> Headache <input type="checkbox"/> Muscle Aches <input type="checkbox"/> Abdominal Pain <input type="checkbox"/> Diarrhea _____times/day <input type="checkbox"/> Vomiting <input type="checkbox"/> Unexplained hemorrhage <input type="checkbox"/> Other _____	<input type="checkbox"/> No symptoms <input type="checkbox"/> Fever _____°F <input type="checkbox"/> Chills <input type="checkbox"/> Weakness <input type="checkbox"/> Headache <input type="checkbox"/> Muscle Aches <input type="checkbox"/> Abdominal Pain <input type="checkbox"/> Diarrhea _____times/day <input type="checkbox"/> Vomiting <input type="checkbox"/> Unexplained hemorrhage <input type="checkbox"/> Other _____	<input type="checkbox"/> No symptoms <input type="checkbox"/> Fever _____°F <input type="checkbox"/> Chills <input type="checkbox"/> Weakness <input type="checkbox"/> Headache <input type="checkbox"/> Muscle Aches <input type="checkbox"/> Abdominal Pain <input type="checkbox"/> Diarrhea _____times/day <input type="checkbox"/> Vomiting <input type="checkbox"/> Unexplained hemorrhage <input type="checkbox"/> Other _____	<input type="checkbox"/> No symptoms <input type="checkbox"/> Fever _____°F <input type="checkbox"/> Chills <input type="checkbox"/> Weakness <input type="checkbox"/> Headache <input type="checkbox"/> Muscle Aches <input type="checkbox"/> Abdominal Pain <input type="checkbox"/> Diarrhea _____times/day <input type="checkbox"/> Vomiting <input type="checkbox"/> Unexplained hemorrhage <input type="checkbox"/> Other _____
<b>6 days after last exposure</b> <small>MM / DD / YYYY</small>	<b>7 days after last exposure</b> <small>MM / DD / YYYY</small>	<b>8 days after last exposure</b> <small>MM / DD / YYYY</small>	<b>9 days after last exposure</b> <small>MM / DD / YYYY</small>	<b>10 days after last exposure</b> <small>MM / DD / YYYY</small>
<input type="checkbox"/> No symptoms <input type="checkbox"/> Fever _____°F <input type="checkbox"/> Chills <input type="checkbox"/> Weakness <input type="checkbox"/> Headache <input type="checkbox"/> Muscle Aches <input type="checkbox"/> Abdominal Pain <input type="checkbox"/> Diarrhea _____times/day <input type="checkbox"/> Vomiting <input type="checkbox"/> Unexplained hemorrhage <input type="checkbox"/> Other _____	<input type="checkbox"/> No symptoms <input type="checkbox"/> Fever _____°F <input type="checkbox"/> Chills <input type="checkbox"/> Weakness <input type="checkbox"/> Headache <input type="checkbox"/> Muscle Aches <input type="checkbox"/> Abdominal Pain <input type="checkbox"/> Diarrhea _____times/day <input type="checkbox"/> Vomiting <input type="checkbox"/> Unexplained hemorrhage <input type="checkbox"/> Other _____	<input type="checkbox"/> No symptoms <input type="checkbox"/> Fever _____°F <input type="checkbox"/> Chills <input type="checkbox"/> Weakness <input type="checkbox"/> Headache <input type="checkbox"/> Muscle Aches <input type="checkbox"/> Abdominal Pain <input type="checkbox"/> Diarrhea _____times/day <input type="checkbox"/> Vomiting <input type="checkbox"/> Unexplained hemorrhage <input type="checkbox"/> Other _____	<input type="checkbox"/> No symptoms <input type="checkbox"/> Fever _____°F <input type="checkbox"/> Chills <input type="checkbox"/> Weakness <input type="checkbox"/> Headache <input type="checkbox"/> Muscle Aches <input type="checkbox"/> Abdominal Pain <input type="checkbox"/> Diarrhea _____times/day <input type="checkbox"/> Vomiting <input type="checkbox"/> Unexplained hemorrhage <input type="checkbox"/> Other _____	<input type="checkbox"/> No symptoms <input type="checkbox"/> Fever _____°F <input type="checkbox"/> Chills <input type="checkbox"/> Weakness <input type="checkbox"/> Headache <input type="checkbox"/> Muscle Aches <input type="checkbox"/> Abdominal Pain <input type="checkbox"/> Diarrhea _____times/day <input type="checkbox"/> Vomiting <input type="checkbox"/> Unexplained hemorrhage <input type="checkbox"/> Other _____

# Take Home Message

## How do we prevent Ebola transmission in the U.S.?



## Centers for Disease Control and Prevention

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

## Division of Infectious Disease Epidemiology

<http://www.dhhr.wv.gov/oeps/disease/zoonosis/other/ebola/pages/default.aspx>

## World Health Organization

<http://www.who.int/csr/disease/ebola/en/>

**PLEASE FILL OUT THE  
“CASE AND CONTACT INVESTIGATION”  
PRESENTATION EVALUATION.**

**THANK YOU!**

# Contact Information

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350 Capitol Street, Room 125

Charleston, WV 25301

Tel. No. (800) 423-1271 ext. 1

[www.dide.wv.gov](http://www.dide.wv.gov)

## Flu (influenza)



The flu is common a contagious respiratory illness caused by flu viruses. The flu is different from a cold.

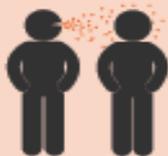
Flu can cause mild to severe illness, and complications can lead to death.

## Ebola



Ebola is a rare and deadly disease caused by infection with an Ebola virus.

## How Flu Germs Are Spread



The flu is spread mainly by droplets made when people who have flu cough, sneeze, or talk. Viruses can also spread on surfaces, but this is less common.

People with flu can spread the virus before, during, and after they are sick.

## How Ebola Germs are Spread



Ebola can only be spread by direct contact with blood or body fluids from

- A person who is sick or who has died of Ebola.
- Objects like needles that have been in contact with the blood or body fluids of a person sick with Ebola.

Ebola cannot spread in the air or by water or food.

## Who Gets The Flu?



Anyone can get the flu.

Some people—like very young children, older adults, and people with some health conditions—are at high risk of serious complications.

## Who Gets Ebola?



People most at risk of getting Ebola are

- Healthcare providers taking care of Ebola patients.
- Friends and family who have had unprotected direct contact with blood or body fluids of a person sick with Ebola.

## Signs and Symptoms of Flu

The signs and symptoms of flu usually develop within 2 days after exposure. Symptoms come on quickly and all at once.

## Signs and Symptoms of Ebola



The signs and symptoms of Ebola can appear 2 to 21 days after exposure. The average time is 8 to 10 days. Symptoms of Ebola develop over several days and become progressively more severe.

- *People with Ebola cannot spread the virus until symptoms appear.*



- **Fever or feeling feverish**
- **Headache**
- **Muscle or body aches**
- **Feeling very tired (fatigue)**
- **Cough**
- **Sore throat**
- **Runny or stuffy nose**



- **Fever**
- **Severe headache**
- **Muscle pain**
- **Feeling very tired (fatigue)**
- **Vomiting and diarrhea develop after 3–6 days**
- **Weakness (can be severe)**
- **Stomach pain**
- **Unexplained bleeding or bruising**

# Is it Flu or Ebola?

For more information about the flu and Ebola, visit [www.cdc.gov/flu](http://www.cdc.gov/flu) and [www.cdc.gov/ebola](http://www.cdc.gov/ebola).

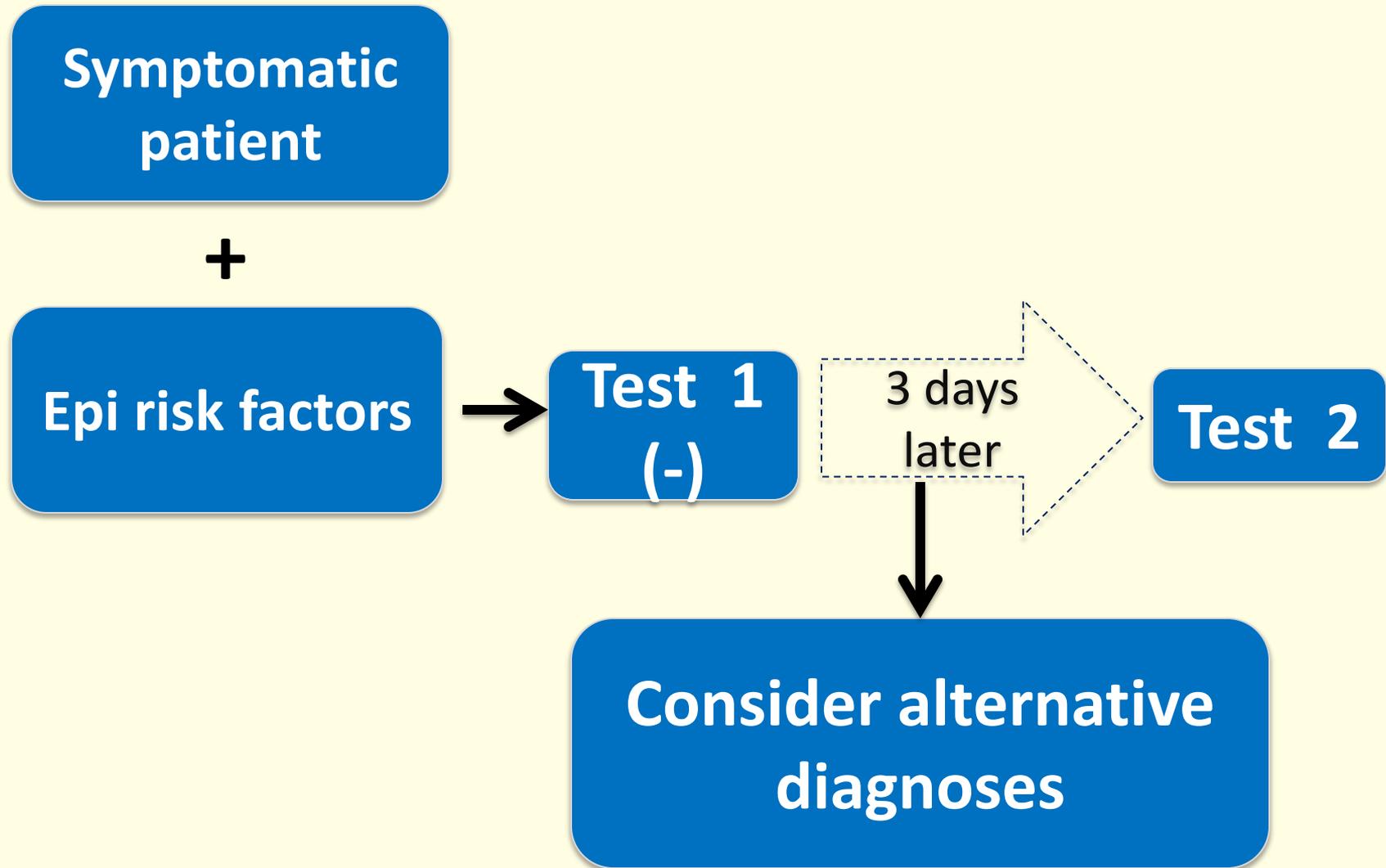
# Recognizing a Suspect Case of EVD

## IDENTIFY

Assess your patient for:

- **Travel to an area** with Ebola within the last 21 days, **OR**
- **Contact** with someone with Ebola, **AND**
- Had a **fever** at home, or have a current temperature  $\geq 100.4^{\circ}\text{F}$  ( $\geq 38^{\circ}\text{C}$ )
- Other **symptoms**:
  - ☹ Severe headache
  - ☹ Muscle pain
  - ☹ Weakness
  - ☹ Fatigue
  - ☹ Diarrhea
  - ☹ Vomiting
  - ☹ Abdominal pain
  - ☹ Unexplained hemorrhage
- If the patient has both **exposure and symptoms**, **IMMEDIATELY** separate the patient and inform others

# Recognizing a Suspected EVD Patient



## Contact Tracing Form

<http://www.dhhr.wv.gov/oeps/disease/zoonosis/other/documents/ebola/cdc-ebola-contact-form.pdf>

### Part 1

- Demographic information – interviewer, contact
- Exposure information
- Activities during exposure period
- Healthcare worker – facility, exposure, PPE use
- Actions

### Part 2

- Follow-up diary – date and symptom

## Early Symptoms

Ebola can only be spread to others after symptoms begin. Symptoms can appear from 2 to 21 days after exposure.

- **Fever**
- **Stomach pain**
- **Headache**
- **Unexplained bleeding or bruising**
- **Fatigue**
- **Muscle pain**
- **Diarrhea**
- **Vomiting**