Experiences of CDC and Emory Healthcare in Managing Persons Under Investigation for Ebola

Clinician Outreach and Communication Activity (COCA) Webinar
March 31, 2015

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Objectives

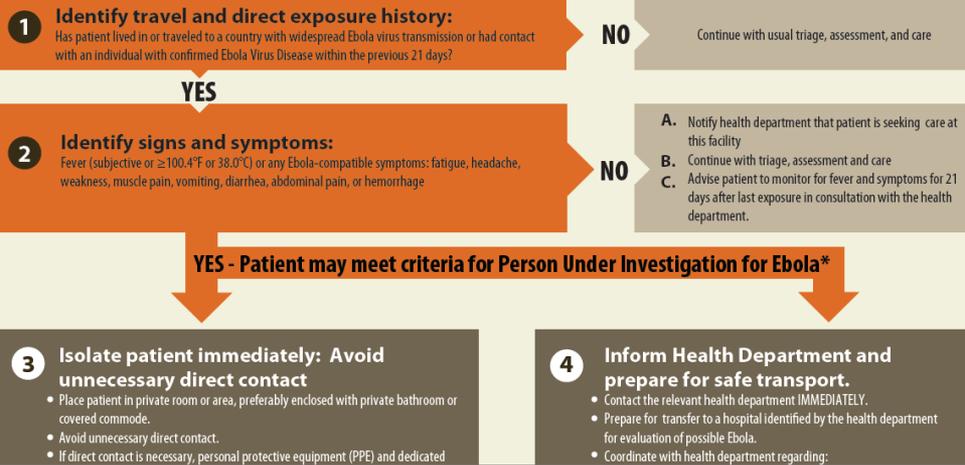At the conclusion of this session, the participant will be able to:

- ❏ State the numbers of travelers and persons under investigation for Ebola in the US from August 2014-March 2015
- ❏ Discuss the most common diagnoses for persons under investigation for Ebola
- ❏ Describe the importance for appropriate evaluation of persons under investigation for Ebola in assessment hospitals
- ❏ Compare and contrast different options for evaluation of persons under investigation for Ebola

TODAY'S PRESENTER

Identify, Isolate, Inform: Ambulatory Care Evaluation of Patients with Possible Ebola Virus Disease (Ebola)

The majority of febrile patients in ambulatory settings do not have Ebola Virus Disease (Ebola), and the risk posed by Ebola patients with early, limited symptoms is lower than that from a patient hospitalized with severe disease. Nevertheless, because early Ebola symptoms are similar to those seen with other febrile illnesses, triage and evaluation processes should consider and systematically assess patients for the possibility of Ebola.

1 Identify travel and direct exposure history:
Has patient lived in or traveled to a country with widespread Ebola virus transmission or had contact with an individual with confirmed Ebola Virus Disease within the previous 21 days?

NO → Continue with usual triage, assessment, and care

YES

2 Identify signs and symptoms:
Fever (subjective or ≥100.4°F or 38.0°C) or any Ebola-compatible symptoms: fatigue, headache, weakness, muscle pain, vomiting, diarrhea, abdominal pain, or hemorrhage

NO →
A. Notify health department that patient is seeking care at this facility
B. Continue with triage, assessment and care
C. Advise patient to monitor for fever and symptoms for 21 days after last exposure in consultation with the health department.

YES - Patient may meet criteria for Person Under Investigation for Ebola*

3 Isolate patient immediately: Avoid unnecessary direct contact
• Place patient in private room or area, preferably enclosed with private bathroom or covered commode.
• Avoid unnecessary direct contact.
• If direct contact is necessary, personal protective equipment (PPE) and dedicated

4 Inform Health Department and prepare for safe transport.
• Contact the relevant health department IMMEDIATELY.
• Prepare for transfer to a hospital identified by the health department for evaluation of possible Ebola.
• Coordinate with health department regarding:

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TODAY'S PRESENTER

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Domestic Clinical Inquiries

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U.S. Department of Health and Human Services
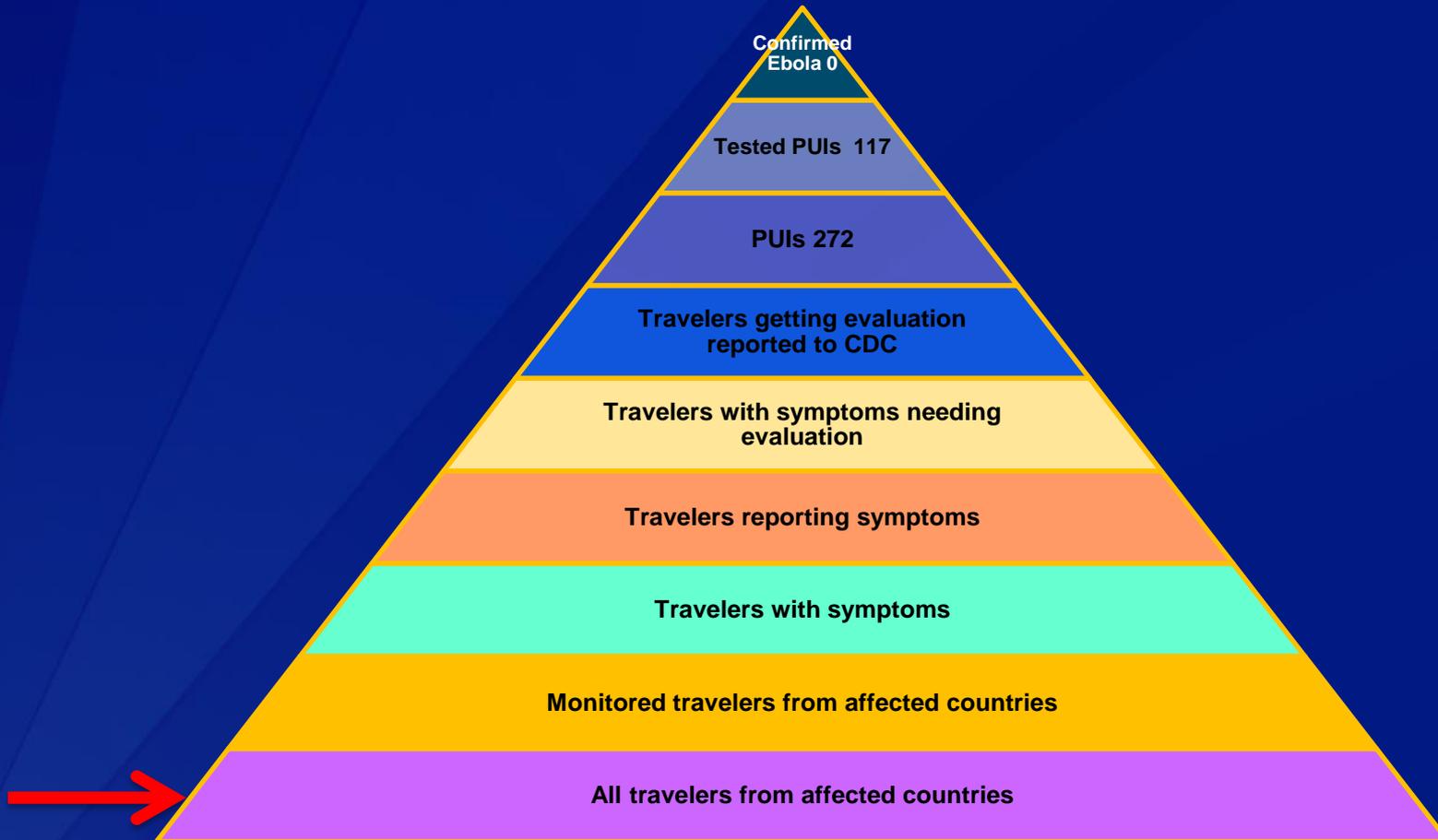
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Overview

❑ **Introduction: role of Clinical Inquiries Team**

❑ **Background: returning U.S. travelers**

❑ **Geographic distribution of inquiries and persons under investigation (PUIs)**

❑ **Common diagnoses among PUIs**

❑ **Case studies**

❑ **Emory: outpatient management of PUIs**

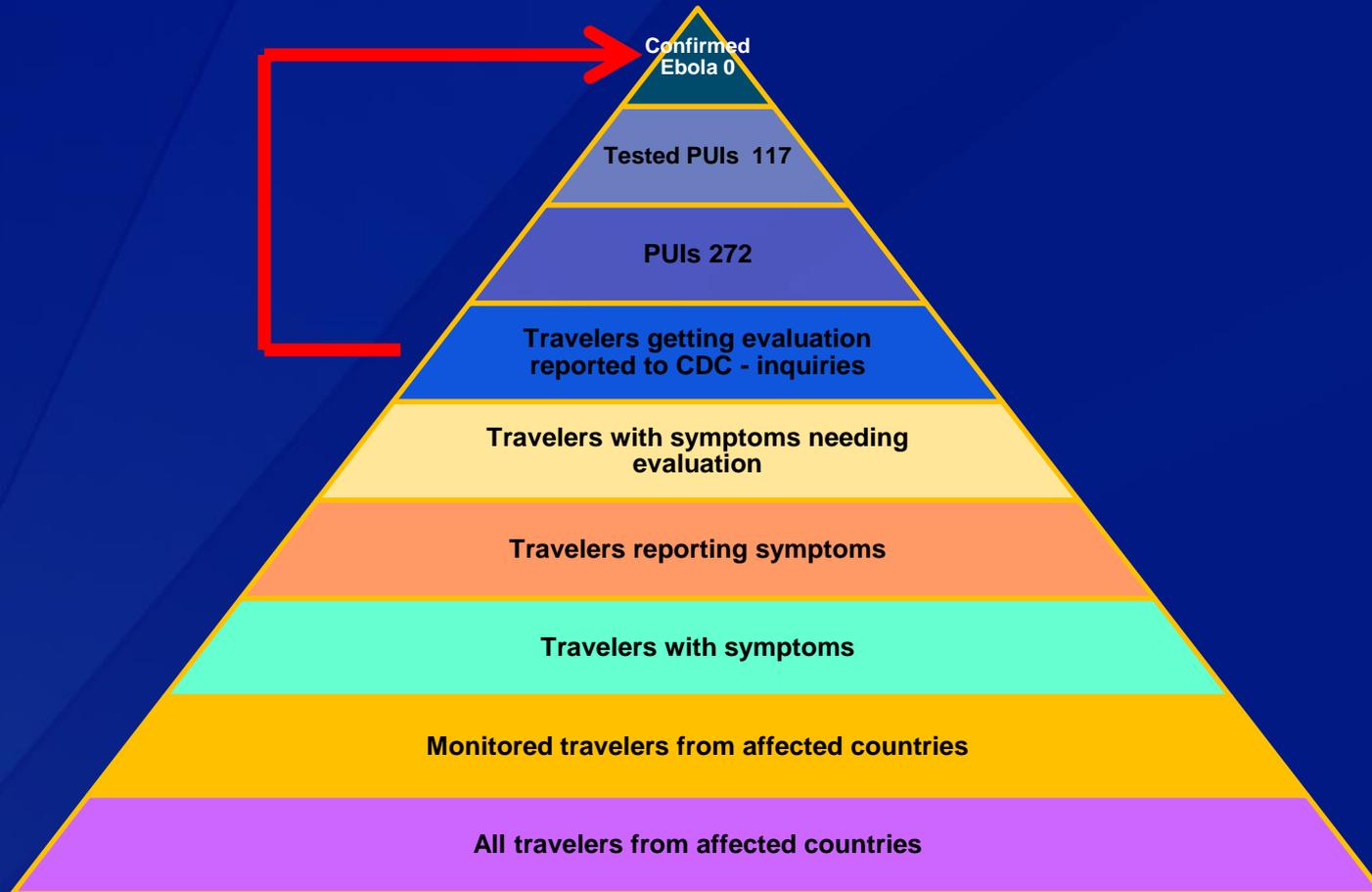 ▪ Triage, arrival, care, team, clinical, lab, disposition, waste, f/u

❑ **Questions**

# Number of persons traveling, monitored, and reported to CDC as PUIs with concerns about Ebola - United States, 2014-15

Confirmed Ebola 0

Tested PUIs 117

PUIs 272

Travelers getting evaluation reported to CDC

Travelers with symptoms needing evaluation

Travelers reporting symptoms

Travelers with symptoms

Monitored travelers from affected countries

All travelers from affected countries

Layered Lines of Defense against Ebola

United States

ENTRY screening

Travelers coming from countries with widespread Ebola transmission fly into one of five US airports (New York JFK, Newark, Washington-Dulles, Chicago O'Hare, and Atlanta).

Travelers are screened for symptoms and potential exposures and referred for post-arrival monitoring.

En Route

All aircraft arriving in the United States are required to report deaths onboard and travelers with certain signs/symptoms of illness to CDC.

West Africa

EXIT screening

All travelers leaving countries with widespread Ebola transmission are screened before getting on their flight.

Symptomatic or exposed travelers are not permitted to travel.

U.S. Entry Screening Data: 10/11/2014-3/24/2015

Travelers Screened	Referred to CDC for Public Health Assessment	Medical Evaluation (transported from airport)	Ebola Cases Detected on Entry
11,361	1,244 (11%)	20 (<0.2%)	0*

* One traveler identified as a case after developing initial symptoms 4 days after arrival

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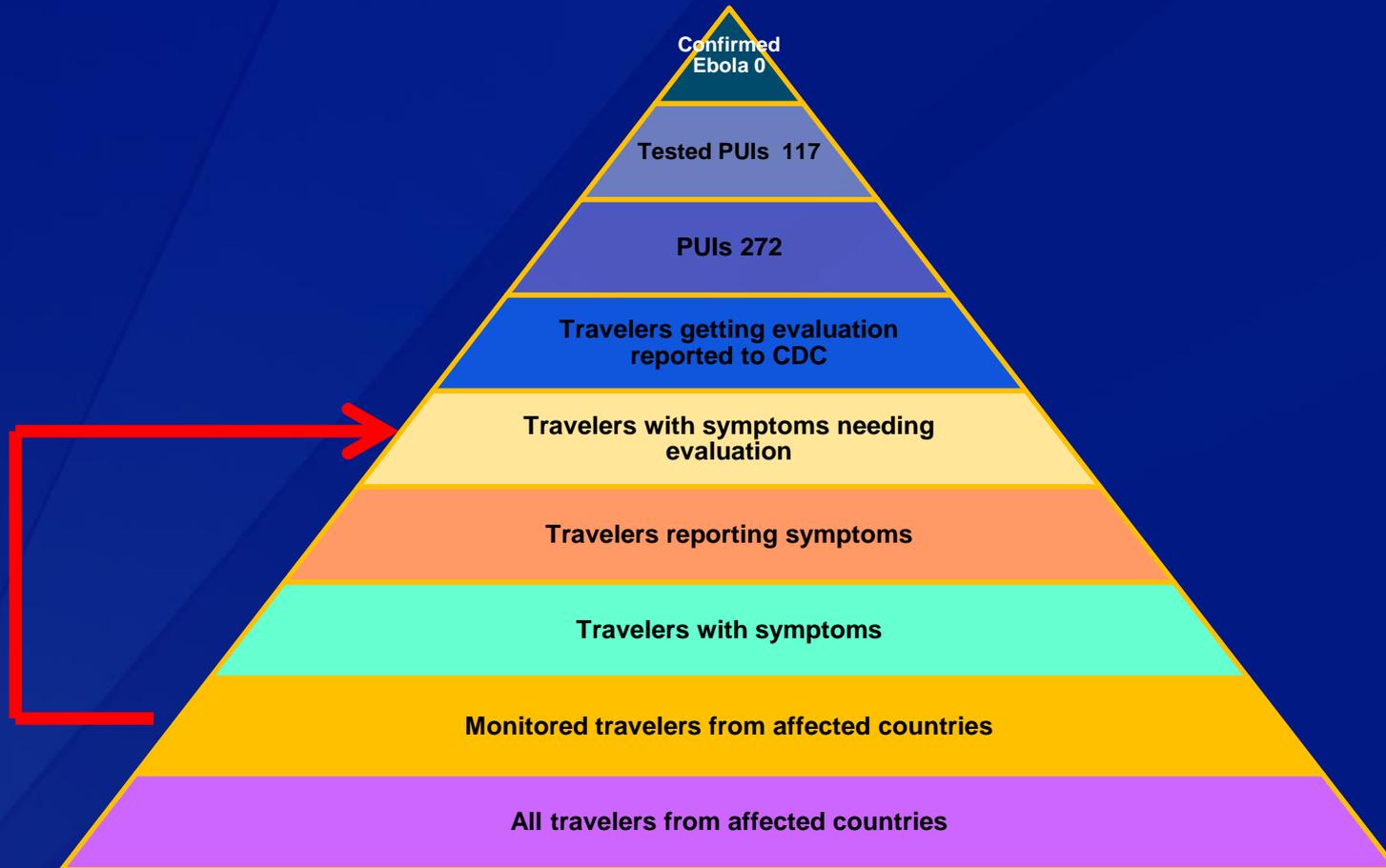
Travelers monitored in the U.S.
March 16, 2015 – March 22, 2015

- **1,989 persons in active or direct active monitoring**
  - 73 some- or high-risk at any time during the reporting period
  - 29 states with some- or high-risk persons under monitoring
- **99.9% of travelers were contacted for monitoring**
- **0 persons under monitoring in U.S. diagnosed with Ebola**

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Travelers getting evaluation reported to CDC - inquiries

Travelers with symptoms needing evaluation

Travelers reporting symptoms

Travelers with symptoms

Monitored travelers from affected countries

All travelers from affected countries

Source: CDC Domestic Clinical Inquiries Team

Clinical Inquiries Team

❑ Address inquiries about evaluation of travelers who may be persons under investigation (PUIs)

❑ Document inquiries and PUI management

❑ Communicate to HHS, other Federal partners, state and local health departments

Domestic Clinical Inquiries (n=982) and Number of People Tested (n=117), by State, 9 July 2014-29 March 2015
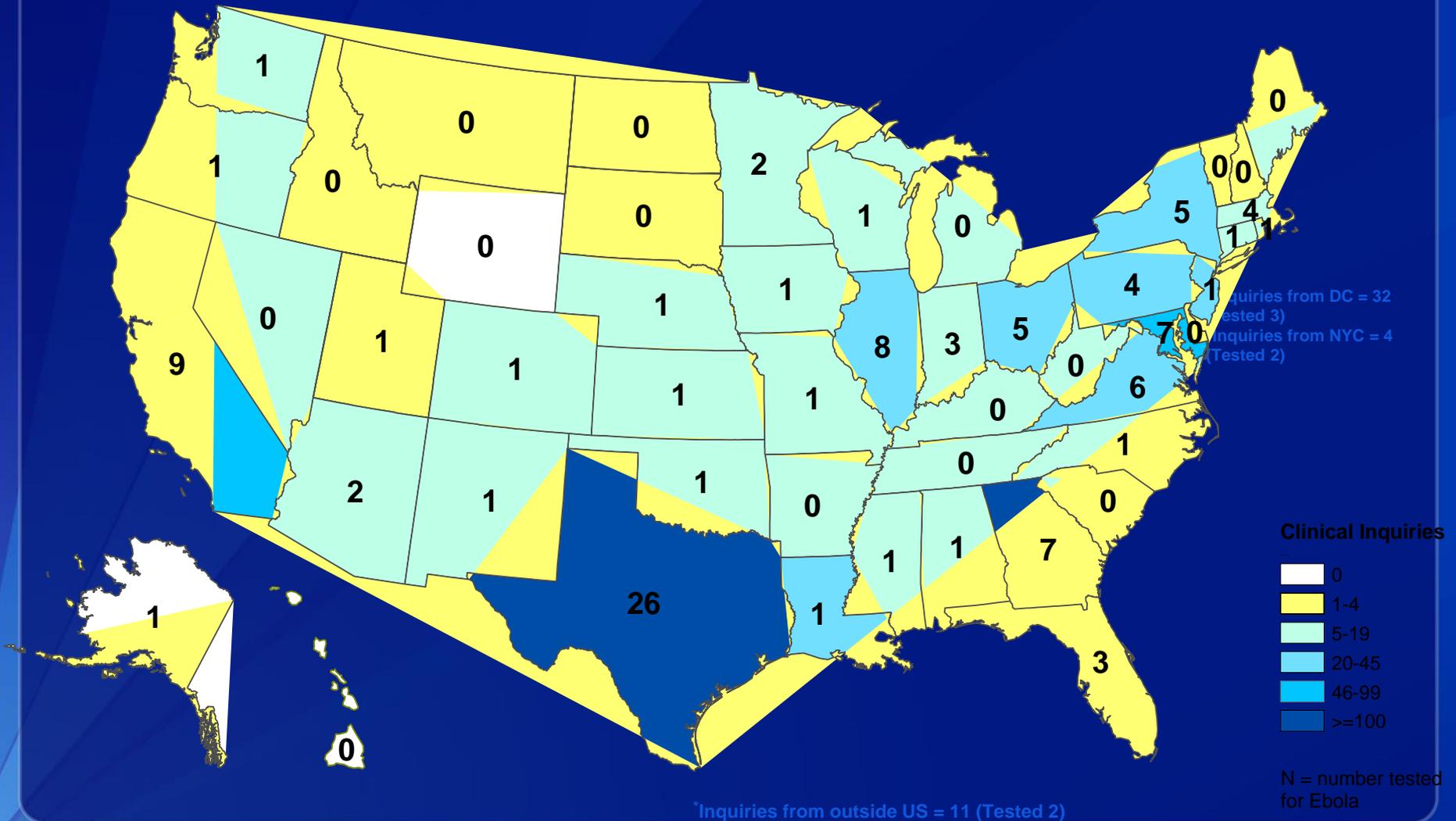
Domestic Clinical Inquiries by epi week, Testing through March 28, 2015

	Total # Inquiries	# Tested
Total to date	982	117
Epi Week 12	12	3
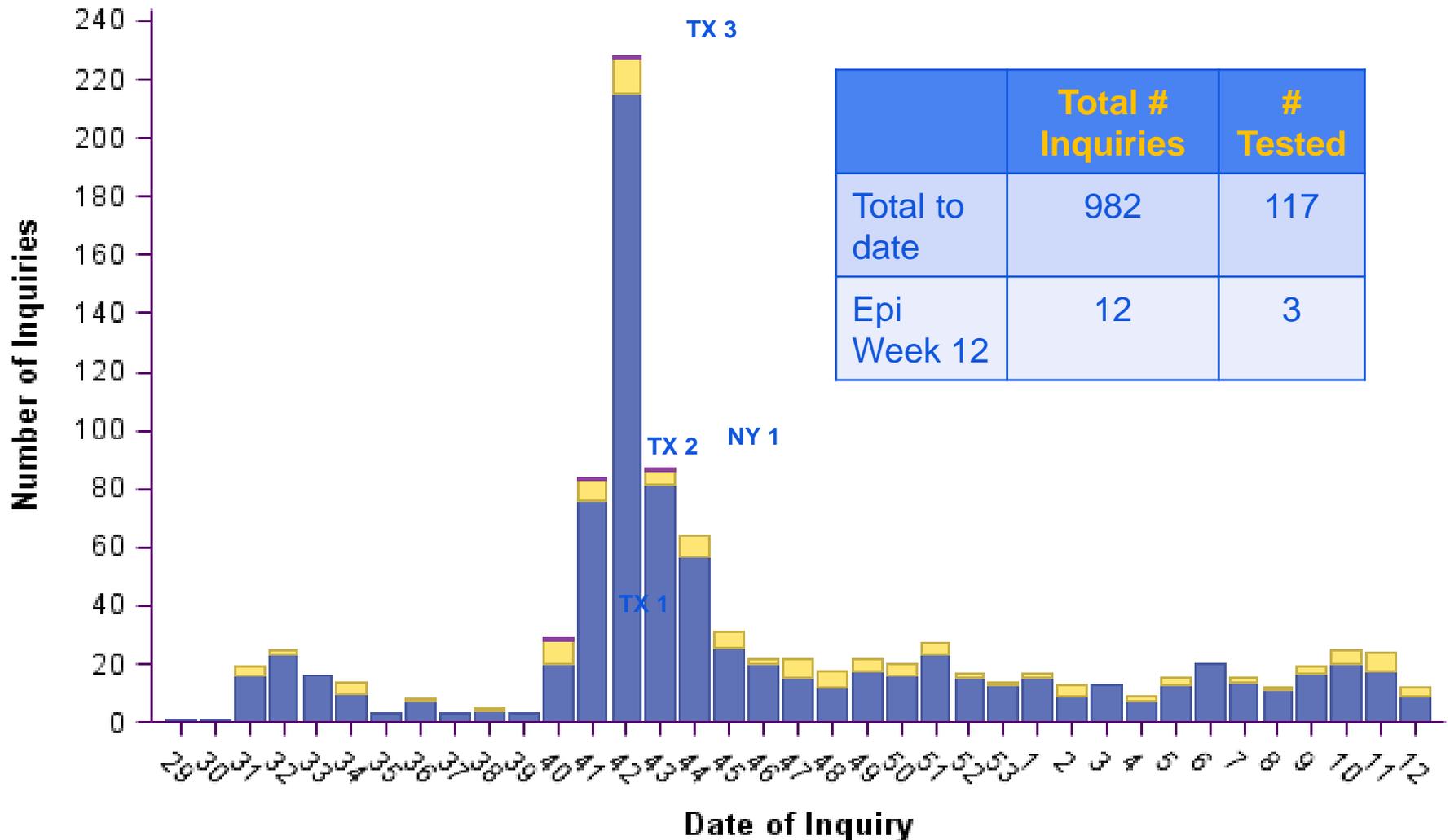
Top five diagnoses among PUIs reported to CDC*
December 1, 2014 – March 24, 2015
n=110

Diagnosis	N=110	%
1 Gastroenteritis	36	33
2 Upper respiratory infection	19	17
3 Influenza	18	16
4 Malaria	10	9
5 Unknown/other	7	6

* may not include all PUIs in the U.S.

Case Study #1
Presentation

- ❑ 4-year-old arrived from Liberia
- ❑ Classified as low but not zero risk, no known Ebola exposure, started active monitoring
- ❑ Developed fever 101.7°F on day 15, no other symptoms, family well
- ❑ Evaluation recommended on day 16, went to Hospital A
- ❑ Fever of 102°F and one moderately loose stool in hospital

Case Study #1
Test Results and Outcomes

- Rapid test: *P. falciparum* + and *P. vivax* +
- Hct 19, plts 42k, Tbili 3.5
- Hospital A uncomfortable treating child PUI despite alternative diagnosis of malaria
- Transferred by EMTs in full PPE to Hospital B late on day 17
- Slow clinical improvement, delay in malaria treatment
- Ebola testing negative >72 hours after development of symptoms

Case study #2 - Media

- Traveler arrived from Guinea
- Monitoring initiated by local health department
- Traveler reported 102°F to LHD on day 5, early am
- LDH called local hospital to initiate evaluation, then notified state
- Hospital called EMS to arrange transport
- EMS radio: "Possible Ebola patient being transported…"
- Reporter monitoring EMS radio filed press report
- DHHS, CDC, State Health Department unaware of PUI getting evaluation

Case study #3
Presentation

- 47-year-old entered U.S. from Liberia
- Low but not zero risk (training workers, no contact with persons with Ebola), monitoring in rural state
- Temp of 101.1°F, fatigue and myalgia on day 5
- In the previous week, one family member had fever, headache, and vomiting; other family members feeling "sick" with cold symptoms
- Conference call with state HD: agreed on need to evaluate, but some concern about rural hospital readiness, media exposure and confidentiality, and actual need for admission for these symptoms

Case study #3
Management

❑ Decision to test for respiratory viruses using rapid test for influenza and PCR in state lab

❑ Specimen (NP swab) collection performed while PUI in car in ER parking lot

❑ PUI returned to self-isolation at home

❑ ED prescribed oseltamivir for PUI, sick family members, and prophylaxis for those not sick in household

❑ PUI developed sore throat and cough that evening

❑ Advised to take temperature before taking antipyretics

Case study #3
Test Results and Outcomes

- Rapid influenza negative, PCR positive for influenza A
- 24 hours after initiating oseltamivir (3 doses) PUI substantially improved, afebrile off anti-pyretics, with some residual myalgia, congestion, and cough
- Family members also improved
- PUI returned to work two days later
- State lab PCR machine not used for 24-36 hours until clinical improvement assured team that Ebola was not the diagnosis. This stoppage necessitated sending some specimens for testing to other labs.

Take-home points from case studies

- Appropriate care should be provided in a timely manner
- Media notification can often be managed
- Consider how and when outpatient management may be advantageous

Why Even Consider Ambulatory Evaluation for PUI in the U.S.

- ❑ Low risk of actual Ebola infection
- ❑ ED or inpatient care unnecessary for most common travel-related infections
- ❑ Reduce burden on ED and inpatient resources
- ❑ Minimize patient stress and exposure to hospitalization risks
- ❑ Minimize public visibility

Key Parts of a PUI Clinic Visit

- ❑ Triage and scheduling
- ❑ Arrival to clinic
- ❑ Exam room
- ❑ Care team
- ❑ Clinical approach
- ❑ Lab testing
- ❑ Disposition and follow-up
- ❑ Waste management and environmental cleaning

Triage and Scheduling I

- Patient referral
  - TravelWell Center (TW) designated as the ambulatory PUI evaluation site for Emory
  - Direct referral to TW by public health authorities
- Criteria for outpatient PUI evaluation (vs. ED or SCDU)
  - Low suspicion for Ebola (unlikely to need Ebola testing)
  - No significant "wet" symptoms (N/V/D/bleeding)
  - No indication for ED or hospitalization
  - PUI can be seen during TW clinic hours without significant delay (i.e., weekend PUI triaged to ED)

Key goals:
- *Stable patients who are unlikely to have Ebola (or wet symptoms) triaged to outpatient setting*
- *Triage to other settings as appropriate*

Triage and Scheduling II

❑ Upon scheduling key parties notified:
- ❑ Public health authorities
- ❑ Infection Control
- ❑ Laboratory
- ❑ Emory Severe Communicable Diseases Unit (SCDU)
- ❑ Hospital security, environmental services
- ❑ Neighboring clinics

Key goal: Keep all stakeholders and potentially needed resources informed

Arrival to TravelWell

- Instructed to arrive at "back door" for entry via old ambulance entrance
- Arrival team (MD, RN, and security escort) meets PUI in PPE
- PUI given surgical mask and transported in wheelchair
- Security escort duties:
  - Clear route, secure elevator
  - Carry clean supplies (emesis bag, towel, etc.), communications
  - Avoid contact with PUI
- Service elevator to TW floor
- MD and RN of arrival team enter exam room with PUI

Key goals:
- *Minimize exposure to patients, staff*
- *Minimize visibility*

Exam Room

- Standard exam room with all decorations, unnecessary equipment removed or covered
- Routinely needed equipment set up in room
  - Disposable stethoscopes, BP cuff, penlight, tongue depressors, phlebotomy equipment, blood tubes, NP swabs, etc.
  - Hand sanitizer
  - Tray to "catch" needed equipment
- PRN equipment kept outside of room (e.g. bedside commode, urinal)

Key goals:
- **Minimize need for entry/exit**
- **Minimize need for passing objects in and out of room**

Staff roles and training

- Physician*
  - Conducts initial triage
  - Communicates with key internal and external collaborators
  - Examines patient, evaluates
- Nurse*
  - Transports patient to room
  - Measures VS, assists patient as needed, phlebotomy
- "Buddy"* (stationed outside room)
  - Monitor for PPE breaches, doffing etc.
  - Transfers supplies into team
- "Runner"
  - Facilitates communications, obtaining consent, specimen drop off, obtaining additional supplies, etc.

- *Physician, nurse, and "buddy" are PPE trained*
- *Well defined roles and teamwork are key!*

Clinical Approach

- History and PE
  - Exposure hx, travel dates, etc.
  - Malaria prophylaxis adherence
  - Flu vaccination, sick exposures, etc
- Aggressive "routine" lab testing
- Consideration of Ebola testing (non-routine)
- Strong consideration of empiric treatment (oseltamivir, antibiotics, antimalarials etc.)

Key goals:
- *Do not miss dangerous, treatable infections (malaria, BSI, etc.) that may be more likely*
- *Confirm alternate diagnosis if possible, or collect evidence supporting one…But an alternate diagnosis does <u>not</u> rule out Ebola*
- *Treat likely cause of illness to facilitate recovery*

Lab testing

- Phlebotomy and collection in room
- Standard tests for all febrile PUI
  - CBC/diff, CMP, malaria (RDT/smear), Bcx x 2
- Consider other tests as indicated
  - NP swab for flu PCR and viral respiratory panel
  - Consider: Throat swab (rapid strep and cx)
  - UA, urine cx
  - Stool studies
- Specimens packaged in room, wiped down, dropped into transport box outside of room, and transported to hospital laboratory

No routine Ebola testing if low suspicion
- *Turnaround time problematic for PUI in clinic*
- *Assays not sensitive during early illness*

If Ebola testing indicated, all specimens packaged and transported under Category A precautions to SCDU laboratory

Disposition and Follow-up

- Discharge home if no indication for admission AND evaluation determines Ebola as an unlikely diagnosis
  - Consider waiting for STAT test results (malaria RDT, CBC, CMP)
- Home quarantine as per public health authority
- PUI given 24/7 contact info for TW physician
- Daily phone follow-up (TW and public health authority)
- Re-evaluate if symptoms worsen or do not improve as expected for an alternative diagnoses
  - Triage to TW, ED, or SCDU as appropriate

Key goals:
- **Finalize plan with public health authority _prior_ to DC**
- **Confirm PUI recovery as would be expected for an alternative diagnosis**
- **Pursue further testing (including Ebola) for PUI with persistent symptoms consistent with Ebola**

Waste Management and Cleaning

❑ If Ebola not suspected
   ❑ All disposable equipment and trash from exam into biohazard waste chain
   ❑ Terminal cleaning of room by environmental services
❑ If Ebola suspected
   ❑ Contact SCDU team for assistance in terminal cleaning

Advance Planning is Critical

❑ Engage key stakeholders when developing plan
❑ Institutional support is key
❑ Practice is critical
   ❑ Drills
   ❑ Tabletop exercises
❑ Performance reviews following drills and implementations key for process improvement

Wu HM, Fairley JK, Steinberg J, Kozarsky P. The Potential Ebola–Infected Patient in the Ambulatory Care Setting: Preparing for the Worst Without Compromising Care. Ann Intern Med. 2015;162:66-67.

For more information please contact Centers for Disease Control and Prevention
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