Enterovirus D68 (EV-D68): COCA Call

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Enteroviruses (EVs)

- Very common viruses, > 100 types
- ~10-15 million infections in US each year
- Cause respiratory illness, febrile rash illness (HFMD), neurologic illness
- Most infected people are asymptomatic or have mild symptoms
- Infants and children more likely to become ill
- Seasonality summer and fall

Enteroviruses (EVs)

- **EVs are not nationally notifiable**
- **Nationally, there are 2 voluntary, passive laboratory surveillance systems that include information about EVs:**
  - NREVSS- National Respiratory and Enteric Virus Surveillance System
  - NESS- National Enterovirus Surveillance System

NREVSS

- Passive
- Collects data on a number of viruses, but not type
- Total number of tests performed and those that are positive (not patient level)
- Proportion of positive tests are tracked
- Seasonality for EVs has been consistent yearly: summer and fall

NESS

- **Voluntary and passive**
- **Collects data on types of enteroviruses and parechoviruses**
- **Detections with:**
  - Age, gender, state, specimen collection date, specimen type, virus type

NESS Data

- **During 2009-2012:**
  - 15 labs (including CDC) reported to NESS
  - Detections reported in 43 states and Puerto Rico
  - Specimen types:
    - CSF, OP/NP swabs– stool/rectal swabs
  - Mostly young children

NESS Data II

- **Type was reported for 1257 (68%)of 1859 detected EV and HPeV**
- **Considerable variation between years regarding EV and HPeV types**
  - EV-D68 has been detected along with parecho type 3, CA6, echoviruses….
- **Gives us a glimpse of what is circulating but influenced by attention received and investigations performed**

EV-D68

- Thought to occur less commonly
- First identified in 1962
- Known to cause respiratory illness
- Known to infect children and adults
- Similar to rhinoviruses
- Clusters have previously been described in the US, Europe, and Asia

EV-D68 Clusters

- **Since 2008 several small clusters of EV-D68 described:**
  - Largest in Japan, 120 cases reported
  - Most clusters reported < 30 cases
  - Most clusters without fatalities
    - 2 of 21 cases from Philippines cluster died
    - 1 of 11 known cases from Japan died

2014: First Signals Detected

- Increase in severe respiratory illnesses among children, PICU, hospitalizations as compared to same time frame previous years
- Increase in rhinovirus/enterovirus detections from multiplex PCR assays, as compared to same time frame previous years

EV-D68 Outbreak in the US

- **MMWR- Missouri and Illinois:**
  - 19 Kansas City (KC) in PICU; 10 of 11 in Chicago PICU
  - Children (range 6wks-16yrs- median 4 and 5yrs)
  - Most patients with history of asthma or reactive airway disease (68% KC and 73% Chicago)
  - Minority of patients with fever (26% febrile in KC and 18% in Chicago)
  - Oxygen requirement to mechanical ventilation

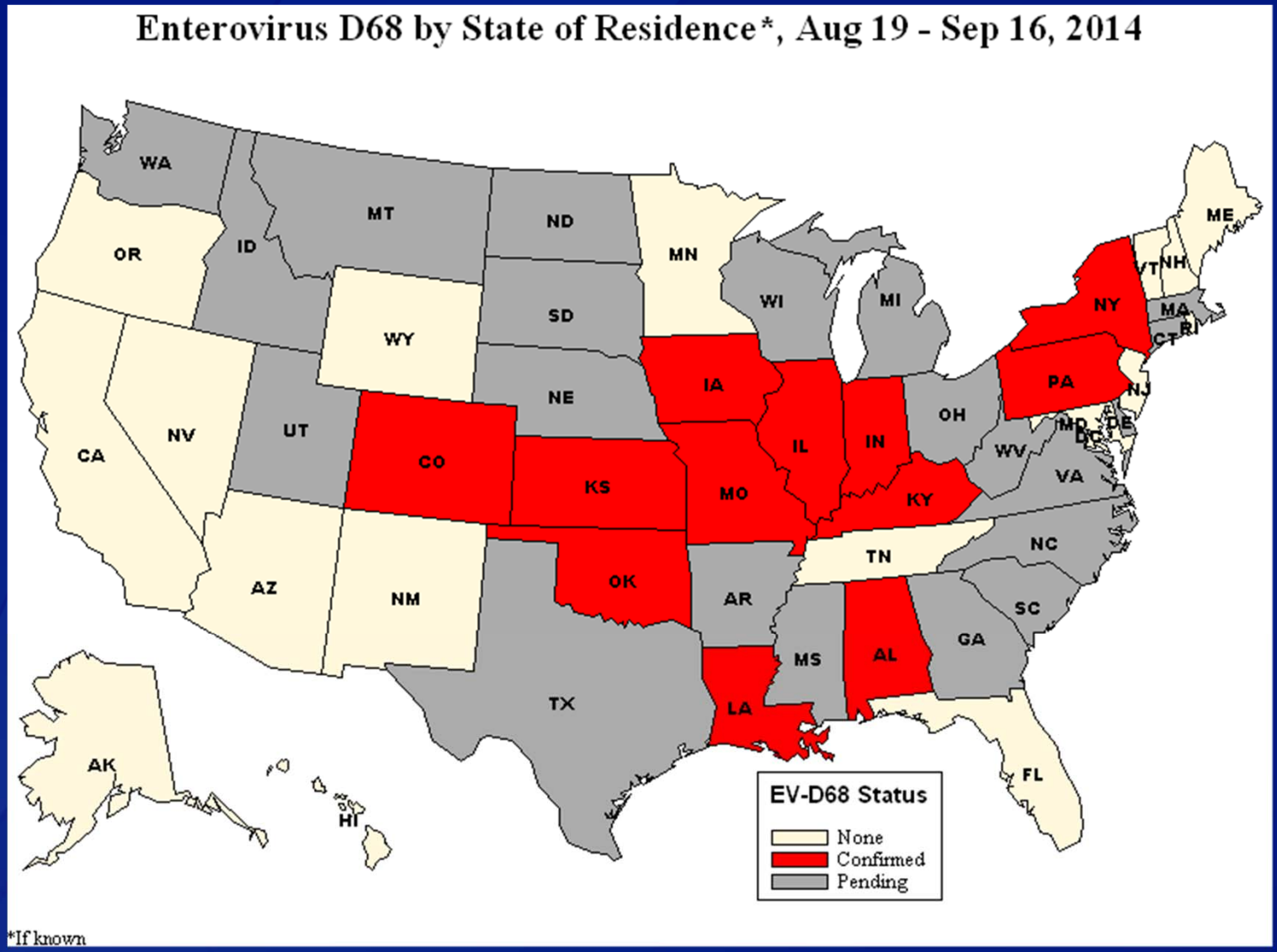
Current Status as of 9-16-14

- **130 patient specimens where EV-D68 has been identified**
  - Of those, 117of 219 (53%) specimens have been confirmed at the CDC lab
    - 13 specimens confirmed at NY State Public Health Laboratory
- **12 states affected**
- **What is different is the magnitude or degree of identification of EV-D68**

States Where EV-D68 Confirmed: 9-16-14

- Missouri
- Colorado
- Illinois
- Iowa
- Kansas
- Kentucky
- Alabama
- Louisiana
- New York
- Indiana
- Oklahoma
- Pennsylvainia

EV-D68 State of Residence



Other Respiratory Viruses Circulating

- Not all detections have been EV-D68
- Rhinoviruses
- Coxsackieviruses
- Echoviruses

Lab Testing

- Few states have the ability to identify EV-D68
- To determine EV-D68 requires sequencing of the VP1 region of the genome
- Need for a real time PCR assay……..

Infection control

- Standard and contact precautions as is recommended for all enteroviruses
- As EV-D68 is a cause of clusters of respiratory illness, similar to rhinoviruses, droplet precautions also should be considered as an interim recommendation until there is more definitive information available on appropriate infection control.

Environmental Disinfection

- **Environmental disinfection**
  - Bleach works
  - Hospital grade disinfectant with an EPA label claim for any of the several non-enveloped viruses

Reporting

- Not nationally notifiable
- Reporting of clusters
- Some states may have specific reporting requirements
- Clinicians should report to local and state health departments if suspected clusters of EV-D68

Priorities for Testing

- **Severely ill patients**
- **New populations**
  - Adults
  - Group settings
- **New locations**

Conclusions

- EV-D68 not new
- EV-D68 is being identified in more specimens than expected
- Increased respiratory illnesses not all EV-D68, though EV-D68 appears to be a predominant identification in some locations
- Spectrum of illness needs more investigation

For more information please contact Centers for Disease Control and Prevention

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