



Kentucky Department for Public Health

KY17-089 - Acute Hepatitis A Outbreak Weekly Report

Morbidity and Mortality Weekly Report (MMWR) Weeks 47 and 48, 2019

November 17, 2019 – November 30, 2019

Brief Description of Outbreak: In November 2017, the Kentucky Department for Public Health (DPH) identified an outbreak of acute hepatitis A. The increase in cases observed in Kentucky was well over the 10-year average of reported hepatitis A cases, and several cases have been infected with hepatitis A virus (HAV) strains genetically linked to outbreaks in California, Utah, and Michigan. Similar to hepatitis A outbreaks in other states, the primary risk factors have been illicit drug use and homelessness. A contaminated food source has not been identified, and HAV transmission is believed to have occurred through person-to-person contact. Below is a weekly and cumulative update on the outbreak. Please note that all data is preliminary and subject to change as additional reports are received.

In accordance with 902 KAR 2:020, cases of acute hepatitis A should be reported within 24 hours.

The case definition used for outbreak-associated acute hepatitis A cases is available upon request.

Unless otherwise noted, all data are reported by date of specimen collection.

Table 1: Summary of Outbreak-Associated Acute Hepatitis A Cases*

| Update for Week 47 and Week 48: | | | Total Case Counts: 8/1/2017 – 11/30/2019: | |
|---|---|---|---|---|
| Total number of new cases (n=5): | Week 47 (n=3) Probable - 2 Suspected - 1 | Week 48 (n=2) Probable - 1 Suspected - 1 | Total number of cases (n=4983): | Confirmed[^] - 868 Probable - 2755 Suspected - 1360 |
| Number of counties with new cases: | 3 | 2 | Total number of counties with cases: | 114 (95% of KY counties) |
| Number of Hospitalizations: | 1 | 1 | Total Number of Hospitalizations: | 2401 (48%) |
| Number of deaths Reported[†]: | 0 | 0 | Total number of deaths reported[†]: | 61 (1.2%) |
| Number of individuals with specimens submitted for genotyping where results are available: | 0 | | Number of individuals with specimens submitted for genotyping where results are available: | 912 (18%) |
| Number of cases with genotype IB among those with genotype testing: | 0 | | Total number of cases with genotype IB among those with genotype testing: | 851 (93% of those tested) |

* Cases are reported based on date of specimen collection.

[^] Cases are generally confirmed weeks after submission for testing, so will only be reflected in total case counts.

[†] Deaths are defined as any outbreak-associated acute hepatitis A case with documentation of hepatitis A as a contributing factor to the individual's death.

[#] Weekly death counts may appear artificially high due to delays in death certification.

Table 2: Cumulative Distribution of Cases by County

| KY17-089 Distribution Of Outbreak-Associated Acute Hepatitis A Cases, by County, August 1, 2017 – November 30, 2019*^# | | | | | |
|---|---------------------------------------|----------------------------------|---------------------------------|----------------------------------|---|
| County | Total number of cases reported | Number of confirmed cases | Number of probable cases | Number of suspected cases | Incident Rate per 100,000 population |
| Adair | 5 | 0 | 3 | 2 | 25.7 |
| Allen | 46 | 8 | 28 | 10 | 219.7 |
| Anderson | 25 | 0 | 18 | 7 | 110.9 |
| Ballard | 12 | 4 | 5 | 3 | 149.3 |
| Barren | 16 | 1 | 15 | 0 | 36.5 |
| Bath | 37 | 3 | 13 | 21 | 298.9 |
| Bell | 72 | 18 | 32 | 22 | 267.7 |
| Boone | 65 | 8 | 34 | 23 | 49.7 |
| Bourbon | 13 | 0 | 10 | 3 | 64.9 |
| Boyd | 176 | 104 | 44 | 28 | 366.8 |
| Boyle | 31 | 0 | 18 | 13 | 103.6 |
| Bracken | 6 | 0 | 4 | 2 | 72.6 |
| Breathitt | 30 | 1 | 22 | 7 | 231.7 |
| Bullitt | 64 | 33 | 22 | 9 | 79.8 |
| Butler | 11 | 2 | 5 | 4 | 85.7 |
| Calloway | 1 | 0 | 0 | 1 | 2.6 |
| Campbell | 69 | 3 | 56 | 10 | 74.6 |
| Carlisle | 1 | 0 | 1 | 0 | 20.6 |
| Carroll | 13 | 2 | 7 | 4 | 121.3 |
| Carter | 127 | 47 | 60 | 20 | 467.9 |
| Casey | 14 | 1 | 9 | 4 | 88.9 |
| Christian | 81 | 27 | 47 | 7 | 115.0 |
| Clark | 93 | 0 | 57 | 36 | 258.0 |
| Clay | 82 | 1 | 37 | 44 | 402.6 |

**KY17-089 Distribution Of Outbreak-Associated Acute Hepatitis A Cases,
by County, August 1, 2017 – November 30, 2019*^#**

| County | Total number of cases reported | Number of confirmed cases | Number of probable cases | Number of suspected cases | Incident Rate per 100,000 population |
|---------------|---------------------------------------|----------------------------------|---------------------------------|----------------------------------|---|
| Clinton | 15 | 2 | 11 | 2 | 146.0 |
| Crittenden | 3 | 0 | 1 | 2 | 33.0 |
| Cumberland | 4 | 0 | 4 | 0 | 59.6 |
| Daviess | 4 | 0 | 2 | 2 | 4.0 |
| Edmonson | 1 | 0 | 1 | 0 | 8.2 |
| Elliott | 24 | 4 | 4 | 16 | 319.0 |
| Estill | 26 | 1 | 20 | 5 | 182.1 |
| Fayette | 205 | 5 | 149 | 51 | 63.7 |
| Fleming | 4 | 0 | 0 | 4 | 27.7 |
| Floyd | 146 | 8 | 77 | 61 | 402.5 |
| Franklin | 58 | 1 | 43 | 14 | 114.9 |
| Gallatin | 9 | 3 | 4 | 2 | 102.6 |
| Garrard | 20 | 0 | 13 | 7 | 114.1 |
| Grant | 43 | 3 | 34 | 6 | 172.1 |
| Graves | 1 | 0 | 0 | 1 | 2.7 |
| Grayson | 30 | 2 | 25 | 3 | 113.8 |
| Green | 3 | 0 | 3 | 0 | 27.1 |
| Greenup | 62 | 31 | 19 | 12 | 174.6 |
| Hardin | 42 | 10 | 10 | 22 | 38.9 |
| Harlan | 44 | 18 | 16 | 10 | 164.7 |
| Harrison | 28 | 0 | 17 | 11 | 149.1 |
| Hart | 2 | 0 | 2 | 0 | 10.7 |
| Henderson | 1 | 1 | 0 | 0 | 2.2 |
| Henry | 14 | 4 | 8 | 2 | 87.5 |
| Hickman | 1 | 0 | 0 | 1 | 22.1 |

**KY17-089 Distribution Of Outbreak-Associated Acute Hepatitis A Cases,
by County, August 1, 2017 – November 30, 2019*^#**

| County | Total number of cases reported | Number of confirmed cases | Number of probable cases | Number of suspected cases | Incident Rate per 100,000 population |
|---------------|---------------------------------------|----------------------------------|---------------------------------|----------------------------------|---|
| Hopkins | 66 | 38 | 17 | 11 | 144.9 |
| Jackson | 22 | 1 | 11 | 10 | 163.8 |
| Jefferson | 663 | 316 | 233 | 114 | 86.0 |
| Jessamine | 62 | 0 | 40 | 22 | 116.2 |
| Johnson | 81 | 1 | 45 | 35 | 358.5 |
| Kenton | 124 | 14 | 90 | 20 | 75.0 |
| Knott | 38 | 2 | 24 | 12 | 248.5 |
| Knox | 108 | 7 | 66 | 35 | 345.9 |
| Larue | 3 | 0 | 1 | 2 | 21.1 |
| Laurel | 224 | 5 | 164 | 55 | 372.3 |
| Lawrence | 36 | 5 | 19 | 12 | 229.0 |
| Lee | 37 | 3 | 32 | 2 | 563.2 |
| Leslie | 38 | 1 | 32 | 5 | 367.7 |
| Letcher | 22 | 6 | 13 | 3 | 98.5 |
| Lewis | 26 | 1 | 15 | 10 | 194.9 |
| Lincoln | 39 | 2 | 24 | 13 | 159.5 |
| Livingston | 2 | 0 | 0 | 2 | 21.6 |
| Logan | 2 | 0 | 2 | 0 | 7.4 |
| Madison | 148 | 3 | 99 | 46 | 162.2 |
| Magoffin | 54 | 1 | 32 | 21 | 430.7 |
| Marion | 23 | 1 | 17 | 5 | 118.6 |
| Marshall | 3 | 0 | 1 | 2 | 9.6 |
| Martin | 41 | 0 | 29 | 12 | 358.0 |
| Mason | 26 | 1 | 17 | 8 | 151.4 |
| McCracken | 15 | 4 | 6 | 5 | 22.9 |

**KY17-089 Distribution Of Outbreak-Associated Acute Hepatitis A Cases,
by County, August 1, 2017 – November 30, 2019*^#**

| County | Total number of cases reported | Number of confirmed cases | Number of probable cases | Number of suspected cases | Incident Rate per 100,000 population |
|---------------|---------------------------------------|----------------------------------|---------------------------------|----------------------------------|---|
| McCreary | 33 | 1 | 22 | 10 | 188.9 |
| Meade | 12 | 1 | 1 | 10 | 42.6 |
| Menifee | 19 | 2 | 11 | 6 | 294.3 |
| Mercer | 41 | 1 | 25 | 15 | 190.5 |
| Metcalfe | 2 | 0 | 1 | 1 | 19.8 |
| Monroe | 2 | 1 | 0 | 1 | 18.8 |
| Montgomery | 94 | 10 | 61 | 23 | 336.6 |
| Morgan | 23 | 1 | 18 | 4 | 174.4 |
| Muhlenberg | 6 | 2 | 1 | 3 | 19.5 |
| Nelson | 19 | 4 | 6 | 9 | 41.6 |
| Nicholas | 2 | 0 | 0 | 2 | 28.1 |
| Ohio | 7 | 0 | 4 | 3 | 28.9 |
| Oldham | 18 | 4 | 9 | 5 | 27.1 |
| Owen | 13 | 0 | 11 | 2 | 120.8 |
| Owsley | 12 | 0 | 9 | 3 | 270.6 |
| Pendleton | 31 | 3 | 19 | 9 | 212.7 |
| Perry | 89 | 4 | 62 | 23 | 335.2 |
| Pike | 86 | 4 | 60 | 22 | 146.1 |
| Powell | 51 | 3 | 29 | 19 | 412.2 |
| Pulaski | 96 | 0 | 62 | 34 | 149.0 |
| Robertson | 1 | 0 | 1 | 0 | 46.9 |
| Rockcastle | 26 | 0 | 16 | 10 | 155.7 |
| Rowan | 49 | 5 | 28 | 16 | 199.9 |
| Russell | 3 | 0 | 2 | 1 | 16.9 |
| Scott | 33 | 0 | 21 | 12 | 60.1 |

**KY17-089 Distribution Of Outbreak-Associated Acute Hepatitis A Cases,
by County, August 1, 2017 – November 30, 2019*^#**

| County | Total number of cases reported | Number of confirmed cases | Number of probable cases | Number of suspected cases | Incident Rate per 100,000 population |
|-------------------------------|---------------------------------------|----------------------------------|---------------------------------|----------------------------------|---|
| Shelby | 27 | 10 | 14 | 3 | 56.9 |
| Simpson | 10 | 3 | 6 | 1 | 55.2 |
| Spencer | 8 | 3 | 4 | 1 | 43.2 |
| Taylor | 50 | 3 | 34 | 13 | 196.3 |
| Todd | 1 | 1 | 0 | 0 | 8.2 |
| Trigg | 4 | 2 | 2 | 0 | 27.7 |
| Trimble | 3 | 2 | 0 | 1 | 35.0 |
| Union | 3 | 0 | 2 | 1 | 20.5 |
| Warren | 44 | 10 | 25 | 9 | 34.1 |
| Washington | 9 | 0 | 6 | 3 | 74.2 |
| Wayne | 26 | 1 | 11 | 14 | 125.5 |
| Webster | 6 | 4 | 2 | 0 | 46.1 |
| Whitley | 201 | 15 | 103 | 83 | 555.0 |
| Wolfe | 26 | 0 | 18 | 8 | 357.9 |
| Woodford | 14 | 0 | 10 | 4 | 53.1 |
| Total Number of Cases: | 4983 | 868 | 2755 | 1360 | 111.9 |

* Cases are reported based on date of specimen collection.

^ Denotes a county where cases have not been previously identified.

As genotyping results become available, cases may be excluded if they do not meet the outbreak case definition. Cases in the following counties have been excluded from the outbreak case count this week: None.

Figure 1: Hepatitis A Vaccine Doses Administered, Public Health Versus All Other Providers, as Reported to the Kentucky Immunization Registry

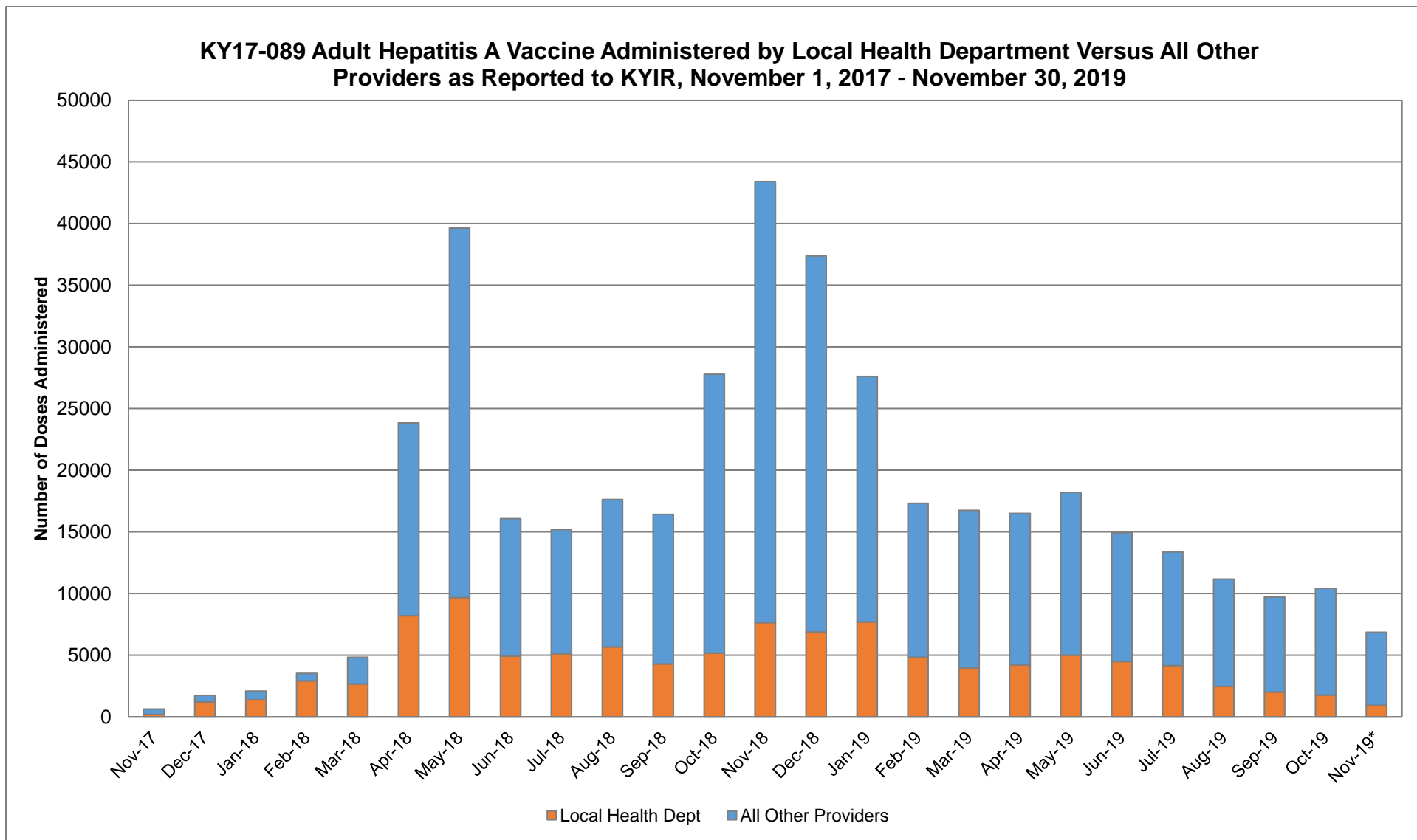
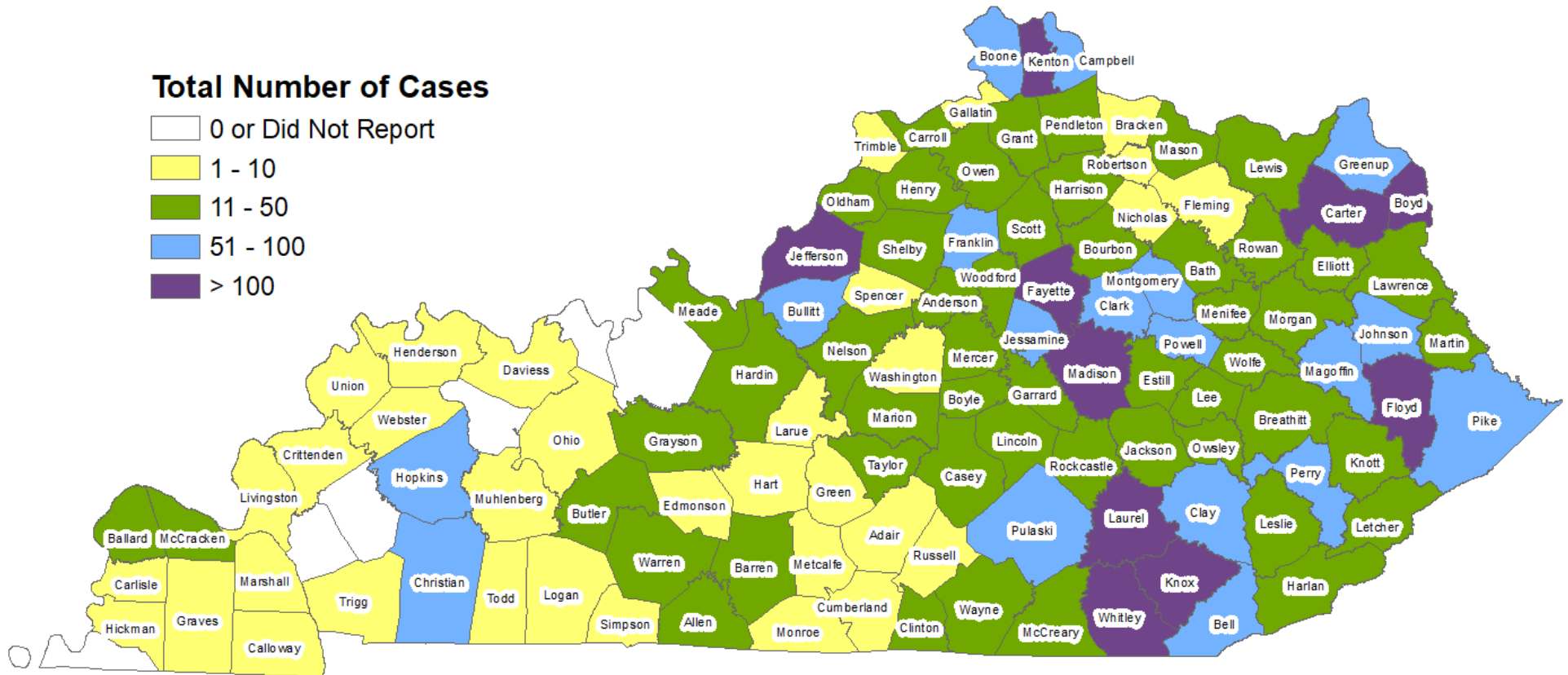


Figure 2: Geographic Distribution of Outbreak-Associated Cases by County

KY17-089 Distribution of Outbreak-Associated Acute Hepatitis A Cases by County, August 1, 2017 - November 30, 2019

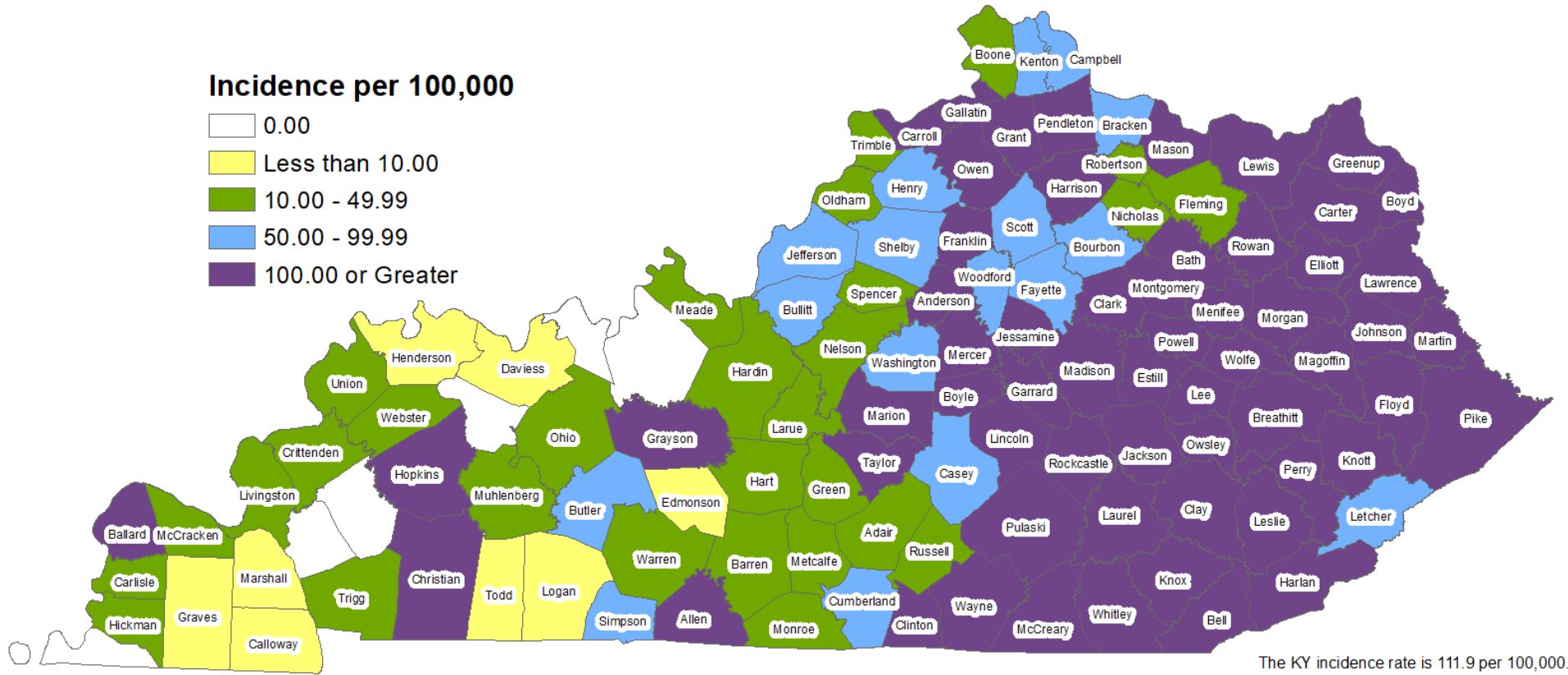


n = 114 counties with outbreak-associated cases

Counties where cases have not previously been identified: None.

Figure 3: Incidence of Outbreak-Associated Cases by County

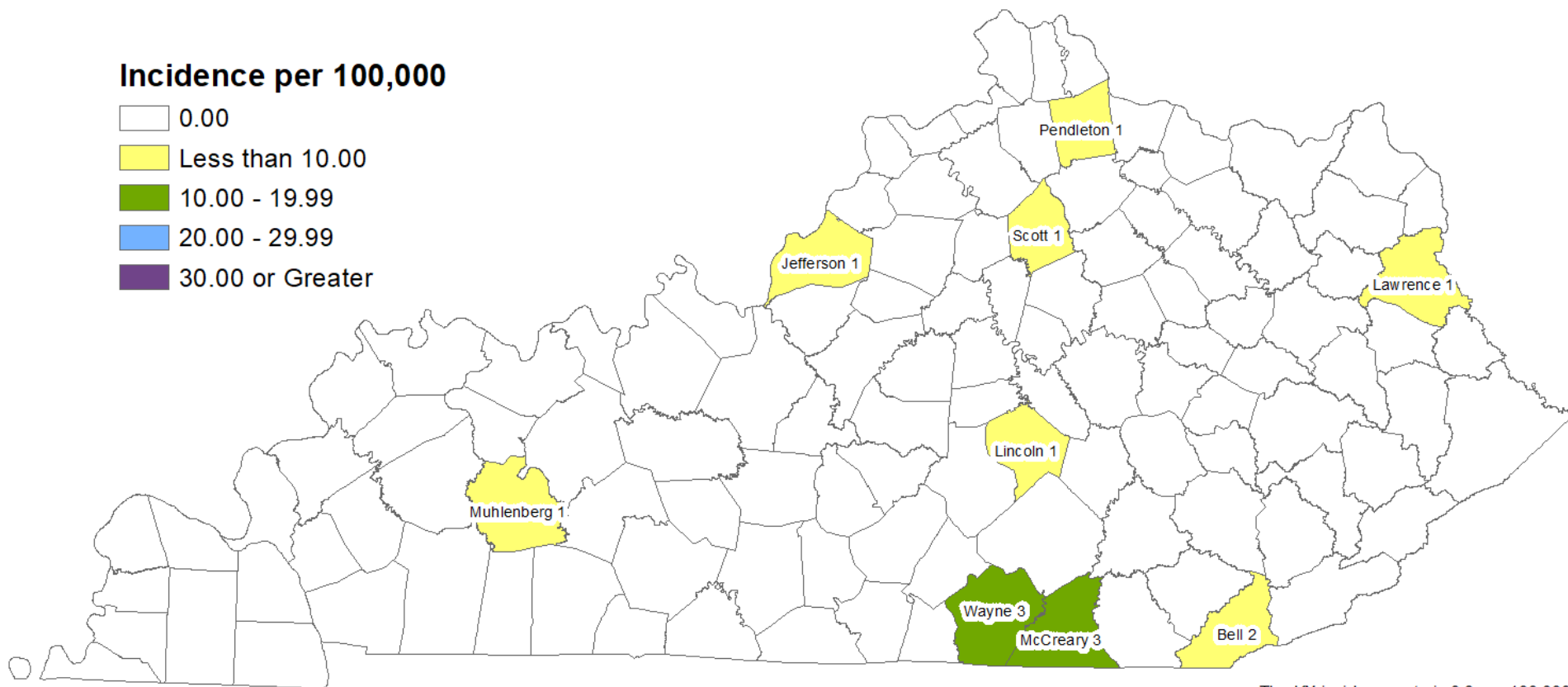
KY17-089 Incidence of Outbreak-Associated Acute Hepatitis A Cases by County, August 1, 2017 - November 30, 2019



The KY incidence rate is 111.9 per 100,000.
 Note: Rates calculated from numerators less than 20 may not be reliably used to determine trends.

Figure 4: Incidence and Distribution of Outbreak-Associated Cases in the Last 30 Days, by County

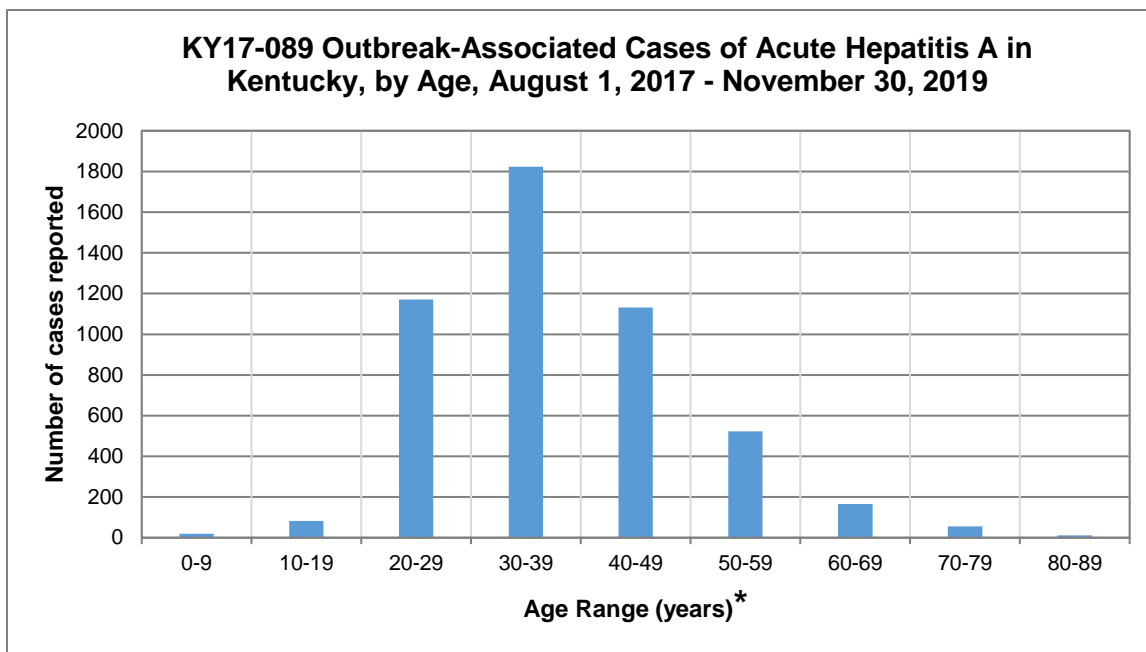
KY17-089 Incidence of Outbreak-Associated Acute Hepatitis A Cases by County*, October 31 - November 30, 2019



The KY incidence rate is 0.3 per 100,000.
Note: Rates calculated from numerators less than 20 may not be reliably used to determine trends.

*Case count for the last 30 days is displayed beside county name. Statewide outbreak-associated case count over the last 30 days is 14.

Figure 5: Outbreak-Associated Cases by Age



*The mean age of cases is 37.6 years, and the median age is 36.0 years.

Table 3: Frequent Risk Factors of Outbreak-associated Cases

| KY17-089 Risk Factors of Outbreak-Associated Acute Hepatitis A Cases, August 1, 2017 – November 30, 2019 ^{#^} | |
|--|---|
| Risk Factor | Number of Cases Reporting Risk Factor (n=3997) [*] |
| Homelessness + No/Unk Illicit Drug Use | 57 (1.4%) |
| Illicit Drug Use + No/Unk Homelessness | 2869 (72%) |
| Homelessness + Illicit drug use | 306 (7.7%) |
| No Outbreak-Related Risk Factors | 765 (19%) |

* Risk factor information is unavailable for 986 (19.8%) of all outbreak-associated cases.

The percentages in the table may add up to greater than 100 percent due to rounding.

^ 38 MSM cases have been reported. Of those, 12 have reported no other risk factors. MSM is not considered an outbreak-related risk factor.

Figure 6: Epidemic-curve (Epi-Curve) of Outbreak-Associated Cases, by Week of Specimen Collection

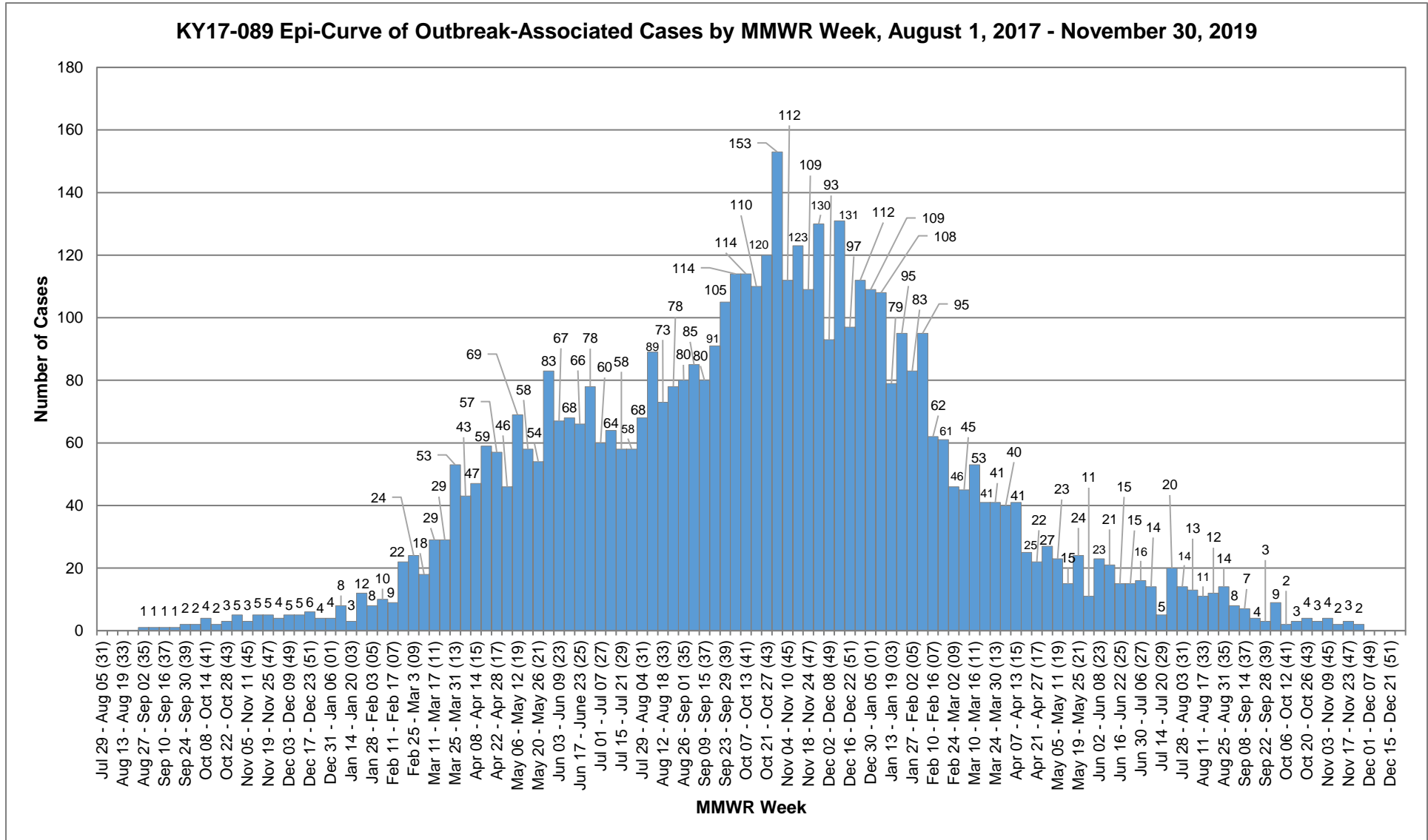
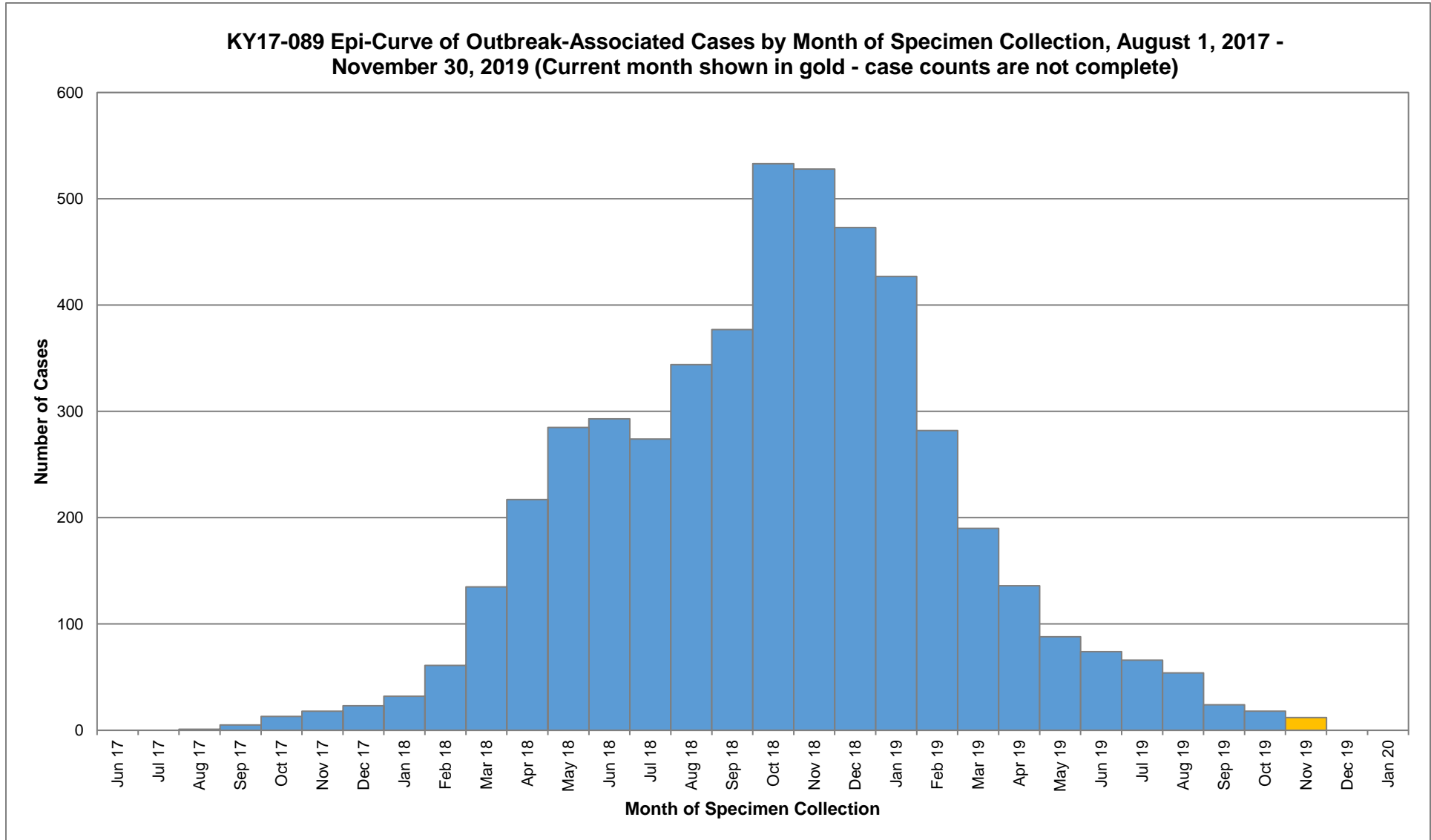


Figure 7*: Epidemic-curve (Epi-Curve) of Outbreak-Associated Cases, by Month of Specimen Collection



*Note: As of the report ending July 6, 2019, this figure will be based on date of specimen collection rather than date of onset to be consistent with other figures.

Figure 8: Case Count Comparison of Acute Hepatitis A cases, Jefferson County versus Non-Jefferson Counties

