



**Kentucky Department for Public Health**  
**KY17-089 - Acute Hepatitis A Outbreak Weekly Report**  
**Morbidity and Mortality Weekly Report (MMWR) Week 26, 2019**  
**June 23, 2019 – June 29, 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.

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

Update for Week 26:		Total Case Counts: 8/1/2017 – 6/29/2019:	
<b>Number of new cases (n=10):</b>	<b>Confirmed<sup>^</sup> - 0 Probable - 8 Suspected - 2</b>	<b>Total number of cases (n=4766):</b>	<b>Confirmed<sup>^</sup> - 693 Probable - 2746 Suspected - 1327</b>
<b>Number of counties with new cases:</b>	<b>7</b>	<b>Total number of counties with cases:</b>	<b>109 (91% of KY counties)</b>
<b>Number of individuals with specimens submitted for genotyping where results are available:</b>	<b>0</b>	<b>Number of individuals with specimens submitted for genotyping where results are available:</b>	<b>737 (15.5%)</b>
<b>Number of cases with genotype IB among those with genotype testing:</b>	<b>0</b>	<b>Total number of cases with genotype IB among those with genotype testing:</b>	<b>677 (92% of those tested)</b>
<b>Number of Hospitalizations:</b>	<b>0</b>	<b>Total Number of Hospitalizations:</b>	<b>2295 (48%)</b>
<b>Number of deaths Reported<sup>†</sup>:</b>	<b>0</b>	<b>Total number of deaths reported<sup>†</sup>:</b>	<b>58 (1.2%)</b>

\* Cases are reported based on date of specimen collection.

<sup>^</sup> Cases are generally confirmed weeks after submission for testing, so will only be reflected in total case counts.

<sup>†</sup> 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.

**Table 2: Cumulative Distribution of Cases by County**

<b>KY17-089 Distribution Of Outbreak-Associated Acute Hepatitis A Cases, by County, August 1, 2017 – June 29, 2019*^#</b>					
<b>County</b>	<b>Total number of cases reported</b>	<b>Number of confirmed cases</b>	<b>Number of probable cases</b>	<b>Number of suspected cases</b>	<b>Incident Rate per 100,000 population</b>
Adair	3	0	2	1	15.4
Allen	46	6	28	12	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	1	14	22	298.9
Bell	65	5	36	24	241.7
Boone	61	5	33	23	46.7
Bourbon	12	0	10	2	59.9
Boyd	173	101	44	28	360.6
Boyle	30	0	18	12	100.3
Bracken	6	0	4	2	72.6
Breathitt	30	1	22	7	231.7
Bullitt	64	32	23	9	79.8
Butler	11	0	7	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	12	2	7	3	112.0
Carter	127	43	62	22	467.9
Casey	12	1	7	4	76.2
Christian	76	14	51	11	107.9

**KY17-089 Distribution Of Outbreak-Associated Acute Hepatitis A Cases,  
by County, August 1, 2017 – June 29, 2019\*^#**

<b>County</b>	<b>Total number of cases reported</b>	<b>Number of confirmed cases</b>	<b>Number of probable cases</b>	<b>Number of suspected cases</b>	<b>Incident Rate per 100,000 population</b>
Clark	93	0	57	36	258.0
Clay	82	0	38	44	402.6
Clinton	2	0	1	1	19.5
Crittenden	2	0	1	1	22.0
Daviess	4	0	2	2	4.0
Edmonson	1	0	1	0	8.2
Elliott	23	4	4	15	305.7
Estill	15	0	13	2	105.1
Fayette	205	4	150	51	63.7
Fleming	4	0	0	4	27.7
Floyd	145	3	80	62	399.8
Franklin	57	1	43	13	112.9
Gallatin	8	0	5	3	91.2
Garrard	19	0	13	6	108.4
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	30	20	12	174.6
Hardin	41	10	10	21	37.9
Harlan	33	5	15	13	123.5
Harrison	26	0	15	11	138.4
Hart	2	0	2	0	10.7

**KY17-089 Distribution Of Outbreak-Associated Acute Hepatitis A Cases,  
by County, August 1, 2017 – June 29, 2019\*^#**

<b>County</b>	<b>Total number of cases reported</b>	<b>Number of confirmed cases</b>	<b>Number of probable cases</b>	<b>Number of suspected cases</b>	<b>Incident Rate per 100,000 population</b>
Henry	13	3	8	2	81.2
Hickman	1	0	0	1	22.1
Hopkins	35	6	22	7	76.8
Jackson	22	1	11	10	163.8
Jefferson	660	311	236	113	85.6
Jessamine	62	0	40	22	116.2
Johnson	81	0	45	36	358.5
Kenton	123	12	91	20	74.4
Knott	38	2	24	12	248.5
Knox	102	2	65	35	326.6
Larue	3	0	1	2	21.1
Laurel	224	3	165	56	372.3
Lawrence	29	3	17	9	184.5
Lee	36	1	33	2	547.9
Leslie	38	0	33	5	367.7
Letcher	13	0	11	2	58.2
Lewis	26	0	15	11	194.9
Lincoln	38	2	24	12	155.4
Logan	2	0	2	0	7.4
Madison	147	3	99	45	161.1
Magoffin	54	0	32	22	430.7
Marion	23	1	17	5	118.6
Marshall	3	0	1	2	9.6

**KY17-089 Distribution Of Outbreak-Associated Acute Hepatitis A Cases,  
by County, August 1, 2017 – June 29, 2019\*^#**

<b>County</b>	<b>Total number of cases reported</b>	<b>Number of confirmed cases</b>	<b>Number of probable cases</b>	<b>Number of suspected cases</b>	<b>Incident Rate per 100,000 population</b>
Martin	40	0	29	11	349.3
Mason	26	0	17	9	151.4
McCracken	15	4	6	5	22.9
McCreary	23	0	17	6	131.7
Meade	12	1	1	10	42.6
Menifee	18	0	11	7	278.9
Mercer	41	1	25	15	190.5
Metcalfe	2	0	1	1	19.8
Monroe	2	0	1	1	18.8
Montgomery	94	6	65	23	336.6
Morgan	23	1	18	4	174.4
Nelson	19	4	6	9	41.6
Nicholas	2	0	0	2	28.1
Ohio	6	0	3	3	24.8
Oldham	16	4	8	4	24.1
Owen	13	0	11	2	120.8
Owsley	12	0	9	3	270.6
Pendleton	28	2	18	8	192.1
Perry	88	2	63	23	331.4
Pike	81	0	60	21	137.6
Powell	48	0	30	18	387.9
Pulaski	90	0	60	30	139.6
Robertson	1	0	1	0	46.9

**KY17-089 Distribution Of Outbreak-Associated Acute Hepatitis A Cases,  
by County, August 1, 2017 – June 29, 2019\*<sup>^</sup>#**

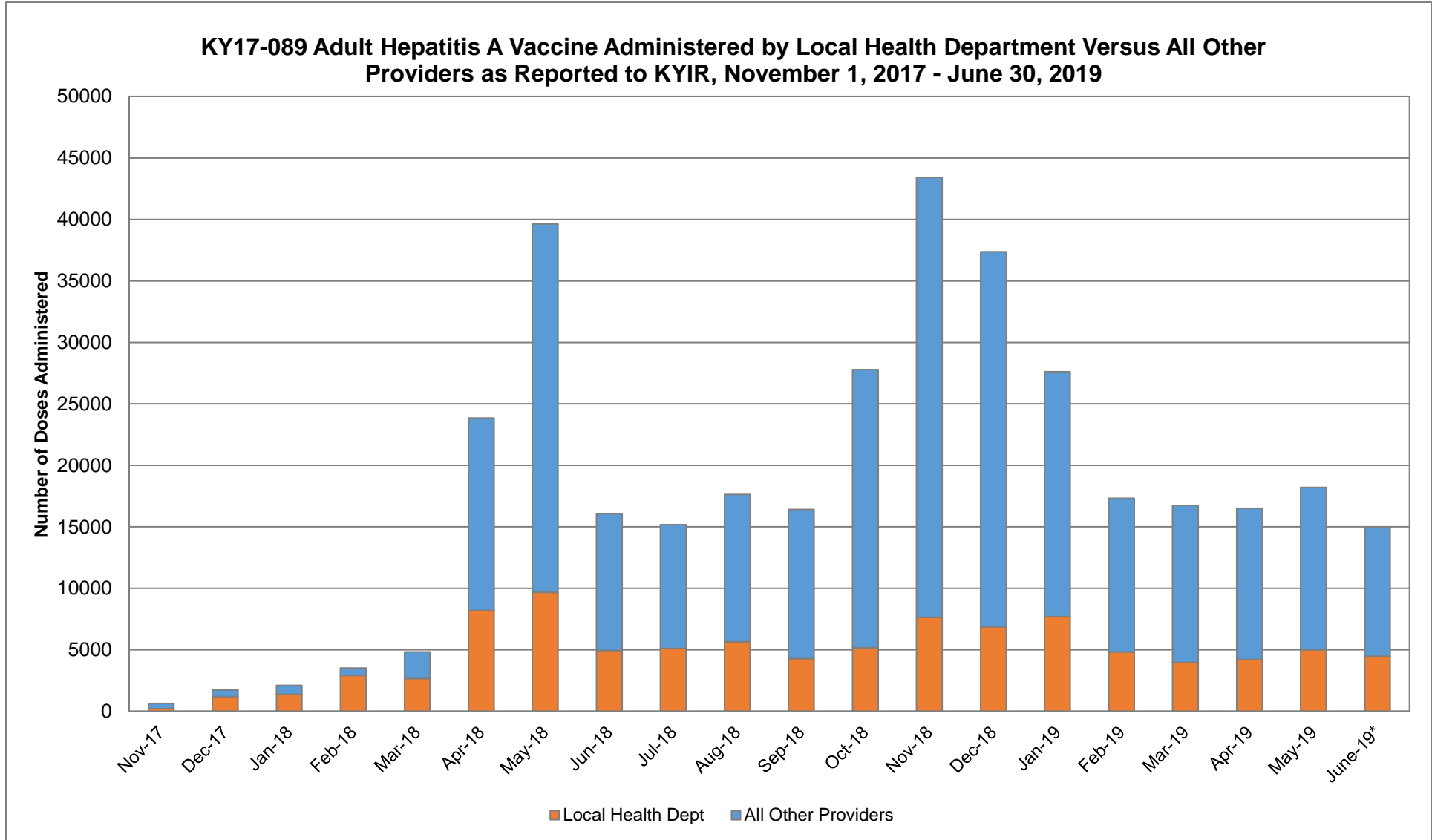
<b>County</b>	<b>Total number of cases reported</b>	<b>Number of confirmed cases</b>	<b>Number of probable cases</b>	<b>Number of suspected cases</b>	<b>Incident Rate per 100,000 population</b>
Rockcastle	25	0	15	10	149.7
Rowan	48	1	31	16	195.8
Russell	3	0	2	1	16.9
Scott	27	0	18	9	49.2
Shelby	26	9	14	3	54.8
Simpson	8	1	6	1	44.2
Spencer	8	3	4	1	43.2
Taylor	50	2	35	13	196.3
Todd	1	1	0	0	8.2
Trigg	4	0	4	0	27.7
Union	2	0	1	1	13.6
Warren	44	9	26	9	34.1
Washington	9	0	6	3	74.2
Wayne	7	1	2	4	33.8
Webster	3	2	1	0	23.0
Whitley	198	8	106	84	546.7
Wolfe	26	0	18	8	357.9
Woodford	14	0	10	4	53.1
<b>Total Number of Cases:</b>	<b>4766</b>	<b>693</b>	<b>2746</b>	<b>1327</b>	<b>107.0</b>

\* Cases are reported based on date of specimen collection.

<sup>^</sup> Denotes a county where cases have not been previously identified.

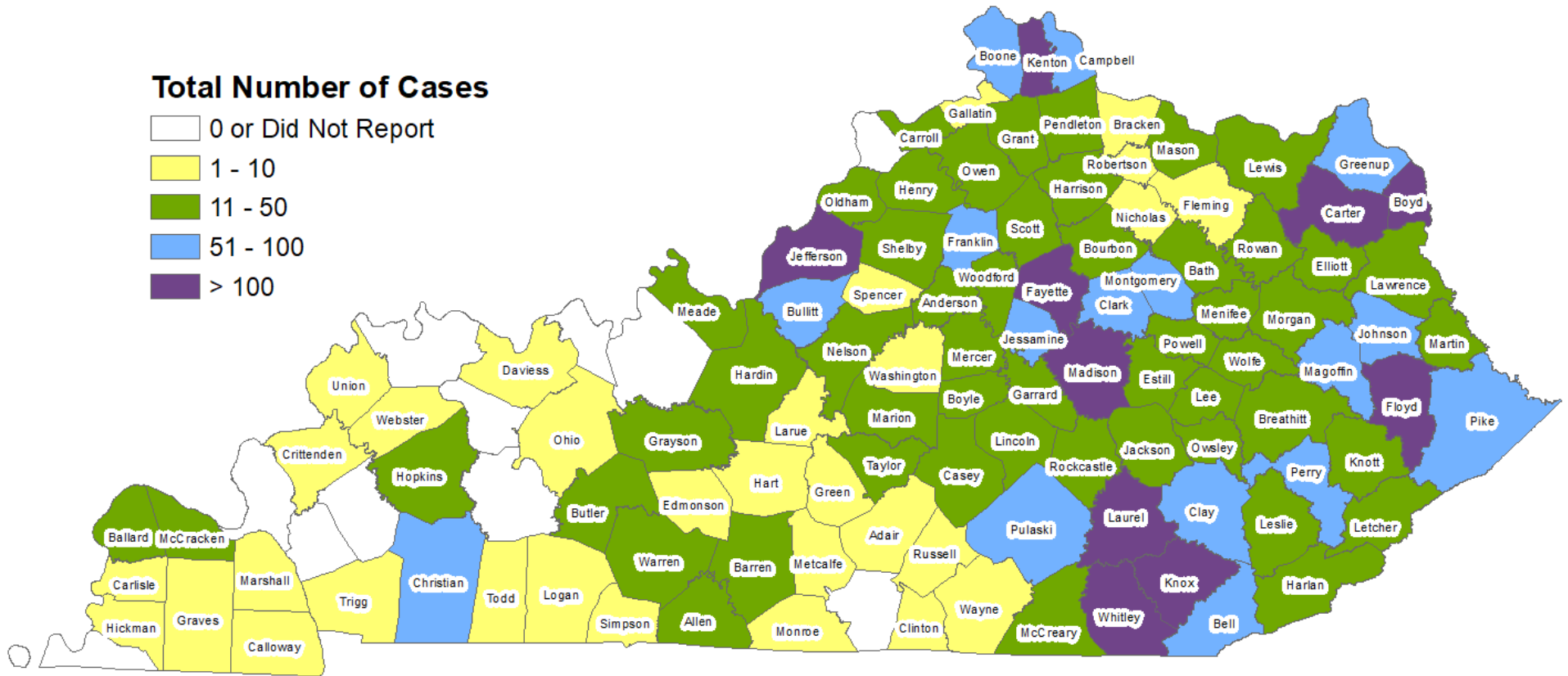
# As genotyping results become available, cases may be excluded if they do not meet the outbreak case definition. Cases in the following counties have been excluded from the outbreak case count this week: None.

**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 - June 29, 2019**



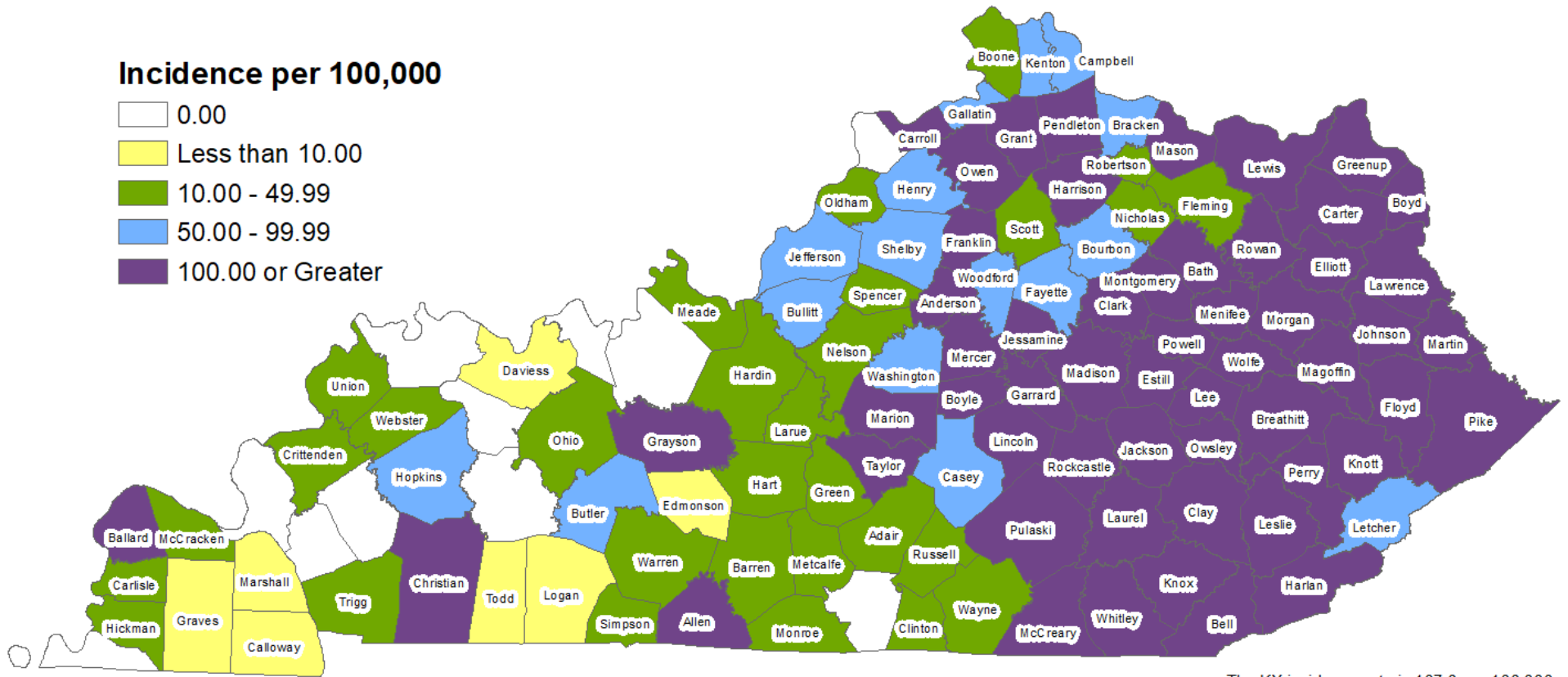
**n = 109 counties with outbreak-associated cases**

**Counties where cases have not previously been identified: None.**



Figure 3: Incidence of Outbreak-Associated Cases by County

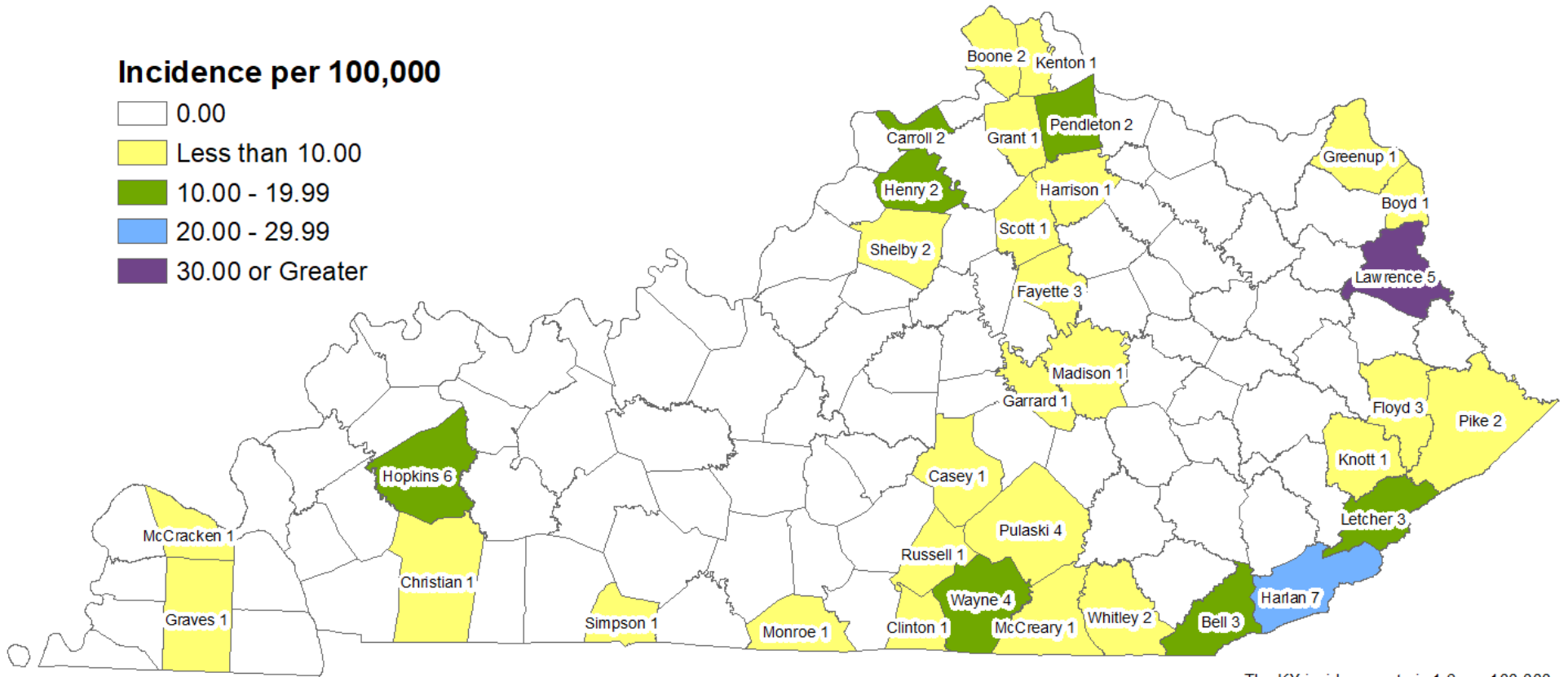
### KY17-089 Incidence of Outbreak-Associated Acute Hepatitis A Cases by County, August 1, 2017 - June 29, 2019



The KY incidence rate is 107.0 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**

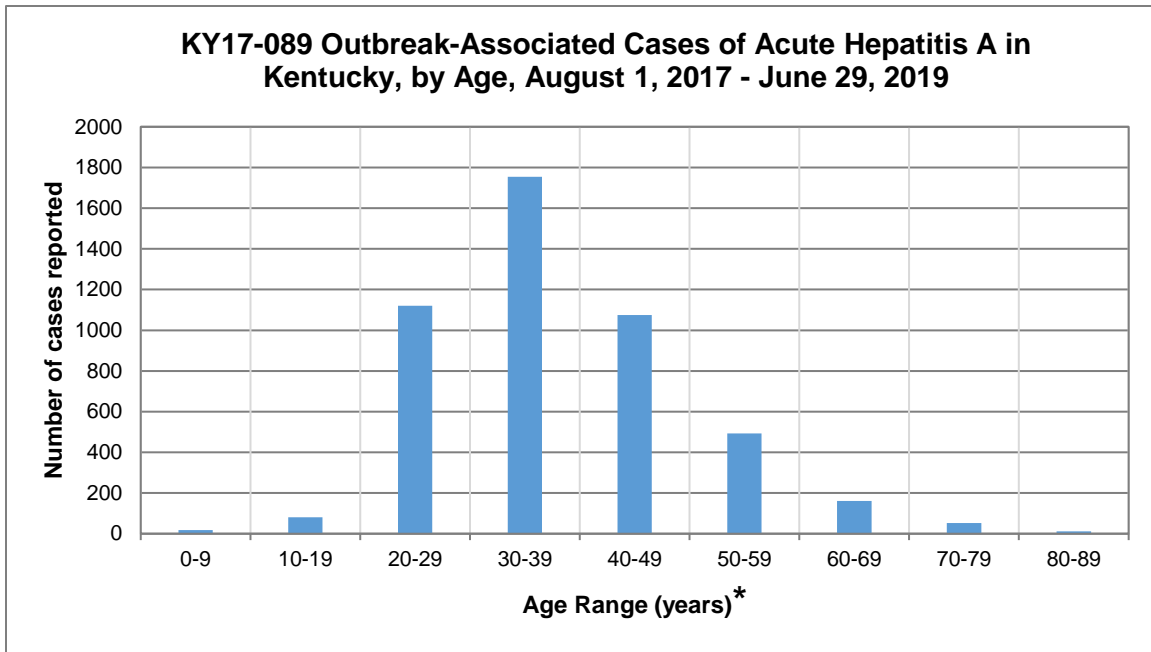
**KY17-089 Incidence of Outbreak-Associated Acute Hepatitis A Cases by County\*, May 30 - June 29, 2019**



The KY incidence rate is 1.6 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 70.

**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**

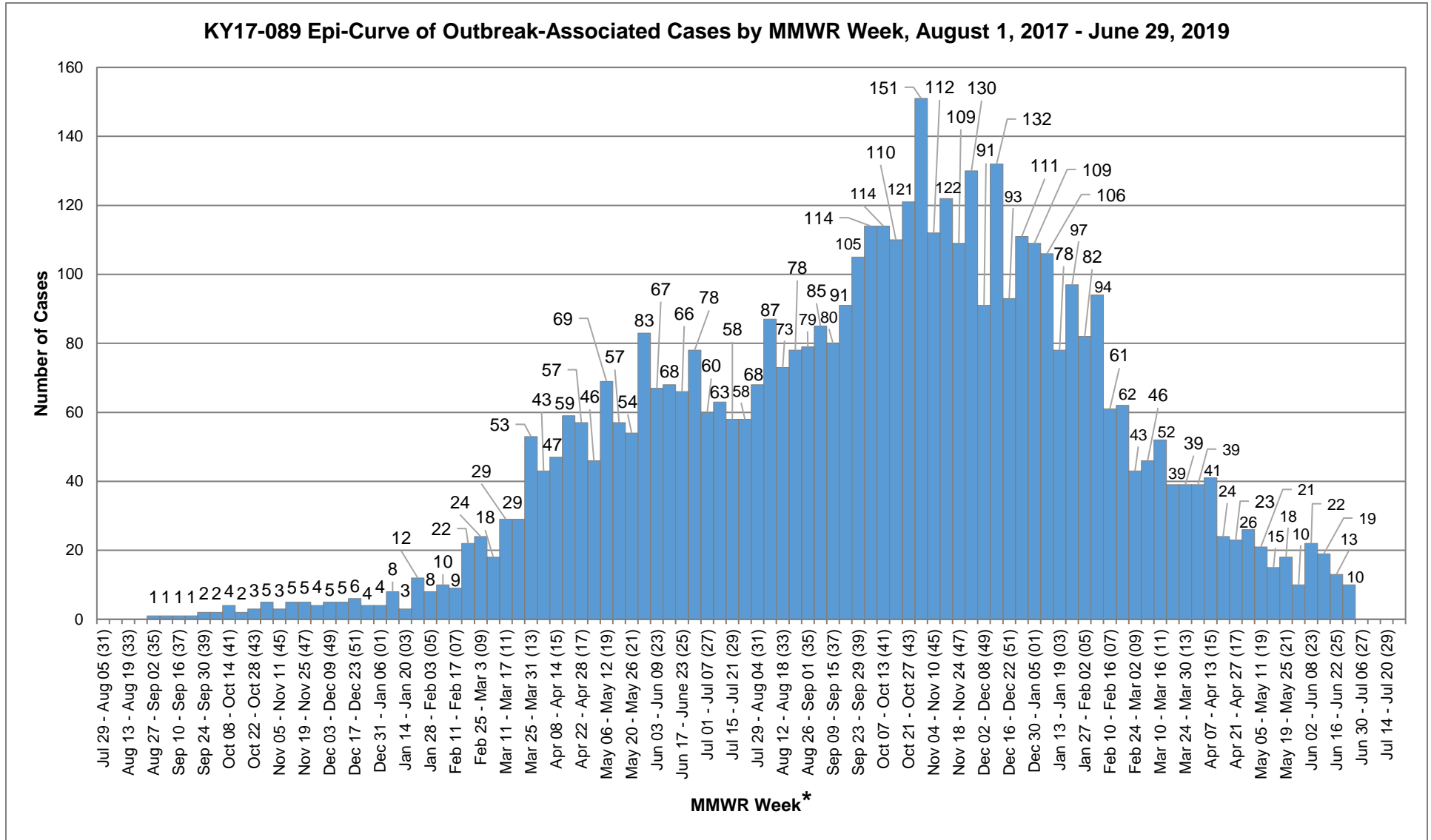
KY17-089 Risk Factors of Outbreak-Associated Acute Hepatitis A Cases, August 1, 2017 – June 29, 2019 <sup>#^</sup>	
Risk Factor	Number of Cases Reporting Risk Factor (n=3849) <sup>*</sup>
Homelessness + No/Unk Illicit Drug Use	57 (1.5%)
Illicit Drug Use + No/Unk Homelessness	2762 (72%)
Homelessness + Illicit drug use	299 (7.8%)
No Outbreak-Related Risk Factors	731 (19%)

\* Risk factor information is unavailable for 917 (19.2%) of all outbreak-associated cases.

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

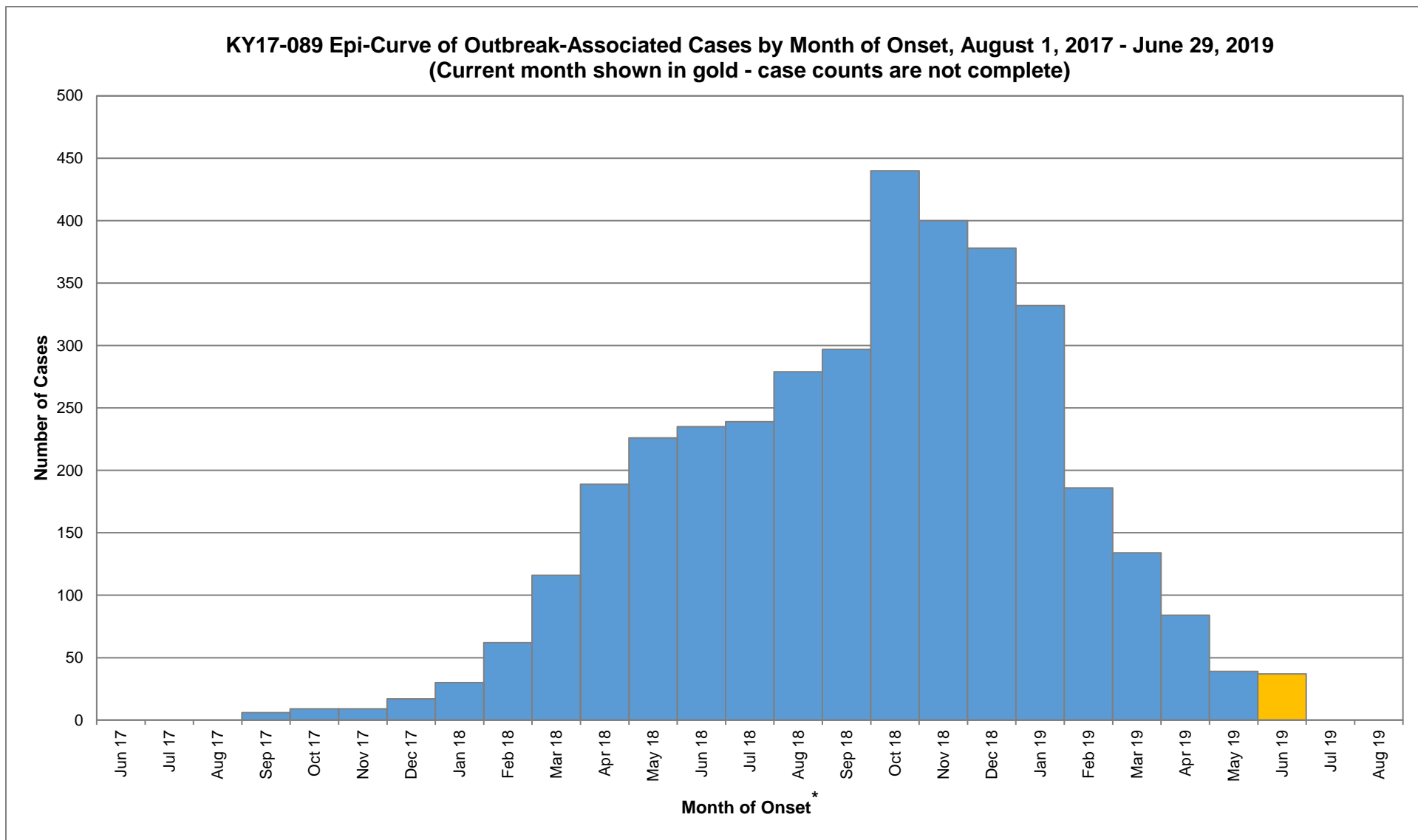
^ 36 MSM cases have been reported. Of those, 11 have reported no other risk factors. MSM is not considered an outbreak-related risk factor.

Figure 6: Epidemic-curve (Epi-Curve) of Outbreak-Associated Cases



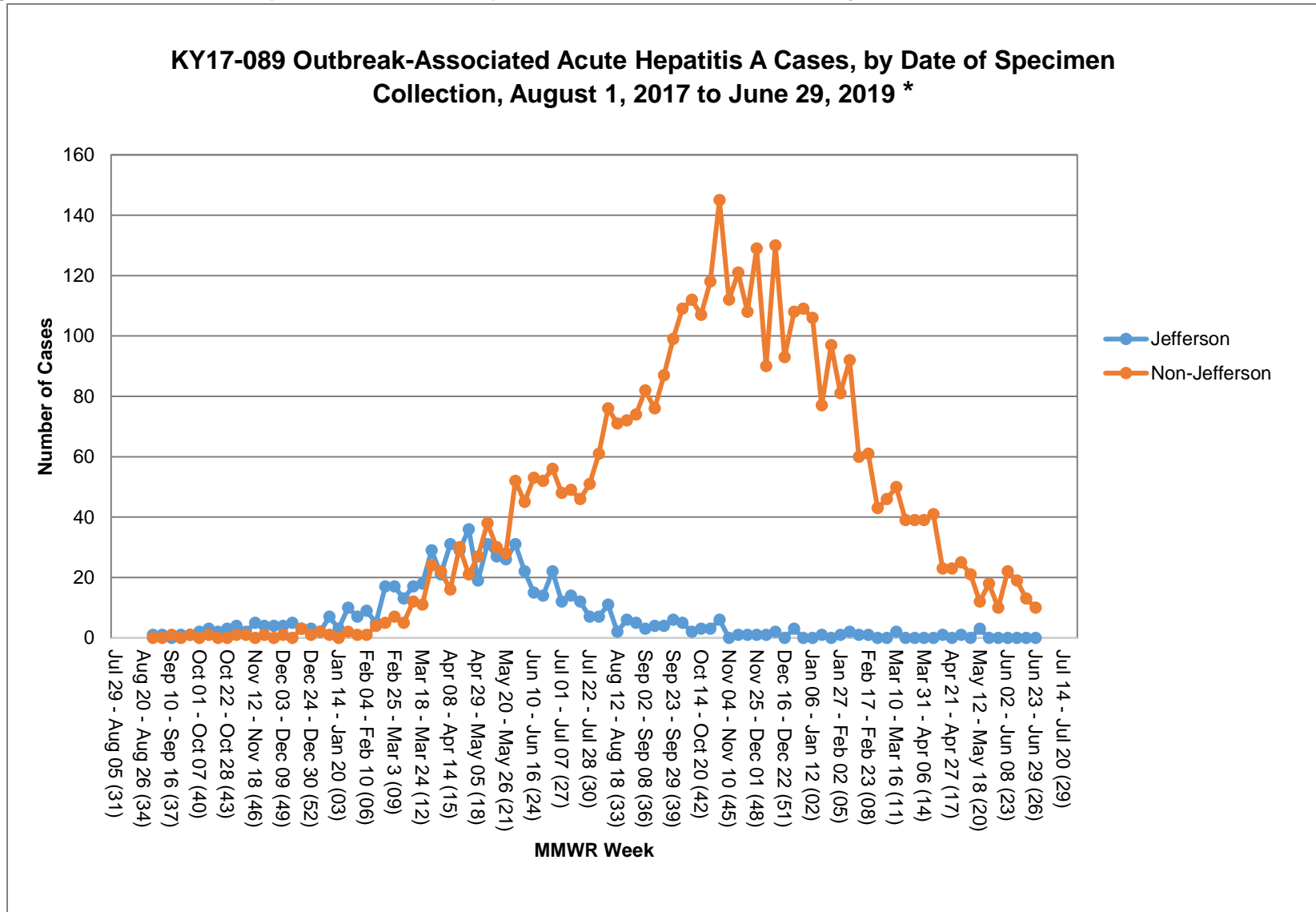
\* MMWR weeks are based on date of specimen collection.

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

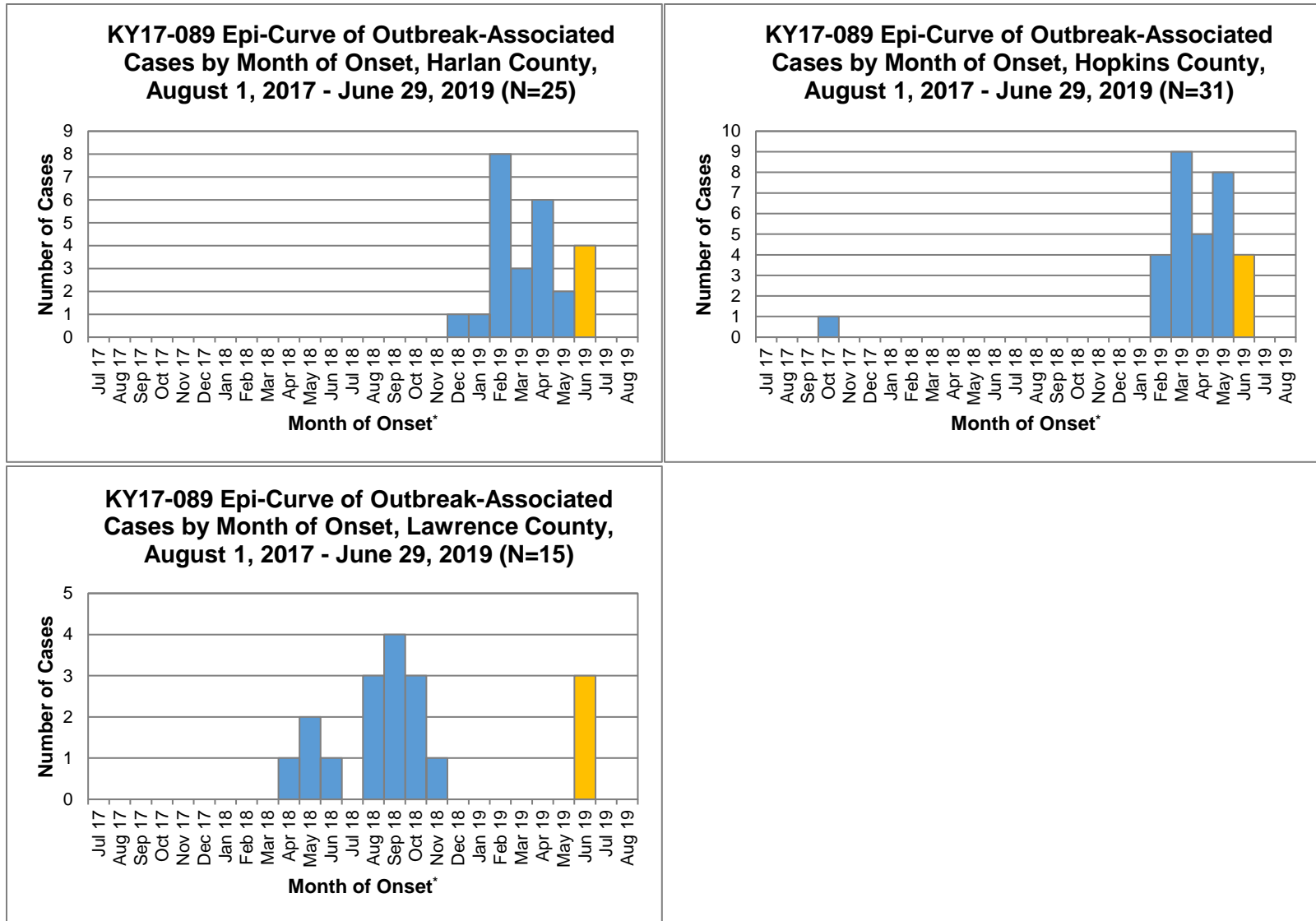


\* Date of onset has been reported for 78.6% (or 3744/4766) of cases.

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



**Figure 9-11: Epidemic-Curves (Epi-Curves) of Outbreak-Associated Cases in Counties with at least Five Reported Cases in the Last 30 days, by Month of Onset\* (Harlan, Hopkins, and Lawrence Counties)**



\*Some cases may not be represented in epi-curves due to some case onset dates not being reported.