Kentucky State
Hepatitis A Outbreak Update for Clinicians

Doug Thoroughman, PhD, MS

March 18, 2019
Agenda

• Welcome – Dr. Jeffrey Howard, MD, KY Commissioner of Health
• Overview of the Outbreak and Related Topics
  Dr. Doug Thoroughman, PhD, MS, Acting State Epidemiologist
  • Background
  • Epidemiology Updates
  • Reporting Requirements
  • High-Risk Populations
  • Vaccination Efforts
  • Laboratory Specimens
  • Public Messaging
  • Available Resources

• Q & A - All
Disclaimer for Dr. Thoroughman

The findings and conclusions in this presentation are those of the author and do not necessarily represent the official position of the Centers for Disease Control and Prevention.
Background
Hepatitis A Refresher

• Communicable disease of the liver
• Caused by hepatitis A virus (HAV)
• Fecal-oral transmission
• Average incubation is 28 days (range: 15-50 days)
  Time from exposure to symptom onset
• Infectious 2 weeks before symptoms start until 1 week after jaundice begins
• Usually resolves within 2 months of infection – No chronic infection
• Vaccine preventable, hand-washing preventable

A transmission electron micrograph of a small cluster of hepatitis A virus ribonucleic acid (RNA).

Adapted from CDC/Betty Partin, 1976, retrieved from https://phil.cdc.gov
Nationwide Outbreak

• August, 2016 – Michigan outbreak begins
  • Mostly in Detroit area
  • Homeless, drug users, incarcerated
  • Duration: 2.5 years

• November, 2016 – San Diego outbreak begins
  • Largely homeless
  • Duration: 1 year 11 Months

• March, 2017 – CDC begins assisting states

• June, 2017 – Utah outbreak begins
  • Mostly in Salt Lake City
  • Duration: 1 year 4 months

• August, 2017 – CDC Notifies states of ongoing outbreak

• August, 2017 – Kentucky outbreak begins
Hepatitis A Cases, by County
May 2018

Number of cases
- 1
- 2 - 5
- 6 - 10
- 11 - 20
- 21 - 60
- 61 - 119
Epidemiology Updates
KY17-089 Outbreak Background

• 10-year average of hepatitis A in KY: 20 cases/year
• October 2017 - Hepatitis A cluster investigation: Louisville
• Outbreak declared November 2017
  ▪ 27 outbreak-associated cases
    o 2 cases with molecular evidence of outbreak strain occurring in CA and UT
• Risk factors of cases match that of CA, UT, MI outbreaks (i.e., illicit drug use and homelessness)
• Person-to-person spread
  • No contaminated food source identified
• School entry requirements started in the 2018-19 school year
Outbreak Statistics (through March 9)

• Total Cases: **4,336**
  - 2017: 59
  - 2018: Approximately 3,500
  - 2019: Approximately 750
  - New cases this week: 38

• Number of counties with cases: 104 (87% of KY counties)

• Hospitalizations: 2,084 (48%)

• Deaths: 44 (1%)

• Median Age: 36 years, Range: 1-88

• HAV genotype testing
  - 613 Genotype IB
    • Most CA Cluster A
Date of onset has been reported for 75.2% (or 3452/4336) of cases.
KY17-089 Epi-Curve of Outbreak-Associated Cases by MMWR Week, August 1, 2017 - March 9, 2019

* MMWR weeks are based on date of specimen collection.
KY17-089 Timelapse Animation of Incidence of Outbreak-Associated Acute Hepatitis A Cases by County, August 1, 2017 - February 23, 2019

Incidence per 100,000
- 0.00
- Less than 10.00
- 10.00 - 49.99
- 50.00 - 99.99
- 100.00 or Greater

Time: 08/27/2017
KY17-089 Incidence of Outbreak-Associated Acute Hepatitis A Cases by County, August 1, 2017 - March 9, 2019

Incidence per 100,000
- 0.00
- Less than 10.00
- 10.00 - 49.99
- 50.00 - 99.99
- 100.00 or Greater

The KY incidence rate is 97.3 per 100,000.
Note: Rates calculated from numerators less than 20 may not be reliably used to determine trends.
Recent Decreasing Incidence

KY17-089 Incidence of Outbreak-Associated Acute Hepatitis A Cases by County, November 1, 2018 - November 30, 2018

Incidence per 100,000
- 0.00
- Less than 10.00
- 10.00 - 49.99
- 50.00 - 99.99
- 100.00 or Greater

KY17-089 Incidence of Outbreak-Associated Acute Hepatitis A Cases by County, December 1, 2018 - December 31, 2018

Incidence per 100,000
- 0.00
- Less than 10.00
- 10.00 - 49.99
- 50.00 - 99.99

KY17-089 Incidence of Outbreak-Associated Acute Hepatitis A Cases by County, January 1, 2019 - January 31, 2019

Incidence per 100,000
- 0.00
- Less than 10.00
- 10.00 - 49.99
- 50.00 - 99.99
- 100.00 or Greater

KY17-089 Incidence of Outbreak-Associated Acute Hepatitis A Cases by County, February 1, 2019 - February 28, 2019

Incidence per 100,000
- 0.00
- Less than 10.00
- 10.00 - 49.99
Kentucky – A Tale of Two Outbreaks

• Louisville outbreak
  • Began August, 2017
  • Identified October, 2017
  • Outbreak declared November, 2017
  • Experienced vast majority of cases until March 2018
  • Very low incidence by November, 2018 (only 16 cases since early Nov.)
  • Will most likely still experience cases due to statewide influence
  • But duration is closer to 1 year 3 months

• Statewide spread
  • Most early cases in other counties linked back to Louisville
    • Prisoner transfers out of Louisville
    • Substance abuse treatment programs referrals out of Louisville
  • Increased incidence per county more widespread around March 2018
  • Currently about a year into this phase
KY17-089 Outbreak-Associated Acute Hepatitis A Cases, by Date of Specimen Collection, August 1, 2017 to March 9, 2019 *

Number of Cases

MMWR Week

Jefferson
Non-Jefferson
Kentucky in the National HAV Picture

- Kentucky first to experience rapid spread in rural areas
  - Primarily due to prevalence of drug-use in rural areas
  - Appalachian region hardest hit – WV experienced same
  - Kentucky a “home-rule” state (LHD’s independent)
    - First to deal with widespread response in this environment
    - KY faced steep learning curve to respond to the HAV outbreak in this setting
- Does Kentucky have the worst HAV outbreak nationally?
  - Yes, in raw numbers per state – 4,336 to date
  - No, in incidence (cases per population)
    - Kentucky – 97.3/100,000
    - West Virginia – 131.73/100,000 (2,441 cases)
  - No, in mortality rate (# deaths/# cases identified)
    - Kentucky – 1% mortality (44/4336)
    - Michigan – 3% mortality (28/913)
    - San Diego – 3% mortality (20/592)
Reporting Requirements
Reporting Requirements

• In accordance with 902 KAR 2:020 (http://www.lrc.ky.gov/kar/902/002/020.pdf), healthcare providers should report the diagnosis of cases of acute hepatitis A within 24 hours to either the local or state health department. Local health departments should report cases of acute hepatitis A to the state health department within 24 hours*. 

• Must have an IgM in order to count as case, NOT Total Antibody

• Counties need bilirubin levels and LFTs to classify cases so please include those in medical reports to health departments

* New in 2015
Case Investigation

• December 12, 2017 Clinician Guidance Letter
  • Guidance still active
  • If hepatitis A infection is strongly suspected:
    • Notify Local Health Department (LHD)
    • Obtain proper specimens for testing
    • Administer 1-page questionnaire to identify risk factors

• What does LHD do?
  • Investigates to determine possible prevention measures
    • Identify exposed persons
    • Offer post-exposure prophylaxis when warranted
  • Targets risk groups identified for vaccination

• Most important as outbreak wanes
  • Identify additional cases
  • Determine ongoing extent of outbreak
  • Discover any new groups outbreak is affecting
High-Risk Populations
# Risk Factors

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>Number of Cases Reporting Risk Factor (n=3,504)**†</th>
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</thead>
<tbody>
<tr>
<td>Homeless Only</td>
<td>55 (1.6%)</td>
</tr>
<tr>
<td>Illicit Drug Use Only</td>
<td>2,501 (71%)</td>
</tr>
<tr>
<td>Illicit Drug Use and Homeless</td>
<td>283 (8.1%)</td>
</tr>
<tr>
<td>No Outbreak-Related Risk Factors</td>
<td>665 (19%)</td>
</tr>
</tbody>
</table>

* Risk factor information is unavailable for 832 (19.2%) of all outbreak-associated cases.
† The categories below do not add up to the total number in this count due to other possible risk factor combinations not shown in the table.
# At this point in the outbreak, MSM is no longer considered an outbreak-related risk factor. Percentages in this table may have changed due to removing MSM from risk factor combinations.
^ 35 MSM cases have been reported. Of those, 11 have reported no other risk factors.
Who Is at Risk Overall?

• People who use illegal drugs, injection and non-injection
• Homeless people
• Men who have sex with men (MSM)
• People with chronic liver disease
• Travelers to countries where HAV is endemic
• People with close contact with an international adoptee during first 60 days of arrival to US
• People with blood clotting disorders
• People who work with HAV-infected nonhuman primates or with HAV in a research laboratory
Vaccination Efforts
Primary Vaccination Strategies

• Reaching high-risk population where they come:
  • Hospital Emergency Departments
  • Correctional facilities (State and County)
  • Syringe Exchange Programs
  • Substance abuse treatment facilities (residential and outpatient)
  • Medically-assisted therapy providers
  • Homeless shelters
  • Faith-based outreach programs

• Must sustain our efforts to end the outbreak

• Long-term goal: ongoing vaccination of high-risk individuals
  • Hepatitis A is preventable
  • High-risk people are also at higher risk for poor outcomes with hepatitis A
    • Often hepatitis C and/or B positive
    • Other liver damage (e.g., alcoholic cirrhosis)
All Doses of Adult Hepatitis A Vaccine Administered and Reported to the Statewide Immunization Registry (KYIR)
Cases of hepatitis A in Kentucky Jails
Nov 1, 2017 to Dec 6, 2018

69% of counties with jails had a case with a recent history in their facility

19.1% of all outbreak-associated cases report a recent incarceration
Vaccination and Cases of hepatitis A in Kentucky Jails

Nov 1, 2017 to Dec 6, 2018

50% of counties with jails are working with local health officials to vaccinate inmates

- County with no jail
- County where at least one case was recently incarcerated
- County with local cooperation to vaccinate inmates
Private Stock Vaccine

• DPH Emergency Funds - $2.2 Million
• Local Health Department Funds
• Vaccination providers – Walgreens, Kroger, CVS, etc.
• Targeting those at risk and others seeking vaccination against Hepatitis A
317 Vaccine Use for Vaccine Preventable Disease (VPD) Outbreak Situations

• Federal purchase of vaccines to vaccinate those 19 years of age and older.
• 317-purchased vaccine is directed towards meeting the needs of priority populations; those underinsured and uninsured.
• **Priority** should be taken to prevent and/or contain an outbreak among identified **at-risk** populations.
• 317 vaccine funds **may** be used to vaccinate fully insured individuals seeking vaccines during public health outbreak responses.
• Screening for insurance status is not required during an outbreak, but is recommended. The screening process **should not** be a barrier to vaccination.
317 Vaccine Use for Vaccine Preventable Disease (VPD) Outbreak Situations

• As with all vaccines, 317 vaccine must be properly stored and handled, and doses used must be properly documented.

• Doses must be documented in the Kentucky Immunization Registry (KYIR).

• 317 vaccine may be administered by any trained vaccinator.

To learn more about becoming a 317 provider, please contact Julie Miracle or Ida Taylor with the Kentucky Department for Public Health’s Immunization Branch at 502-564-4478.
### 317 Funding increases for 2018 and 2019 for HepA outbreak

<table>
<thead>
<tr>
<th>Budget Amount</th>
<th>Funding Increase</th>
<th>Budget Period</th>
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<tbody>
<tr>
<td>$350,200.00</td>
<td>317 Limit Adjustment - HepA Outbreak</td>
<td>2019</td>
</tr>
<tr>
<td>$282,800.00</td>
<td>317 Budget Adjustment - Redistribution</td>
<td>2018</td>
</tr>
<tr>
<td>$332,160.00</td>
<td>317 Budget Adjustment- Redistribution</td>
<td>2018</td>
</tr>
<tr>
<td>$174,924.00</td>
<td>317 Limit Adjustment – HepA Outbreak</td>
<td>2018</td>
</tr>
<tr>
<td>$103,960.73</td>
<td>317 Limit Adjustment - HepA Outbreak</td>
<td>2018</td>
</tr>
<tr>
<td>$146,039.27</td>
<td>317 Limit Adjustment - HepA Outbreak</td>
<td>2018</td>
</tr>
</tbody>
</table>
Hepatitis A Vaccine during Outbreak Response
Frequently Asked Questions (FAQ)

• Should patients be screened for Hepatitis A risk factors during this outbreak?
The Kentucky Department for Public Health (KDPH) recommends universal screening of all patients during any office visit; i.e. family planning, STD/HIV testing or treatment, well or sick, etc.

• Universal screening should be done to identify and vaccinate high-risk patients during their visit. If the patient’s history includes any of the following risk factors, then vaccination should be provided:
  Persons who use injection and non-injection illicit drugs
  Persons who are homeless or in transient living conditions
  Persons who are or were recently incarcerated
  Men who have sex with men
  Persons with chronic liver disease, such as cirrhosis, hepatitis B or hepatitis C
  Person who are household or sexual contacts of the homeless or people who use drugs
Frequently Asked Questions (FAQ) - Continued

• Who is eligible to receive public vaccine during the hepatitis A outbreak?
  Use of public vaccine should be used for those who meet one of the risk factors listed above or those who have been exposed to hepatitis A.

  Patients >12 months and older who have been exposed to hepatitis A may also receive vaccine for post-exposure prophylaxis. To be effective, this must be administered within 2 weeks of exposure.

• What is the status of public vaccine availability?
  Although some vaccine supply constraints exist, providers are encouraged to order as much vaccine as necessary to cover high-risk patients and other individuals needing vaccination.

• Who can administer the vaccine?
  317 vaccine may be administered by any trained vaccinator.
Laboratory Specimens
Specimen Collection

If HAV is suspected:

• Collect two tubes of blood
  • One for initial IgM antibody test
  • Save the additional tube for testing if first specimen is positive
    • Separate serum from cells and freeze serum at -70C if possible
  • Forward additional serum to the Kentucky Division of Laboratory Services (DLS) once first positive comes back
    • To be used for:
      • Confirmatory testing
      • Genetic sequencing
      • To determine possible genetic linkages to other cases and national outbreaks

• Contact KY Division of Laboratory Services for information, shipping forms, additional guidance. [https://chfs.ky.gov/agencies/dph/dls](https://chfs.ky.gov/agencies/dph/dls)
Public Messaging
Prevention Messaging

• Vaccinate! Vaccinate! Vaccinate!
• Thorough handwashing (after using the bathroom or diapering an incontinent person, and before eating or preparing food)
• Avoid waters that may be contaminated with sewage
• Avoid raw or undercooked oysters or shellfish
• Practice safe sex
Available Resources
Resources Available to You

• KDPH Weekly Report - online
• Hospitals interested in providing targeted vaccination in their ED
  • KDPH can work with you and the local health department to knock down barriers!
• Funding
  • Federal 317 vaccine is available for adult, at-risk individuals
  • VFC Providers can easily enroll
• DPH Website
• CDC Hepatitis A Website
• CDC Hepatitis A Outbreak Website
KDPH Outreach Materials

• Health Advisories
  • Reporting regulations
  • HIPAA exemption
  • Vaccine information
  • Call for submission of laboratory specimens
  • Exposure questionnaire

• Educational materials
  • Substance abuse treatment facilities
  • Local correctional facilities
  • Behavioral Health facilities
  • Food service establishments
Questions and Answers
Thank You!